



# Management of Change for Process Safety

<http://www.focul.net/moc>

A SOLUTION FOR

OPERATIONS  
MANAGEMENT

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MANAGEMENT

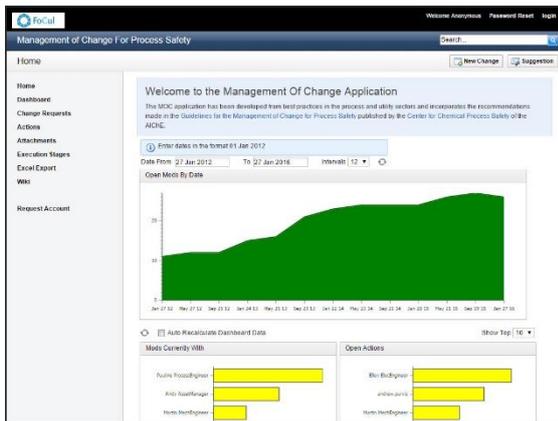
HEALTH & SAFETY  
MANAGEMENT

# 1. The MOC Application

The FoCul Management of Change for Process Safety ( MOC ) application is a modern browser based stage gate process that supports the risk assessment processes associated with change on process plants.

The application has been developed from best practices in the process and utility sectors and incorporates the recommendations made in [“Guidelines for the Management of Change for Process Safety”](#) published by the Center for Chemical Process Safety of the AIChE.

The application improves control, efficiency and auditability while also making the Management of Change process more inclusive.



# 2. The Business Challenge

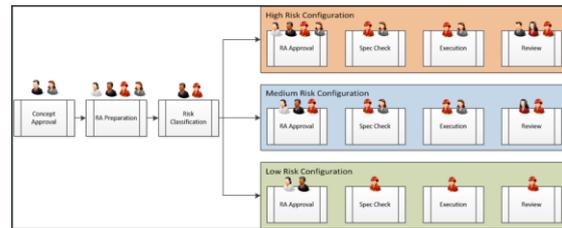
The principles of managing change for process safety through a stage gate risk assessment process are well understood and in many cases are well implemented.

The challenge to the business lies not in the technical aspects of the process but in the efficiency, control and consistency of the process.

A basic management of change process will have stage gates relating to concept approval, risk assessment, construction, commissioning and records update. In a very simple example these 5 stage gates will require a total of at

<sup>1</sup> COMAH – Control of Major Accident Hazards

least 10 approval steps and will involve multiple people.



While this process can be managed robustly as a paper system it is time consuming for key personnel and requires administrative support. A paper based process of this nature is also difficult to audit as the MOC forms are often physically out with individuals.

The management of record updates relating to changes is also time consuming and can delay the progress of changes while the status of these records is determined.

The paper based system also makes it harder to quickly identify the history and status of other live or historical changes which may impact on the current change.

# 3. The Solution

FoCul with its unique mix of experienced Engineers and IT developers has developed a very effective Management of Change application. The application allows Engineering and Operations teams to focus on the technical aspects of changes rather than needing to spend time on administration and chasing physical forms.

This application has been developed over a number of years based on feedback from customers (some on Top Tier COMAH<sup>1</sup> sites) and guidance issued by the IChemE, the AIChE and the HSE<sup>2</sup>.

A separate case study of an implementation at the CHP plant at Sellafield, Cumbria is available at <http://www.focul.net/moc>

Users can see the status of every modification and have a personalised dashboard which

<sup>2</sup> Health & Safety Executive – UK regulatory body

shows the actions and approvals that are awaiting their attention.

The stage gate processes are configurable with options to apply different workflow configurations to high, medium and low risk changes. There are also configurable options to manage emergency changes.

Individually trackable actions can be raised and interlocked to the stage gate process meaning that a stage cannot be closed until the relevant actions have been completed. Actions are also automatically raised to track each required document update ( P&IDs etc. ) that was identified during the risk assessment.

Users receive daily notifications of new actions and a weekly report of all their outstanding actions.

Very little administrative support is required.

#### 4. The Process

The Management of Change for Process Safety process uses the following stage gates:

- ⇒ Concept Approval
- ⇒ Risk Classification
- ⇒ Risk Assessment
- ⇒ Specification Review
- ⇒ Construction
- ⇒ Commissioning
- ⇒ Records Review
- ⇒ MOC Review

Each part of this stage gate process is described in more detail below.

#### 4.1. Concept Approval

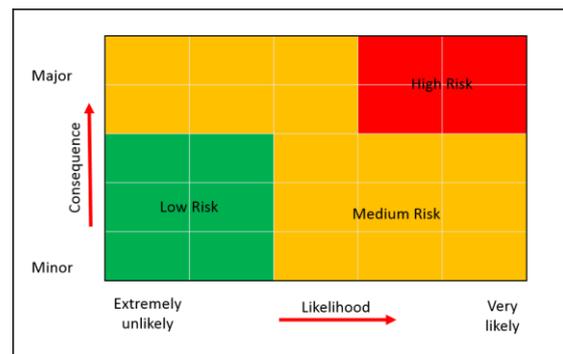
The purpose of the concept approval stage is to make sure that the relevant stakeholders have been able to add their thoughts at an early stage and that there is an understanding of the likely cost and benefits of the change.

The process is configurable but typically this stage would be reviewed by the Asset / Maintenance Manager, Operations Manager, a Production Technician and the budget holder.

#### 4.2. Risk Classification

The Risk Classification stage of the change is one of the most important parts of the process. There is clear evidence from industry that requiring the same level of control for all changes causes MOC systems to be bypassed for simpler changes.

The Risk Classification stage determines if the risk is High, Medium or Low risk depending on a series of customer specific criteria. This classification then determines who should be involved in the remaining stage gate processes e.g. high risk modifications may be configured to require an input from the Safety Manager.

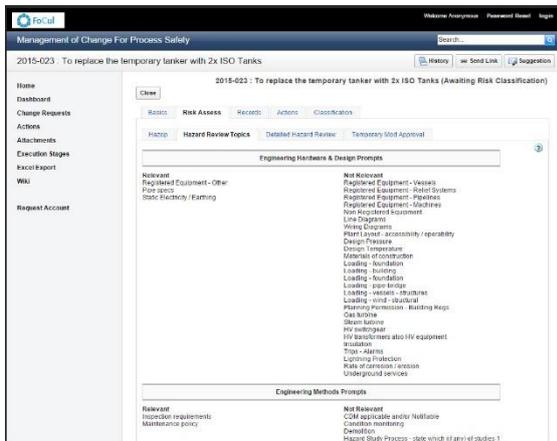


The Risk Classification can be carried out before or after the Risk Assessment is prepared.

### 4.3. Risk Assessment Preparation and Approval

The Risk assessment stage gate contains a number of sub processes.

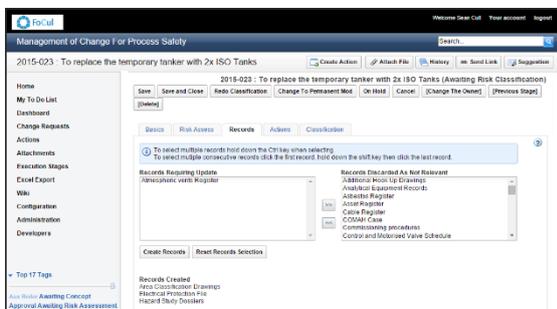
The first sub process is the preparation of a detailed risk review where the change owner is able to select topics that need to be considered further. Having selected the topics from the configurable checklist the change owner (or any other authorised person) adds text describing the issues to be considered and what mitigations are required.



Above: configurable risk assessment prompts

Trackable actions can be created at any point and can be interlocked to prevent a particular stage gate from being completed.

The last part of the risk assessment preparation is to identify which documents will need to be reviewed. The application is designed such that records must be positively deselected.



Above: configurable prompts for required records update

Once the risk assessment stage gate has been prepared the change owner sends it for review. The list of reviewers is determined by the risk rating. Each reviewer receives an email with a link which opens the MOC form.

Once the review process has started the approvers cannot change the prepared risk review but they are able to add comments and interlocked actions detailing any changes that they require. They also have the option to disagree with the assessment and request that it be re-worked and re-submitted for review.

When the last reviewer gives their approval the Risk Assessment stage gate is closed, individual actions are created for each record that must be updated (SOPs, P&IDs etc.) and the Execution stage gates is started.

### 4.4. Specification Review

In some cases there can be a delay between signing off the Risk Assessment and receiving the design for construction. In that time the design intent or the existing plant circumstances may have changed. The Specification Review stage gate is used to check these potential issues.

### 4.5. Construction

The application will support an unlimited number of construction phases within a change. This feature is typically used to separate out the control of tie-ins or civil works.

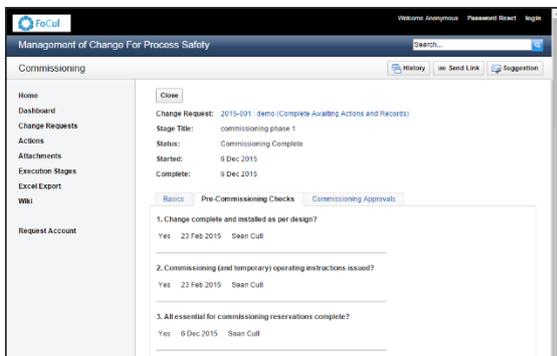
The change owner completes the required information in the draft stage gate document and then presses a button to initiate the process whereby the required people agree that construction can start. The particular roles involved in this approval are configurable within the application.

When the construction is finished this stage gate is closed and a Commission stage gate is made available.

#### 4.6. Commissioning

The system will support multiple commissioning phases. The change owner completes the required information in the draft stage gate document and then presses a button to initiate the process whereby the required people agree that commissioning can start. The particular roles involved in this approval are configurable within the system.

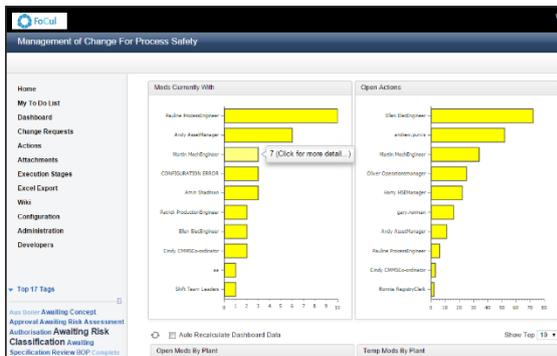
The change owner (or another authorised person) must complete the pre-commissioning checklist before they can confirm that the commissioning stage gate has been completed.



Above: pre-commissioning check list

#### 4.7. Records Update Completion

Any records requiring review identified during the Risk Assessment will have had fully trackable and interlocked actions automatically created. Those that were deemed HSE critical will have been interlocked to prevent commissioning from being signed off. When the last action is completed the records review stage gate will be closed automatically.



Above: dashboard showing outstanding actions

#### 4.8. MOC Review

There is an optional MOC review stage where the change can be reviewed to determine if the cost / benefit estimates were met and to identify if any new learning.

### 5. Temporary Modifications

Temporary changes have historically caused a disproportionate number of process safety issues.

This MOC process identifies temporary changes and then requires that these are re-assessed on a periodic basis, typically every 3 months.

### 6. Out of Hours Emergency Changes

The application supports out of hours emergency changes in 3 ways. These settings are configurable.

- ⇒ Individuals can “sign on behalf” of others but in so doing they are required to add additional text explaining why they are doing so. This is typically used to record a telephone conversation with an off-shift approver.
- ⇒ The application can be accessed remotely on any web connected device subject to any IT security constraints in place.
- ⇒ The application will support a truncated MOC process. The truncated MOC form can then be converted to a fully assessed form at a later date.

### 7. Additional Benefits

In addition to being more efficient and improving control the MOC application also allows a much wider pool of people to be included in the MOC processes.

Any authorised person can see the latest status of a change and can add comments if authorised to do so.

A practical example of this is the way in which Permit Issuers can check the status of modifications during the permit issue process.

## **8. Implementation**

FoCul is different from other IT providers in that our team includes experienced Engineers who will work with you to develop the best MOC methodology to suit your business.

Deployment of the web based version of the application is very straight forward and can be completed in a matter of hours but it is important that the application is configured to meet your specific needs.

We do this using the following approach:

### **8.1. Needs Analysis**

We will work with you to determine how the application should be configured to work with your MOC processes.

### **8.2. Deployment and testing**

We will deploy the configured application and test it with you to ensure that the configuration meets your needs. We will also work with you or your IT team to ensure that they are happy with our systems and approach.

### **8.3. Training**

We will typically provide training materials and train key users who will then go on to train others.

### **8.4. Support**

The support from FoCul includes ongoing proactive support and regular upgrades of the application with new functionality. We will provide support for the application for as long as you need us to.

## **9. Technical Requirements**

The application is available as a cloud based service, a hosted application or as an intranet application. The servers are located in a secure data centre and all connections to the application are encrypted and the application is backed up daily.

User registration is controlled by the customers and there are secure automated password reset processes.

Users require a modern browser such as Chrome or Internet Explorer 10 and higher.

The application supports XML feeds for reporting and integration with other systems.

## **10. About FoCul**

FoCul was established in 2000 by an experienced Manufacturing Engineer with a passion for finding better ways to manage processes and knowledge so that teams could be more effective.

FoCul never left their engineering and manufacturing base and established a reputation for providing both highly configurable products and bespoke IT solutions for manufacturing teams. We have completed over 500 applications the great majority of which are still in regular use today.

Our combination of technical expertise and real life industrial experience brings value to our clients. Our collaborative approach allows us to provide the best solutions and often leads to partnerships with our clients that extend over many years.

For more information please contact Sean Cull

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