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6-Step IONICS Method to Develop Enterprise Asset Risk Control Strategy for Enterprise Resource Wellness

Let a Plant Wellness Way EAM System-of-Reliability End Your Business Risks Forever

The 6-Step 'Plant Wellness Way EAM System-of-Reliability' methodology is more that DMAIC and more than using ISO 55001. It does not seek acceptable failure rates; its objective is **total failure elimination from your operation**.

In this strategy, your enterprise would be viewed through lenses of increasing magnification. The view at the highest level is the overall value stream map. Each high-level map comprises your company's key activities, so the second level view is each individual activity. Each activity comprises many resources (tools, instruments, equipment, operators, materials, work products, etc.) so the third level view is each individual resource. Finally, each resource comprises many components, so the fourth level view is for each component. An appropriate risk abatement analytical procedure would be applied to a specific level with the requirement that a given procedure must be capable of producing a zero-failure rate. Such enterprise risk control procedures would include Process Optimization, an ACE 3T Quality Management System, and equipment reliability analysis.

Your business operating risk assessment starts with the overall Value Stream Map and drills down through successive levels (*maps, individual map activities, resources within each activity and components within each resource*) for a coordinated four level attack on risk. Analytical procedures capable of achieving zero failure rates are required; examples include but are not limited to:

Analytical Procedure	**Level**
PROCESS OPTIMIZATION	**Process**
ACE 3T QUALITY MANAGEMENT	**Activity**
MAINTENANCE AND RELIABILITY ANALYSIS	**Resource**
OPTIMAL RELIABILITY	**Component**

However, without integrated implementation, analytical procedures may: (1) bottleneck at difficult internal stages, (2) lack coordinated risk abatement between levels, (3) fail to balance accomplishment rate between levels and (4) lack controllability. "PWW EAM System-of-Reliability" Methodology integrates the implementation of analytical procedures by conducting each one against the backdrop of **IONICS**, a 6-Step matrix management methodology: **I**dentify risks, **O**rder by importance, **N**umerate options, **I**ntroduce solutions, **C**ontrol processes, and **S**ynthesize new ideas.

Internal stages of important analytical procedures

1) Multilevel Process Maps

Process Optimization

- Flowchart maps for processes, material, information, and personnel flow.
- Gather a range of historic performance data.
- Develop distribution curves of data.
- Establish performance indicators.
- Reengineer processes and procedures for utmost reliability.
- Capture real-time performance data and trends.

2) ACE Quality Management System (processes, procedures, activities)

ACE 3T QMS

- Set clear and precise work quality standards for each activity – The Precision Principle.
- Create a **A**ccuracy **C**ontrolled **E**nterprise (ACE) by imposing 3T - **T**arget, **T**olerance and **T**est – requirements when doing tasks.
- Improve each activity until work quality standards are met; Error-Proof when possible.
- Develop and use Standard Operating Procedures (SOP) for each activity.
- Ensure each SOP allows personnel with average skills to achieve high quality results.
- Train and re-train personnel to follow the SOPs for each activity.
- Create parallel paths (e.g. operator, inspector and supervisor) for critical activities.
- Make sure functionality of each parallel path ensures functionality of activity.
- Harmonize progress by 6-Step matrix management.

3) Maintenance and Reliability (tools, instruments, equipment, operators, work products)

P-M Analysis

- Clarify phenomenon.
- Conduct physical analysis.
- Identify generative conditions.
- Study 4M’s for causal factors (machine, man, material, method).
- Set optimal conditions and standards.
- Survey causal factors for abnormalities.
- Identify abnormalities to be addressed.
- Propose and make improvements.
- Harmonize progress by 6-Step matrix management.

4) Optimal Reliability

Resource Components

- Focus on problem components identified by P-M Analysis.
- Identify actions to abate component Risk = (Consequence)(Opportunity)(1 - Reliability).
- Simplify component arrangement and minimize series configurations.
- Optimize exchangeable component arrangements.
- Increase component reliability and safety factor.
- Use parallel or standby redundancy.
- Employ condition monitoring.
- Utilize Predictive Maintenance with Precision Maintenance Principles.

- Harmonize progress by 6-Step matrix management.

The 6-Step methodology is used to achieve a coordinated four level attack on operational risk. Each step of IONICS produces a variety of business risk strategies and procedures to be implemented at the business, activity, resource, and component levels to solve your operational risk, production plant and equipment reliability problems.

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