

The Value of Pre Turnaround Process Safety Audits

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Pre Turnaround Process Safety Audits

- Definition
- Purpose
- Target Objective
- Process
- Audit Items
- Pre Turnaround Audit Benefits

Definition/Purpose

- A Process Safety Pre Turnaround Audit is aimed at identifying any gaps in preparatory work to prevent or mitigate Process Safety related incidents
- The Audit reviews work packages to ensure control measures are in place to manage the risk of Process Fires, Loss of Process (Primary) Containment or other items of a Process Safety consequence

Purpose

- The intent of this assessment is to determine if the Process Safety elements applicable to the outage are incorporated into the plant Turnaround work packages
- Identify any gaps in preparatory work, one month before Turnaround begins, in time for correction
- Ensure all risks are understood and managed

Target Objective

- Preventing:
Loss of Process (Primary) Containment / Hazard (Material/Physical/Chemical/Biological) Exposure / Process Fires / Occupational Injuries
- Protecting:
System Integrity for unit startup and operation

Process

- Obtain support of site leadership for planned Audit
- Assemble and brief Audit team
- Review work lists for ‘high risk potential’ packages
- Notify individuals(responsible for work packages) to be Audited
- Audit Execution
- Report back to Turnaround / site management

Audit Scope

- Hazard Assessment
- Up to date Procedures
- Integrated Work Plan
- Contractor Training
- Operations Training
- Mechanical Integrity
- Emergency Preparedness

Questions to the Turnaround Core team

Pre-turnaround process safety audit (against Responsible Care standards) – Core team questions

The pre-turnaround process safety audit is intended to validate that the risk of a major process safety related incident during the turnaround cycle is in control (i.e. during shutdown preparation, shutdown, maintenance & construction, preparing for start up and start up). This first part, with the T/A core team, examines how the responsible care standards (320 Management of Change, 230 Equipment Integrity, and 330 Management of Process Risks) are being applied.

RC Standard 320 – Management of Change					
Item	Question	Response	Recommendation	Resp.	Target
1	Have new substances, if applicable, been approved by the ME New Substance Assessment procedure?				
2	For any new positions created specifically for turnaround has OCM been conducted? (Eg, Turnaround Coordinator, others?)				
3	Is there a collective authority monitoring simultaneous activities on site from a safety perspective and does this collective authority consist of people from operations, maintenance and construction?				
4	a) Is a chain of command (org chart) for decision making defined, documented and communicated to all stakeholders? b) Has a back up been identified for each position for all related work cycles?				
5	Have new and transferred individuals been trained and formally qualified prior to taking unsupervised responsibility for the work?				
6	Have new or changed maintenance procedures that have significant safety concerns been communicated to technicians?				
7	Has all physical work been planned and scheduled?				

Extract from Work Planning Checklist



* Reqd? = Required? No: (N) or Yes (Y) Comp* = Complete (C)

#	Description	Reqd?*		Comp*	Input from:	Comments
		(N)	(Y)	(C)		
1.0	Networks- SAP (the maintenance management system)	----	----	-----	-----	
1.1	- Maintenance history / additional scope definition (e.g. tests)				Reliability / Mtce.	
1.2	- Work Order(s)					
1.3	- Previous work plan for reference					
1.4	- Schedules					
1.5	- Specialist tools / Equipment <input type="checkbox"/> , Services <input type="checkbox"/> , Pre / execution / post Materials (B.O.M) / Requisitions <input type="checkbox"/> , Material locations <input type="checkbox"/>					
1.6	- Long delivery goods / Services					
1.7	- Other					
2.0	Engineering Information:	----	----	-----	-----	
2.1	- Work Scope, background information (Mech, I/E, Civil)				Eng. / Mtce.	
2.2	- Drawing List				Eng.	
2.3	- P & ID's				Eng.	
2.4	- Demolition drawings				Eng.	
2.5	- Plot Plans (locating the work)				Eng.	
2.6	- Underground / Structural drawings				Eng.	
2.7	- Isometric drawings				Eng.	
2.8	- Engineered drawings <input type="checkbox"/> , Sketches <input type="checkbox"/>				Eng.	
2.9	- Vendor Drawings <input type="checkbox"/> , data <input type="checkbox"/> , manuals <input type="checkbox"/>				Eng.	
2.10	- Equipment drawings and manuals				Eng.	
2.11	- Special Flange preparation / bolting Instructions				Eng.	
2.12	- Bolt Loading & Torquing Sheets				Eng.	
2.13	- Equipment Index				Eng.	

Pre Turnaround Audit Benefits

- Involves the stakeholders
- Highlights deficiencies in time for correction
- Auditors use learnings for own Turnaround preparations
- Lowers the occurrence of Loss of Process (Primary) Containment and Process Fires

Conclusions

- NOVA Chemicals Corp. intends to carry on with the Pre Turn Around Audit Program
- Value added through reduction of Process Safety related incidents during Turnaround window.

Recommendations

- Consider Pre Turnaround Process Safety Audits as an approach to improve Process Safety awareness and prevent Loss of Process (Primary) Containment/Fires before, during and immediately after Turnarounds.

QUESTIONS?