AIG Global Property
Engineering

Management of Change Process

Applying operational
Discipline

Management of Change Influencing Process Safety Elements.

- Process Safety Information (PSI)
- Pre Start Up Safety Review (PSSR)
- Process Hazard Analysis (PHA)
  - Human Factors
  - Facility Siting
  - Consequences of Failures of Administrative & Engineering Controls
  - PHA Revalidations
- Operating & Maintenance Procedures
- Safe Work Practices
- Permit System
- Training
- Asset Integrity
- Emergency Response (Pre Plans)

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Number of MOC's Performed in an Area or Unit

- How Many MOC's are Performed in a Unit Each Year?
  - How Many is Too Many?
  - Number of Process Changes?
  - Number of piping Changes?
  - Number of Equipment Changes?
  - Procedure Changes?
  - Personnel and Turnover Changes?

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Operational Discipline/Excuses for Not Performing MOC's

- Takes Too Long for Approvals
- No Time to Wait for an MOC Evaluation
- Not a Real Change, Just Making it Better
- Only a Software/Procedure Change
- It's Only A Small Change
- Very Little Money Involved
- Not Understanding the Reason for MOC's
- No Off Hour Procedure

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Incidents Where the MOC Process Failed

- Electrostatic Precipitator Event

  - In order to perform work to bring the FCC unit back online, It was determined the company needed to deviate from several existing procedures. This required a document called a variance, which is a written temporary deviation from normal operating procedures. The variance used was created in 2012 to address problems with the expander. Investigators found that the Company did not conduct a management of change review before implementing this outdated variance, even though conditions within the FCC unit had changed over the previous three years.

  - Loss of Primary Containment

    - A large sphere that is normally filled via pipeline with C5 material is being filled with C3 material due to market conditions and changes in feedstock. The sphere became liquid full and no high or high high level alarms were received in the control room, only a high pressure alarm. PSV's on top of the sphere began relieving to atmosphere through two 12" stacks. The loss of primary containment lasted for approximately 20 minutes while the pipeline was being shutdown. A large vapor cloud formed but found no ignition source. Investigation revealed no MOC had been performed to evaluate the change from a C5 to a C3 material.

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Incidents Where the MOC Process Failed

- Loss of Primary Containment
  - Management had Allowed Operators to Make Procedural Changes Without Performing Proper Management of Change (MOC) Hazard Analysis, Thereby Encouraging Operators to Make Unplanned (and potentially unsafe) Deviations During Start Up.
  - Organizational Management of Change or MOC for Facility Siting Not Considered
  - No Risk Assessments Performed for MOC's

Incidents Where the MOC Process Failed

- Support Cut

Incidents Where the MOC Process Failed