

PRODUCT APPLICATION

Technology Announcement - STORM for the Process Industry Sector

Introduction

Clockwork Solutions is proud to announce STORM – a risk-based stochastic modeling platform specifically tailored for the process industries. STORM is a layered application that is based on Clockwork's proprietary, Monte Carlo, system modeling technology, SPAR™.

STORM Benefits

A STORM model can help answer questions such as:

- What is the risk of implementing new or upgraded designs?
- What is the cost/benefit of implementing alternative strategies from a reliability standpoint?
- What design optimizes unit performance for increased reliability?
- What is the optimal tradeoff between CAPEX and OPEX costs?
- Where does tankage need to be added to increase reliability and where can it be eliminated?
- What is the optimal balance between spare parts and preventative maintenance?
- What is the effect of individual unit reliability on the performance of upstream and downstream units?
- What is the capability of individual units to boost production?



STORM Inputs

Easily configurable to any process plant design and user-specified process flows, unit yields, and product slate; STORM allows a user to construct an integrated plant-wide, reliability-based model that can predict and optimize the future performance of a process plant and its associated life cycle costs.

Process plant performance is affected by the process design and operating conditions, including redundancy, and the individual process equipment with its associated failure characteristics and repair times. In addition, process plant performance is also dependent on factors such as support policies and processes that control the equipment's use, maintenance (and consequently, effectiveness of repair), and lead times for maintenance, spare parts, transportation, and the costs attributed to all of these characteristics. A STORM model rigorously

captures all of these factors in a comprehensive risk-based simulation model that can be used to accurately predict future plant performance.

STORM considers the utilization of each unit: including

- Intrinsic unit availability
- Ability of upstream units to provide feed
- Ability of downstream units to accept product

STORM Outputs

STORM outputs include time-based and average expected production of individual product streams and the probability of achieving that production. STORM then uses this data on individual units to calculate equipment criticality, which is a quantitative measure of equipment impact on overall production.

Other STORM outputs include:

- Availability
- Tank levels
- Occurrence of tank full and empty events
- The effect of individual unit reliability on the performance of upstream and downstream units, and on individual product streams
- Capability of units to boost production
- Impact of product storage
- Influence of seasonal and market constraints



Contact:

Email: info@clockwork-solutions.com

Website: www.clockwork-solutions.com