Next Generation Alarm Management
With DynAMo Alarm and Operations Management

Tyron Vardy
Tyron Vardy

- Product Director for Advanced Solutions
- Specialized in Alarm and Operations Management for over 20 years

- Former Engineering Manager
- Former Product Manager

- Implemented Alarm Management Solutions Globally
  - (Upstream, Refining, Oil and Gas, Chemicals, Power, Nuclear)

- Alarm Management Consultant for Advanced Solutions

- Based in Nottingham, England
  (Home of Robin Hood and Men in Tights)
Introductions

DynAMo Man?
Agenda

- **Alarm Management**
  - Honeywell’s Award Winning DynAMo Solution
  - Innovative Smart Reporting

- **Operations Management**
  - Next Generation Addition to the DynAMo Portfolio
    - Operations Monitoring
      - Safe Operating Limits and Production Envelopes
      - Integrity Operating Windows
    - Operations Logbook
      - Workflow Integration with Secure Shift Handovers

- **Integration with Honeywell’s New Mobility App**
  - Driving *true* Situational Awareness

- **DynAMo Alarm and Operations Management**
  - One Platform, One Interface, One Solution
DynAMo Alarm Management

Turning noise into knowledge through effective Alarm Management

Metrics & Reporting
Documentation & Enforcement
Alerts & Notifications
DynAMo Alarm Management

**Primary Drivers**
- Regulatory Compliance
- Alarm Reporting
- Predicting Abnormal Situations
- Safety

**Secondary Drivers**
- Operator Guidance
- Reduction in Trips
- Increased Availability
- Faster Recovery from Abnormal Situations

**Tertiary Drivers**
- Knowledge Retention
- Insurance Audits
- Enterprise Assurance

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DynAMo Alarm Management

Honeywell’s Solution

DynAMo Alarm Management
Reporting, Metrics, Analysis and Compliance
Master Alarm Database, Alarm Response Manual
Management of Change
Predictive Alerting, Enforcement

Honeywell Supporting Services
Alarm Philosophy Document
Improvement Plan (Alarm, ORCA)
Asset Benchmarking and Assessment
Alarm Rationalization

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Metrics & Reporting
Alarm Performance (today)

- Overstated
- Noticeable
- Slight
- Robust
- Moderate

Average alarm rate/10 mins: 0.76 (0.25)↓
Maximum alarm rate/10 mins: 7.0 (22)↓
Percent upset/10 mins: 1.39↓

Open Alarms (today)

Total: 402

- Critical: 20
- Events: 45
- High: 13
- Low: 5
- Maintenance: 15
- Medium: 564

My Tasks

[Sparrow, Jack]: Tag T1828139 get 553 to investigate before end of shift.
[Sparrow, Jack]: Look at alarm spike 10 minutes after mode change. Too High.
[Christian, Jim]: Update KS12 Alarm Response.
18 Standard Out-of-Box Templates
“Bullet Proof” Alarm Management
DynAMo Alarm Management

“Bullet Proof” Alarm Management
Alarm Analysis and Reporting

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DynAMo Alarm Management

“Bullet Proof” Alarm Management

Alarm System Improvement

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Tree Mapping Technology
Enabling Faster, More Informed Decisions

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DynAMo Alarm Management

Mobile Ready
DynAMo Alarm Management

Built-in Experion Integration

Causes, Consequences and Corrective Actions → Documented in DynAMo → Delivered Direct to Operator Console

Alarm Response Manual → Master Alarm Database → Mode Based Alarming → Management of Change

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DynAMo Alarm Management

Honeywell’s #1 Award Winning DynAMo Solution

<table>
<thead>
<tr>
<th>DynAMo Alarm Management</th>
<th>Honeywell Supporting Services</th>
</tr>
</thead>
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<tr>
<td>Reporting, Metrics, Analysis and Compliance</td>
<td>Alarm Philosophy Document</td>
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<td>Predictive Alerting, Enforcement</td>
<td>Alarm Rationalization</td>
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</tbody>
</table>
Innovation
DynAMo Alarm Management

- Innovation

Seamless Integration
Analysis KPI’s and Metrics
Master Alarm Database
Alarm Response Manual

Create Alarm Management Experts
Analysis and Corrective Actions Anyone Can Understand

Leaner, Faster, Smarter
Intuitive Problem Solving Workflows
Customizable, Role Based Interfaces

DynAMo Alarm Management
SMART Reports
DynAMo Alarm Management

• Before SMART Reports...
  – Analysing an Alarm Flood
    • Run Flood Report
    • Isolate the Time Period to Investigate
    • Correlate the Operation Workload During the Flood
    • Check for Parent/Child Relationships
    • What Proportion of the Flood are Chattering/Fleeting Alarms
    • Compare Results with Other Floods to Identify Common Issues
  – Nothing Wrong with this Approach
    • Detailed, Logical, Delivers Results, Drives Alarm System Improvement
  – BUT...
  – What if one SMART Report could do all that, in a fraction of the time?
With SMART Reports…

- Run Flood Report
- Isolate the Time Period to Investigate
- Correlate the Operator Workload During the Flood
- Check for Parent/Child Relationships
- Flood Metrics
- Compare Results with Other Floods
With SMART Reports…

- Alarm Performance Indication
- Analyze by Area or by Operator Station

Linked ‘Smart’ Metrics

- Flood Metrics
• With SMART Reports…
  Run Chattering Alarm Report
  Analyze the Alarm Groups that are Chattering
  Cross Reference with the Most Frequent Alarms
  Review Causes, Consequences, and Corrective Actions

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DynAMo Alarm Management

- SMART Reports
  - Fully Customizable
  - Role based for Effective Analysis
  - Integrates information seamlessly from Master Alarm Database
  - No JAVA Requirement

- Arriving 2015
- Simple upgrade to DynAMo Metrics & Reporting
DynAMo

Operations Management
DynAMo® Alarm Management

Turning noise into knowledge through effective Alarm Management

- Metrics & Reporting
- Documentation & Enforcement
- Alerts & Notifications

DynAMo® Operations Management

Driving informed decisions and operational compliance through safe and profitable operating windows

- Operations Monitoring
  - Limit Repository
  - Operating Limits
- Operations Logbook
DynAMo Operations Management

• Industry Leaders Driving Best Practice
  – Alarm Management is a critical success factor
  – Driving continuous improvement?
  – Proactive Operators/Operations

  – *Minimize Process Deviations and Predict Abnormal Situations*
    (each operating deviation costs significant $$$$$, impacts Safety, Reliability, Quality, Energy)

  – *Elevating Control Room Communication*
    – Critical Alarms, Deviations, Operator Instructions
    – The right information to the right people all of the time

• The Birth of DynAMo Operations Management
DynAMo Operations Management

**Primary Drivers**
- Critical Limit Management
- Integrity Operating Windows
- Secure Shift Handovers
- Safety

**Secondary Drivers**
- Defined Production Envelopes
- Improved Asset Availability
- Increased Throughput

**Tertiary Drivers**
- Reduced Maintenance
- Reduced Operator Error
- Enterprise Assurance

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DynAMo Operations Management

Honeywell’s Solution

DynAMo Operations Monitoring
- Critical Limit Deviations
- Excursions from Production Envelopes
- Functional Limit Ownership
- Integrity Operating Windows

DynAMo Operations Logbook
- Secure Shift Handovers
- Auditable Document of Record
- Critical Limit Documentation
- Compliance and Approvals

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Operations Monitoring
Predict Deviations from Plan. Prevent Abnormal Situations. Be Pro-active.
Easy to see deviations from limits – any limits, environmental, equipment, safety, optimal production envelopes etc.

<table>
<thead>
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<th>Limit Name</th>
<th>Weight</th>
<th>Asset</th>
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</table>
Early Event Detection. See units deviating from plan or operating envelope. Each Deviation costs $\$, or negatively impacts Safety, Reliability, Asset Availability....
Direct automated integration to Operations Monitoring Reports

Direct automated integration to Alarm Management Solution

Documentation of Inhibits, Bypasses, Safety Alarms

Automatically populated, reduce operator error, improve handover time, ensure consistent entries and easy access for knowledge sharing

Direct automated integration to Process Historian
DynAMo
Alarm and Operations Management
## DynAMo Alarm and Operations Management

*Delivering operations integrity through better plant safety, availability and compliance across your entire enterprise*

### DynAMo® Alarm Management

*Turning noise into knowledge through effective Alarm Management*

- Metrics & Reporting
- Documentation & Enforcement
- Alerts & Notifications

### DynAMo® Operations Management

*Driving informed decisions and operational compliance through safe and profitable operating windows*

- Operations Monitoring
  - Limit Repository
  - Operating Limits
- Operations Logbook

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DynAMo Alarm and Operations Management

Primary Drivers
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- Increased Throughput

Tertiary Drivers
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Unified, Integrated Solution
One Platform, One Interface, One Project

Don’t have Alarm Management?

Have Alarm Management?

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DynAMo Alarm and Operations Management

Elevating Communication for Safer, Reliable, More Profitable Operations
Let’s Circle Back to Alarm Management
Honeywell’s New Mobility App
(DynAMo Alarm Management)
Honeywell Mobility App

DynAMo® Alarm Management

Turning noise into knowledge through effective Alarm Management

- Metrics & Reporting
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DynAMo® Operations Management

Driving informed decisions and operational compliance through safe and profitable operating windows

- Operations Monitoring
  - Limit Repository
  - Operating Limits
- Operations Logbook

Honeywell Mobility App

(DynAMo Alarm Suite, DynAMo Operations Suite)
Honeywell Mobility App

Customisable – Global or User Defined Alerts (Your Choice)
Honeywell Mobility App

- Stay connected to plant performance anywhere
- View plant data and information in real time
- Look for trends and upset conditions
- Identify problems as early as possible
- Enable a faster response to issues

Available in the Demo Area

Stay Connected to Your Enterprise – Wherever You Are
Summary
Unified Suite Drives
Real Time Operations Integration
DynAMo Alarm and Operations Management

Alarms Management
- Stale and Standing Alarms
- Safety Bypasses and Inhibits
- Critical Alarm Limits
- Boundaries and Constraints

Operations Logbook
- Secure Shift Handover Process

Operations Monitoring
- Critical Limit Deviations
- Excursions from Production Envelopes
- Integrity Operating Windows
**DynAMo Alarm and Operations Management**

- With SMART Reports...
  - Run Flood Report
  - Isolate the Time Period to Investigate
  - Correlate the Operator Workload During the Flood

### Flood Details

<table>
<thead>
<tr>
<th>Operator Position Name</th>
<th>No of Floods</th>
<th>% Time in Flood</th>
<th>Total Alarm Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rent7,OP</td>
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<td>629.73</td>
<td>11163</td>
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</tbody>
</table>

- **Flood 1**
  - Start Time: 25 May 2015 10:30 AM
  - End Time: 25 May 2015 12:40 PM
  - Duration: 1500
  - Alarm Count: 10244
  - Peak Alarm Rate: 671

### Symptomatic Report

- Tag: PNF_FLG_23
- Child Count: 42527
- Identifier: OFFNORM

- Tag: CNL_15L
  - Description: n-pentadeca block
  - Occurrence Count: 74
  - Predictability: 0.02
  - Significance: 1

- Tag: TEST_3037
  - Description: CNL_15L
  - Occurrence Count: 75
  - Predictability: 0.10
  - Significance: 0.69

- Tag: TEST_3038
  - Description: TWI
  - Occurrence Count: 23
  - Predictability: 0.01
  - Significance: 1

- Tag: TEST_3039
  - Description: PWII
  - Occurrence Count: 23
  - Predictability: 0.01
  - Significance: 1

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Scalable Architecture Delivers Enterprise Connectivity
Gulf of Mexico
North Sea
Venezuela
Houston
Germany
Mobility Platform Drives Collaboration and Complete Situational Awareness
DynAMo Alarm and Operations Management
Every Standard  
(IEC62682, ISA.18.2, API 584)  

Best Practice  
(EEMUA 191 Rev 3, ASM)  

Businesss Driver

The Complete Scalable Solution
Join us in the Knowledge Center
Come talk to us in Honeywell’s Consulting Corner
Attend our Alarm Rationalization Workshop

Questions?