



COHESIVE
solutions

Using Maximo to support pipeline Maintenance compliance activities

In accordance with PHMSA 49 CFR 192/195



Company Highlights



Pipeline Maintenance Compliance

What's covered in 49 CFR 192 & 195

49 CFR 192 & 195 – Typical Maintenance Activities

Point Inspections

- Valves & Settings
- Regulators
- Launchers & Receivers
- Crossings

Testing & Calibration

- Safety & Control devices
- Metering & Custody Transfer devices

Line Patrols

- Walk/drive downs
- Aerial

Integrity

- Cathodic Protection
- In-Line-Inspections

Leak Management

- Detection
- Classification/Monitoring
- Repair

Frequency Modifiers

- On/Offshore
- Class Locations & High Consequence Areas (HCA)
- Proximity to other Hazards
- Product in the line
- Repairs/Replacements
- Other Regulations & Compliance Activities!

49 CFR 192 & 195 – Typical Maintenance Frequencies

Many **Distinct** Compliance Frequencies

- More than 10 for Maintenance
- Many more for Engineering & Operations

Each with **Different**:

- Grace periods
- Minimum number of performances

- 10/15/20 Years
- 5 Year Calendar/64 months/68 Months
- Once per calendar year & not to exceed 15 months
- Twice per calendar year & not to exceed 7.5 months
- Four times a year & not to exceed 4.5 months
- Six times a year & not to exceed 2.5 months
- Bi-Monthly, Etc.

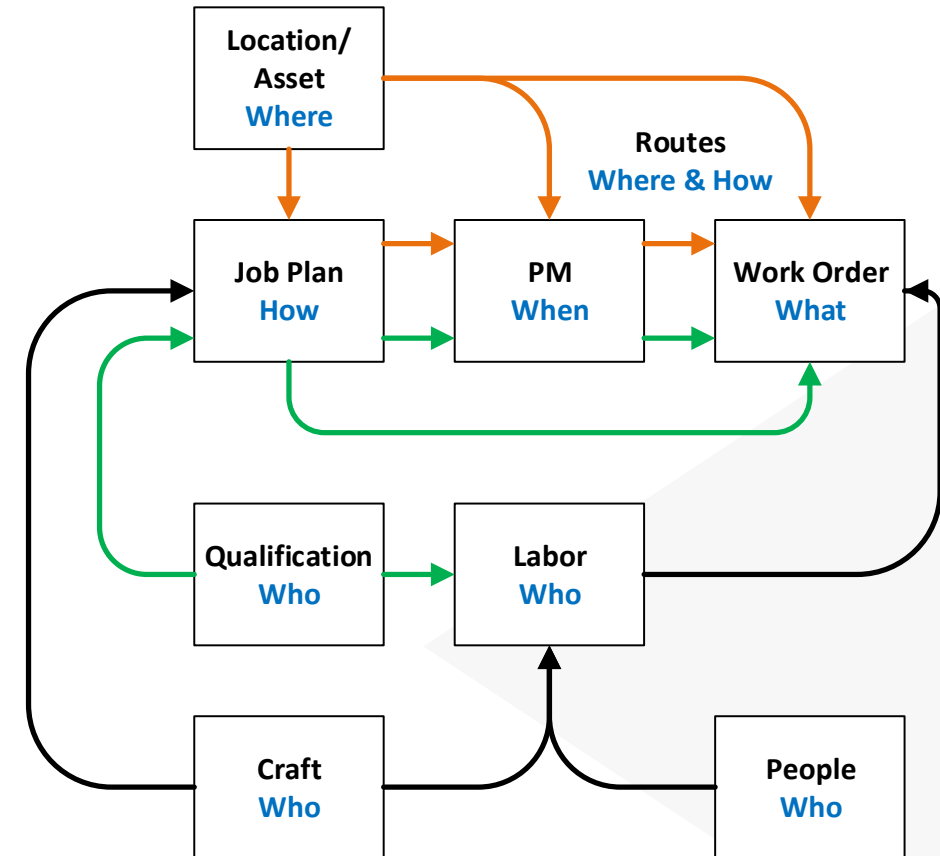
Typical Maximo Usage

The challenge most companies face

Typical Maximo Usage – Base Maximo

Typical Usage:

- Location/Asset for the compliance “Point”
- Job Plans for Compliance Activities/Tasks
- PMs for Scheduling
- Routes for Clustering
- Work Orders for Performance
- Labor for who did the work



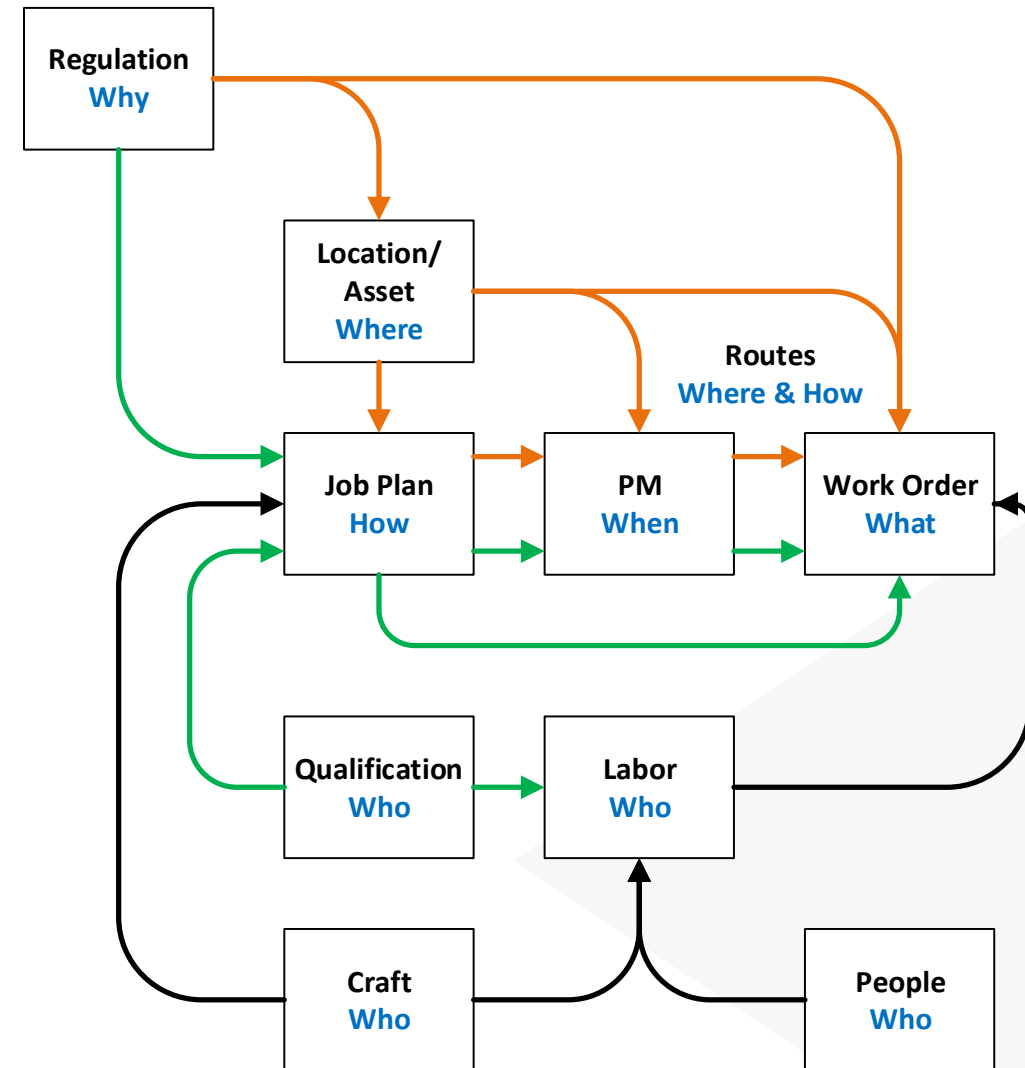
Typical Maximo Usage – Maximo Oil & Gas

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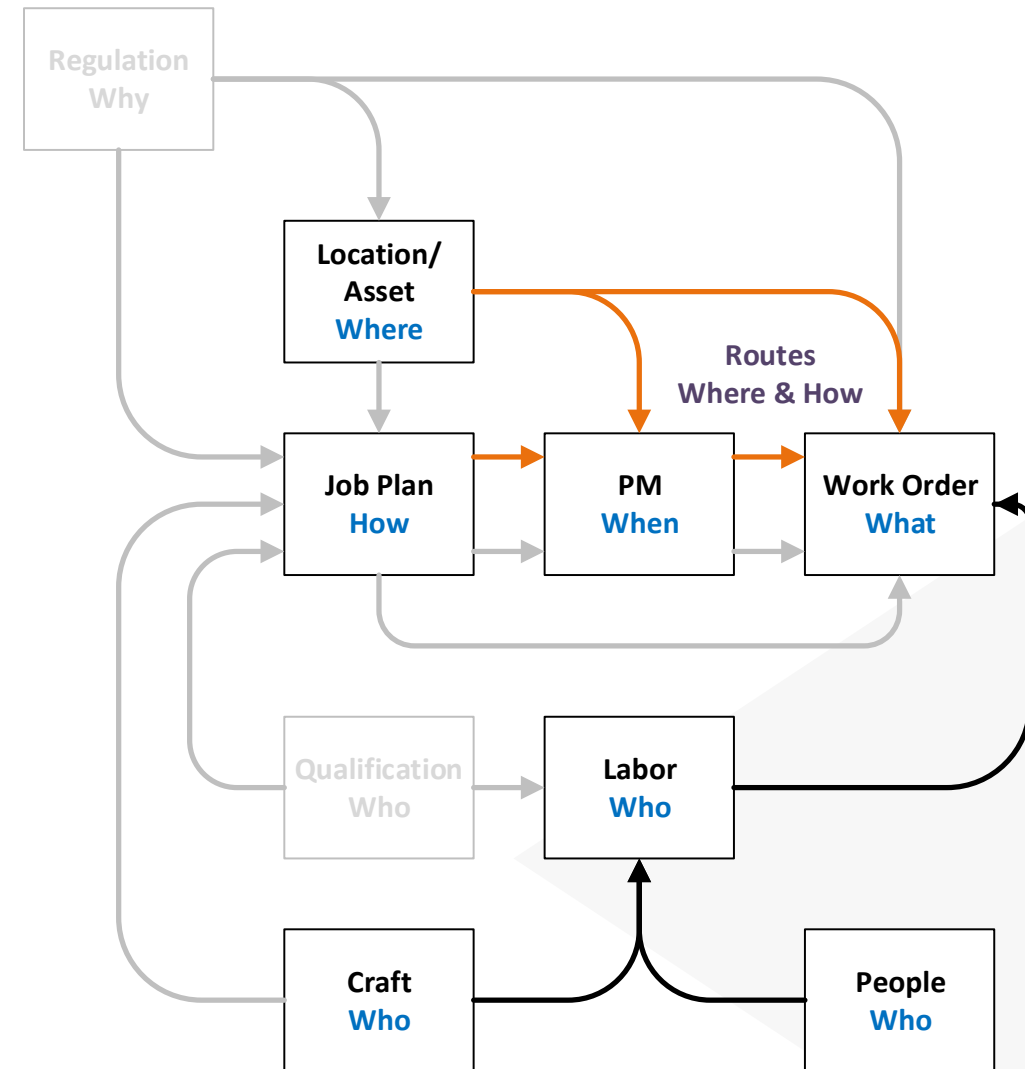
Oil & Gas/HSE Supports

- Regulatory Compliance for **Tracking** the Why



Typical Maximo Usage – Challenges

- Most Companies never implement more than the basics
 - This can be due to fragmented process ownership leading to multiple Internal Systems
 - Some companies don't have Oil & Gas / HSE
- Maximo OTB doesn't really Support compliances windows
- This drives compliance **Tracking** to always be “after the fact”
 - When do you know if your out of compliance?



Typical Maximo Usage – How the Challenges are Met

Performance

- PM for each Compliance Task
- All on fixed frequencies
- Usually with a generous lead time
- Maintenance:
 - Keeps separate from PM/CM Work
 - Tries to complete by the “due date”

Qualifications

- Everyone trained for everything
- Specialists are assigned
 - Or cherry pick and others ignore

Tracking & Reporting

- Periodic review of backlog and completed work
- Using last review list to check next cycle
- Takes a data dump from Maximo, pulls into excel and compares performances
- Having to use the Location/Asset + Either Job Plan or Smart Naming to associate Work Orders

Typical Maximo Usage – Biggest Risks


Performance

- Maintenance working to a “due date” that is not related to past performance
- Fixed Schedules are a house of cards
 - As long as the population doesn’t change and everything is done at the same time every year/quarter/month all is good!
- Early & late completions move the next **Compliance Window**
 - This risk is often not evaluated
- Drives “Compliance Work” periods that don’t mix well with other PM/CM schedules

Tracking & Reporting

- Periodic Reviews – inherently are lagging
 - Lack of awareness of "current state"
- Manual analysis can cause difficulty insuring consistency
- No visibility or warning of upcoming or already missed compliance tasks

	Y1												Y2												Y3												Y3											
	Q1			Q2			Q3			Q4			Q1			Q2			Q3			Q4			Q1			Q2			Q3			Q4			Q1			Q2			Q3			Q4		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
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11

A Better Way

Can we make Maximo work for us?

A Better Way – Making Maximo work for us!

Focus on **Reducing Risk**

- Realize that what has worked in the past still “works”
- Supplementing your current process and enable more automation
- Drive to be Proactive in:
 - Compliance work Identification
 - Compliance Window Management
 - Awareness of Current State
 - Notifications of coming due & out of compliance
 - Provide Reports to catch outliers and enable informed decision making

How?

- Use Regulatory Compliance (Oil/HSE) to enable relationships to enable easier tracking
 - If you can't, then tag them at the PM Level but avoid Smart Naming
- Automate the Compliance Window Calculations
 - Define your Compliance Frequencies
 - What is the logic for the next window?
 - Where do we track the relationship?
 - When does it need to be updated?
 - Do we forecast multiple Work Orders?

A Better Way – Using Regulatory Compliance (Oil/HSE)

- Establish an process for adding and maintaining regulations
 - Also identify owners and expectations
- Build the list of compliance tasks which apply to your business
 - Recommend driving down to the subpart that defines the frequency
- Use as much or as little OTB as you need to differentiate between the work you do

The screenshot shows a web-based form for regulatory compliance. At the top, there is a navigation bar with tabs: 'List View' (selected), 'Regulation', 'Log', and 'Where Used'. The form is divided into several sections. The top section contains fields for 'Regulation' (192.739), 'Pressure limiting and regulating stations: INSP/TS', 'Organization', 'Site', 'Applies To' (GENERIC), 'Regulation Owner', 'Owner Group', 'Status' (ACTIVE), 'Regulation Type' (SAFETY), and 'Attachments'. Below this, there are fields for 'Status Date', 'Regulation Number' (49CFR192), 'Regulation Sub-Section' (739), 'Safety Critical Element', 'Regulatory Authority' (DOT/PHMSA), 'Regulatory Region', 'Regulatory Country', 'Valid From' (5/17/04), 'Expiration Date', 'External System Reference', 'Insurance Requirements?' (checkbox), 'Supports Safety Case?' (checkbox), and 'Safety Case Reference'. The form uses a clean, modern design with blue accents and search icons for many fields.

A Better Way – Using Regulatory Compliance (Oil/HSE)

- Establish the “Where Used” and keep it consistent
- PMs are where they are typically set “Applies to Work Order Default”
 - If you don’t have Regulatory Compliance you can Extend the PM and flag them to keep track of the tasks
- Locations/Assets are usually associated to allow delineation between similar equipment with differing requirements

The screenshot displays a software interface for managing regulatory compliance. At the top, a navigation bar includes tabs for 'List View', 'PM', 'Frequency', 'Seasonal Dates', 'Job Plan Sequence', 'PM Hierarchy', 'Forecast', 'Regulations', and 'Forecast Cost'. The 'Regulations' tab is active. Below the navigation bar, the PM is identified as 'Relief Valve Tests (Comp DOT)' and the status is 'ACTIV'. A table lists regulations, with the second row selected: Regulation 192.739, Description 'Pressure limiting and regulating stations', Regulation Number 49CFR192, Regulation Type SAFETY, and Regulatory Authority DOT/PHMSA. Below the table, the 'Regulation Details' section provides further information: Regulation 192.739, Description 'Pressure limiting and regulating stations: INSP/TS', Regulation Number 49CFR192, Regulation Sub-Section 739, Regulation Type SAFETY, Regulatory Authority DOT/PHMSA, and Regulatory Region. On the right side, there are fields for 'Valid From' (5/17/04), 'Expiration Date', 'External System Reference', 'Applies To' (GENERIC), 'Insurance Requirements?' (checkbox), 'Supports Safety Case?' (checkbox), 'Safety Case Reference', and 'Applies to Work Order Default?' (checkbox, checked).

Regulation	Description	Regulation Number	Regulation Type	Regulatory Authority
192.731	CS: Inspection and testing of relief devi	49CFR192	SAFETY	DOT/PHMSA
192.739	Pressure limiting and regulating stations	49CFR192	SAFETY	DOT/PHMSA

Regulation Details

Regulation 192.739 > Pressure limiting and regulating stations: INSP/TS

Regulation Number 49CFR192

Regulation Sub-Section 739

Regulation Type SAFETY

Regulatory Authority DOT/PHMSA

Regulatory Region

Regulatory Country

Valid From 5/17/04

Expiration Date

External System Reference

Applies To GENERIC

Insurance Requirements? ☐

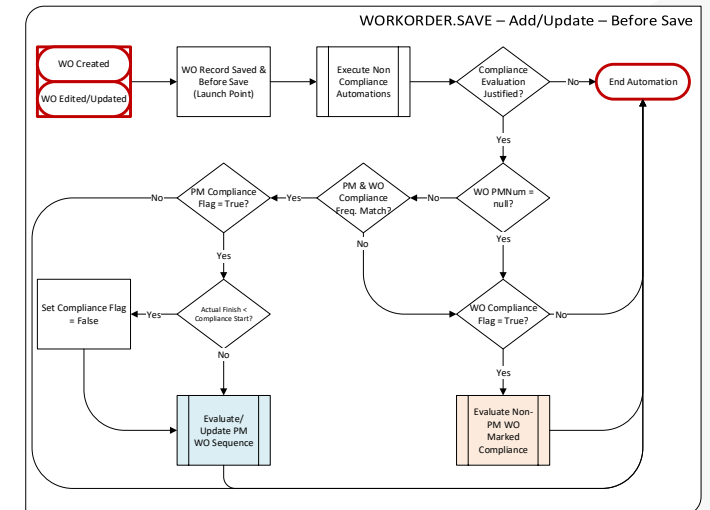
Supports Safety Case? ☐

Safety Case Reference

Applies to Work Order Default? ☒

A Better Way – Automate the Compliance Calculations!

- For Each of your Compliance Tasks define the Next Window criteria, Typically:
 - What is the Normal Window? Year(s)/Quarters/Months/Weeks
 - How many times MUST they occur?
 - How far out can the work go past due?
 - How early can the next one happen?
- Determine what your key will be of matching up performances, Examples:
 - WO Regulation + Location/Asset
 - PM + Location/Asset
 - Job Plan + Location/Asset
- Determine Trigger for calculation
 - WO Save? Field Change? Status Change?

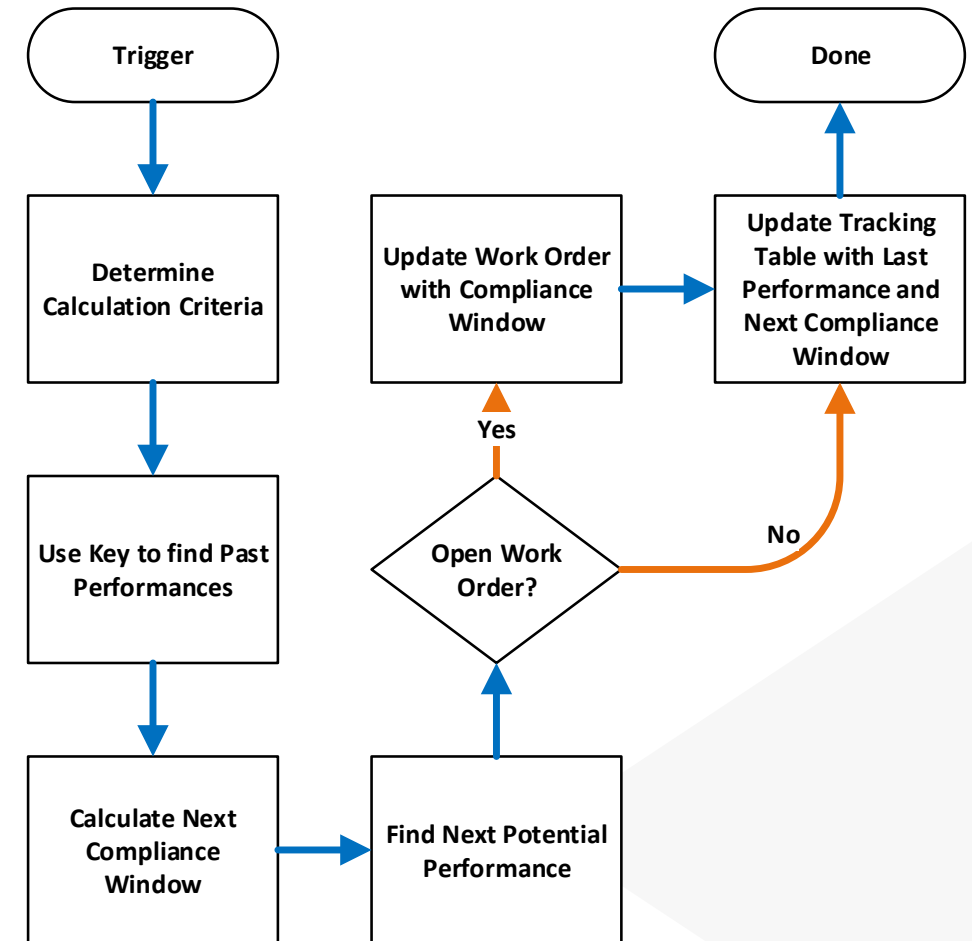


A Better Way – Automate the Compliance Calculations!

Decisions to Make

- Where will the calculation criteria and key sit?
 - RC vs. PM and Who can change them?
- Where will the calculated dates be stored?
 - Are they locked? Or security controlled?
- What to do when there are multiple active work orders?
 - What if there are none?
- Do you use Routes?
 - What impact will they have in your usage?

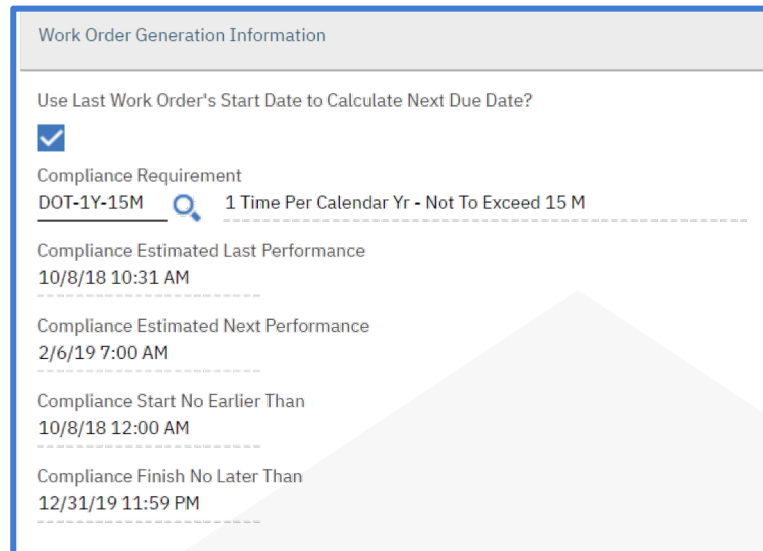
There are many options – but your business process will drive the answers!



A Better Way – Automate the Compliance Calculations!

Tracking – What is important

- Compliance Requirement
- Last Performance
- Estimated Next Performance
- Current Window Start Date
- Current Window End Date



Work Order Generation Information

Use Last Work Order's Start Date to Calculate Next Due Date?
☒

Compliance Requirement
DOT-1Y-15M 1 Time Per Calendar Yr - Not To Exceed 15 M

Compliance Estimated Last Performance
10/8/18 10:31 AM

Compliance Estimated Next Performance
2/6/19 7:00 AM

Compliance Start No Earlier Than
10/8/18 12:00 AM

Compliance Finish No Later Than
12/31/19 11:59 PM

Notifications – What's Important

- Visibility in Start Centers and List Screens
- Coming due warnings
- Past to notifications
- WO and PM Exceptions – **Error states!**

Reporting – What's Important

- Out of Compliance
- Look Ahead – What if you did nothing?
- Compliance PM Analysis
 - Summary (Counts by year/quarter/month)
 - Detailed sequential executions

A Better Way – Automate the Compliance Calculations!

Regulatory Compliance (Oil/HSE)

■ Pros

- OTB Logging and Grouping functionality
- OTB Essential Object relationship logic
- Can allow one Work Order to satisfy multiple Compliance activities and easy out of cycle performances
- Actively developed and updated by IBM

■ Cons

- Time consuming to setup Master Data
- Must be integral to the Work Management Business Process to be successful
- You still have to build your own calculations

Managed on PM records

■ Pros

- Quick to implement basic calculation and tracking
- Maintenance knows how to manage PMs and will be able to manage these with little training
- Can be added on top of existing Work Management Process with ease

■ Cons

- Out of cycle performances require manual PM Generation
- You have to build everything
- You still have to build your own calculations

A Better Way – Things to Consider

- Using Regulatory Compliance (Oil) relationship vs. PM Pros/Cons – Speed vs. Quality
- Using SNE and FNL Constraint Dates to work with 3rd party scheduling
- Ensuring your solution can identify potential out of compliance situations **without** active Work Orders
- Prorating Execution Count for new equipment – Rarely does new equipment get installed on new years!

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Thank You & Questions?

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