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SMARTPLANT® ENTERPRISE FOR OWNER OPERATORS REQUIREMENTS MANAGEMENT AND TRACEABILITY (RMT) SOLUTION

The Hexagon PPM SmartPlant® Enterprise for Owner Operators (SPO) Requirements Management and Traceability (RMT) Solution stores, tracks, and relates requirements, design, and licensing bases and other plant documentation for complex process plant projects and operating plants.

RMT originated in the highly regulated nuclear and life science industries, for which regulatory authorities require that plant designers and owners demonstrate compliance with all applicable laws, regulations, standards, and specifications, whether for proposed capital projects or in existing operating plants. Other process industries, such as conventional power, chemicals, and oil and gas, are increasingly recognizing the need for RMT because of:

- Increasing levels of regulation coming into force
- More stringent auditing and penalties being imposed by regulators
- The growing cost and complexity of process plants
- Increasing globalization and number of stakeholders and their associated requirements
- Implementation of more rigorous process safety and asset integrity programs

THE POWER OF INTEGRATION

The SPO RMT solution leverages the power gained from integrating requirements, commitments, and the engineering design basis into a common database. The SPO RMT solution is integrated with the SPO Core solution that manages the plant engineering design basis. This tightly integrated environment provides a direct "line of sight" between each requirement and the affected plant systems, structures, and components (SSCs) and associated documentation. Users can quickly and easily assess the impact of change in either the plant design or requirements.

DECOMPOSING DOCUMENTS INTO INDIVIDUAL REQUIREMENT ITEMS

A key component of the SPO RMT solution is a document decomposer. Subject matter experts can use the tool to identify discrete requirements within the body of a requirements document. The text representing a requirement within a source document is highlighted. The solution automatically assigns a unique requirement identification number based on a configurable numbering scheme. Associated properties, such as requirement type and description, are also assigned.

A document may include many different requirements, such as:

- Performance requirements
- Safety requirements
- Functional requirements
- Environmental requirements
- Regulatory requirements

The SPO RMT document decomposer can accept a document in any format that can be converted into a Rich Text Format (RTF file, including Microsoft® Word and structured PDF files). The document decomposer also helps users identify changes within a subsequent version of a requirements document so they can more easily find and identify requirements that have changed.

By leveraging the inherent workflow engine of SPO, candidate requirements can be captured and put into a workflow for review and approval by others. This allows requirements identification to be delegated to multiple team members and final review and approval conducted separately as a two-step authentication process.

Design specification documents can also be decomposed in the same way as requirements documents. This helps users select individual commitments that can be related against identified requirements. SPO RMT enables users to link requirements, commitments, and the engineering design basis. This provides traceability and promotes requirement status tracking and fulfillment.

MANAGING CHANGE STRATEGICALLY

Change is constant during the life of any process or power plant. Regulatory requirements, engineering designs, physical equipment, and supporting documentation are all in a constant state of flux.

To trace how requirements are satisfied, avoid duplication, and analyze the impact of changes, SPO RMT creates and manages relationships between stakeholder requirements and the relevant, technical design criteria within design basis specifications. Both requirements and design criteria are then related to SSCs to provide traceability all the way through to the operating asset in the plant. By using powerful relationships, users are not faced with problematic "file not found" errors that are associated with linking technology. Further, the relationships have definitions and behaviors and provide additional context for the user. Relationship definitions permit the tracking of one object, file, or document as being dependent upon or as an input to another. A requirement may yield a commitment that results in a design calculation, the output of which could be an input for a design basis document, for example. The design basis document is dependent on the preceding calculations, which themselves resulted from a commitment to a requirement. Traceability through dependencies is crucial for proving compliance. This provides the basis for Hexagon PPM to support the implementation of proprietary or evolving industry taxonomy structures such as the Electric Power Research Institute (EPRI) Plant Information Model. Hexagon PPM is an active participant in the EPRI Advanced Nuclear Technology initiative.

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These relationships can be used to analyze the impact of changes to source requirements documents or even to identify where an "orphaned" requirement exists, i.e., a requirement that has not been addressed. This dramatically improves the validity of change impact analyses and reduces the time and effort needed to find the right information among the thousands of SSCs and millions of documents with supporting information.

SPO RMT users can choose to manage the review, approval, and implementation cycle of change to the engineering design basis by optionally using SPO Project Execution for the CAPEX phase or SPO Operating Plant for the OPEX phase of the plant cycle.

REGULATORY COMPLIANCE FOR OPERATIONAL SAFETY AND RELIABILITY

Regulatory compliance demands that plant or project personnel continuously document, analyze, trace, prioritize, resolve, and control.

It is difficult to manage change and keep a paper trail that will withstand regulatory scrutiny. Traceable requirements management is at the heart of this need. Hexagon PPM gives you the ability to build in workflows based on your work processes and procedures. The SPO RMT workflow engine helps keep your processes transparent and provides a permanent record for auditable verification by regulatory authorities.

BENEFITS

- Manage requirements and engineering design basis seamlessly in a single, integrated environment
- Identify and manage the fulfillment of requirements regulations, standards, laws, and other documents identifying stakeholder requirements
- Generate fast and easy breakout of requirements and commitments in documents
- Provide immediate visibility on the impact of changes
- Track and report on requirement status and easily locate "orphaned" requirements
- Identify gaps and non-fulfillment of stakeholder requirements
- Track requirements against the evolving engineering design basis during project work
- Perform follow-up on all requirements and gain auditable traceability throughout the plant lifecycle
- Provide demonstrable compliance to regulatory authorities for the management of requirements

ABOUT HEXAGON

Hexagon is a global leader in digital solutions that create Autonomous Connected Ecosystems (ACE). Our industry-specific solutions create smart digital realities that improve productivity and quality across manufacturing, infrastructure, safety and mobility applications.

Hexagon's PPM division empowers its clients to transform unstructured information into a smart digital asset to visualize, build and manage structures and facilities of all complexities, ensuring safe and efficient operation throughout the entire lifecycle.

Hexagon (Nasdaq Stockholm: HEXA B) has approximately 20,000 employees in 50 countries and net sales of approximately 3.5bn EUR. Learn more at hexagon.com and follow us @HexagonAB.