Asset Analysis

Improving asset and unit performance requires focus, technical know-how, and the ability to demonstrate Return on Investment (ROI) for asset recommendations. Operational Sustainability, LLC® has developed an Asset Analysis Module for Reliability and Systems Engineers to conduct important studies in a structured, repeatable, and leveraged manner through the OESuite™ software platform.

The Asset Analysis Module includes three primary analysis features: Asset Criticality, Corrosion Control Documentation, and Lifecycle Cost. The recommendations and results of these analyses deliver strategic interoperability that allows the insights to be utilized in other OESuite modules, with line of sight back to the technical basis.

Module Features

The analyses offered through the Asset Analysis Module provide a consistent workflow of preparation, study, recommendation, review, and closure. Practitioners and management can then work together, using the same data and results to prepare objectives, and report progress toward those objectives through KPIs.

**Figure 1 – Asset Analysis list**

<table>
<thead>
<tr>
<th>Entity</th>
<th>System</th>
<th>Study #</th>
<th>Title</th>
<th>Status</th>
<th>Completion Date</th>
<th>Type</th>
</tr>
</thead>
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<tr>
<td>Unit ES</td>
<td>Reactor</td>
<td>2019-CDD-012</td>
<td>Corrosion Control Diagram - Reactor 1</td>
<td>Study In Progress</td>
<td></td>
<td>CC/DDM Analysis</td>
</tr>
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<td>Reactor</td>
<td>2019-CRT-032</td>
<td>Criticality: Reactor 1</td>
<td>Study In Progress</td>
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<td>Criticality</td>
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<tr>
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<td>Reactor</td>
<td>2019-CC-201</td>
<td>Reactor 2</td>
<td>Completed</td>
<td>5/14/2019</td>
<td>Life Cycle Cost</td>
</tr>
</tbody>
</table>

**Asset Criticality Analysis Feature**

Asset Criticality Analysis is an initial, fundamental step in a reliability journey. By performing an Asset Criticality Analysis, companies can focus the right resources on the right assets.

Examples of how Asset Criticality can be used include:

- Reliability-Centered Maintenance (RCM), Failure Modes and Effects (FMEA), strategy templates, and Preventive Maintenance (PM) optimization for rotating, electrical, and other mechanical equipment
- Risk-Based Inspection (RBI) studies for fixed or static equipment
- Layers of Protection Analysis (LOPA) for instrumentation, safety, and control loops
- Spares optimization to drive stocking levels
- Work management and maintenance backlog priorities
Asset Criticality can be performed in two ways:

- A risk matrix-based approach of likelihood and consequence with industry-specific perspectives (e.g., Safety, Environmental, Operational, etc.)
- A configurable series of Q&A criteria with weights and scores leading to an overall criticality; the risk matrix can be configured to match your corporate standard if desired

To accelerate the process, Criticality can be performed top down by Unit, then System, then Asset, with downward inheritance, and the ability to adjust individual items as appropriate.

**Corrosion Control Documentation (CCD) / Integrity Operating Window (IOW) Analysis Feature**

In process environments where corrosion, cracking, and erosion are only a few of the possible failure mechanisms, proper analysis and mitigation are critical for business continuity. The **CCD / IOW Analysis Feature** (see Figure 3) is designed to guide teams through this type of study leading to inspection, non-destructive examination, and process monitoring strategies to prevent the loss of containment.

The **OESuite CCD / IOW Analysis** identifies the assets, asset components, damage mechanisms, documents, material specifications, and other necessary components that tie to process streams with fluid operating conditions. Studies can be performed at a Unit level, with all loops identified. Potential IOWs are suggested based on damage mechanisms, asset priorities are assigned, and then IOW tags can be selected for monitoring.

Recommendations are made by the study team and the “manage as” type is assigned (see Figure 4). Once confirmed, the recommendations can spawn action items and other management system records to ensure completion and implementation.
Figure 3 – CCD / IOW Analysis

Figure 4 – CCD / IOW Recommendation Management
Asset Analysis

Lifecycle Cost Analysis (LCA) Feature

Reliability and System Engineers must recommend actions to repair and replace assets and systems to maximize the life expectancy of the facility and protect the profits and jobs it represents. To assist with getting the recommendations approved and implemented, LCA is a valuable tool. Competition for value-maintaining capital will be intense against other initiatives in the company, so an LCA translates the engineer’s needs into the financial language of the company.

For each LCA, basic financial parameters are defined (e.g., analysis period, number of periods, depreciation method, interest rate, tax rates, escalation rates and discount rate). The heart of the analysis are the scenarios, where the engineer can compare and contrast a scenario’s Net Present Value (NPV), Total Cost Of Ownership (TCO), and, if revenue is specified, the Internal Rate of Return (IRR). Each scenario contains the expected cash flow by category and by period. The NPV, TCO, and IRR are calculated, so the engineer can choose and recommend the most financially valuable strategy.

Figure 5 – Life Cycle Cost Analysis

Return on Asset Analysis

Asset Criticality provides a relative ranking of assets to help your organization focus its Asset Performance Management efforts (e.g., failure elimination, preventive maintenance optimization) and prioritize your facility’s maintenance backlog when choices must be made.

A CCD / IOW analysis enables your organization to allocate inspection and NDE resources in the most effective manner. As process or equipment conditions change, informed decisions are easily supported.

Finally, LCA will ensure the most valuable recommendations are approved and implemented, based on real-time, specific data from your facility’s assets.
The OS Asset Analysis solution provides higher availability at lower cost and risk to your facility, leading to well-managed assets and informed asset-related decisions. Claim a significant competitive advantage through the OESuite™ Asset Analysis Module.

**OESuite™ Integrations**

The **Asset Analysis Module** integrates with these OESuite™ features and modules:

- Document Management / Redlining
- Alarm Management
- Integrity Operating Windows (IOW)
- Management of Change
- CAPA / Action Item Management
- Work Management / CMMS / EAM
- Inventory Management
- Reliability Centered Maintenance (RCM)
- Risk-Based Inspection (RBI)

For more information email us at info@DrivingOE.com or call (713) 355-2900.
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