



Thai Oil Group Pre-Start Up Safety Review (PSSR)

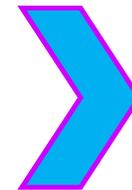
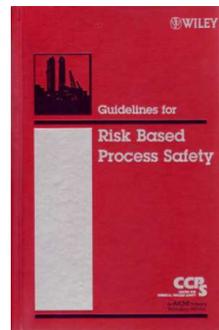
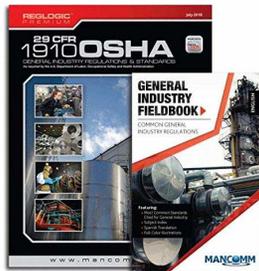
Present by Mr. Sermsak Nuntapong
Manager-Occ. Health, Safety and Fire



Reference Code & Standard



-  OSHA regulation 29 CFR 1910.H9 “Process Safety Management of Highly Hazardous Chemicals”
-  Environmental Protection Agency (EPA) 40 CFR Part 68
-  Risk Based Process Safety and A guide for Performing effectiveness Pre Startup Safety Review (AIChE/CCPS)



 QSHE	
PRE-STARTUP SAFETY REVIEW (PSSR) PROCEDURE	
FOR THAI OIL PUBLIC COMPANY LIMITED TUNGSUKLA, SRIRACHA, CHOLBURI THAILAND	
THIS DOCUMENT IS ISSUED UNDER THE AUTHORITY OF	
_____ (RASHMIT THAMPLAANCHIT) EXECUTIVE VICE PRESIDENT - MANUFACTURING	
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PSM Element



1. Employee Participation
2. Process Safety Information
3. Process Hazard Analysis
4. Operating Procedures
5. Training
6. Contractors
7. Pre-startup Safety Review

8. Mechanical Integrity or Asset Integrity
9. Safe working Practice / Hot Work Permit
10. Management of Change
11. Incident Investigation
12. Emergency Planning
13. Compliance Audit
14. Trade Secrets



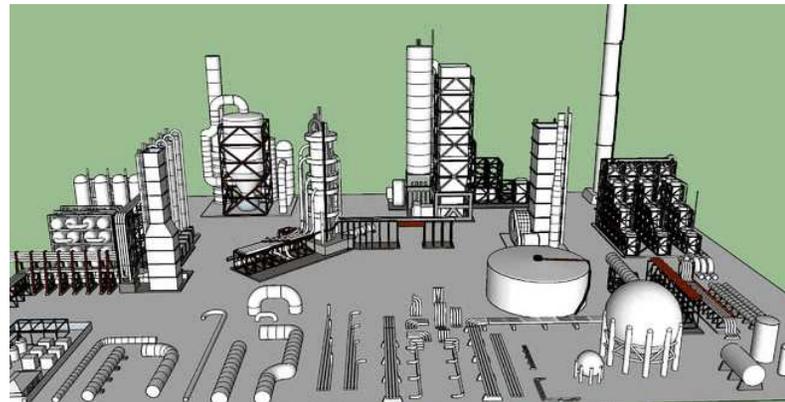
PROCESS
SAFETY

PROCESS SAFETY MANAGEMENT

What is a PSSR?



- A Pre-Startup Safety Review (PSSR) aids in the transfer of projects from the construction stage to the operations stage.
- It ensures that both initial start-ups and start-ups following a major turnaround are carried out safely.
- In particular, a PSSR aims to confirm that what was built and installed conforms to the original design and standard, and that no hazardous situation was created during construction and commissioning.
- It is a review of the safety and operability analyses made during the project, and not a technical review.



Why Is It Important?



- The frequency of incidents is higher during process transitions such as startups.
- These incidents have often resulted from the physical process conditions not being exactly as they were intended for safe operation.
- It is important that the process status be verified as safe to start.



Where/When is it Done?



- PSSR conducted prior to startup on new process, and on existing process that were shutdown for any reason.
- Confirm the construction and equipment of a process are in accordance with design specification.
- Ensure adequate safety, operating, maintenance, and emergency procedure are in place.
- Ensure training has been completed for all worker who may effect the process.
- Also, for new processes it confirms that an appropriate risk analysis has been performed.

The PSSR checklist



A PSSR covers not only equipment, but also human factor issues such as operating procedures and training.

The PSSR checklist is a comprehensive checklist and includes:

- ✓ Walking through the modified and new process.
- ✓ Updating procedure and manuals.
- ✓ Seeing that Quality Control, Quality Assurance and Inspection requirements are met.
- ✓ Training affected personnel in the new equipment or procedures.



Compiling and Using a
PSSR Checklist



Performed and document to confirmed

- ✓ General items
- ✓ Procedures
- ✓ Toxic, Corrosives and Industrial Hygiene
- ✓ Corrosion and Maintenance
- ✓ Other Hazard
- ✓ Fire Fighting and safety facilities

- ✓ Access
- ✓ Warning signs
- ✓ Process and Equipment
- ✓ Personal checks
- ✓ Environment checks
- ✓ Safety Critical devices
- ✓ Plant Interfaces

START UP AUTHORISATION & SAFETY CHECK

TITLE _____

The purpose is this document is to confirm that a pre-start up review has taken place and is documented.

A pre-start up review is performed and documented to confirm that:

- Construction is in accordance with specifications.
- Safety, environmental, emergency operations and maintenance procedures Are in place are adequate.
- Risk management recommendations have been addressed and required Actions taken.
- Training of personal has been accomplished.

Supporting Documentation

- Start up safety checklist.
- Notification of system hands over.
- Car seal log.
- Copy of blind/spade list.
- Emergency procedures.
- Procedures.
- RISK Assessment.

Please fill priority in accordance with PSSR item must be performed for modified facilities to ensure all
Priority A Required before start up
Priority B Allowed after start up

A. General Items

Item No.	Item	Priority	Yes	No	N/A	Note No.
1	Are the tie-in locations correct?					
2	Have operations and maintenance personnel received the requirement training on the new facility?					
3	Have the following databases been updated? - Site HAZCOM database? - MSDS database? - Safety critical information database? - Other required by specific site?					
4	Have all new PM's been input into the PM's system?					
5	Has the new facility been incorporated into the control of defeat system (safety valve, critical devices)?					
6	Have emergency response plans been updated to reflect the facilities (both unit and site)?					
7	Have project safety review comments been addressed (HAZOP Study and other safety reviews)?					
8	Have deviations from approved Engineering standard and design practices been approved?					

Notes:



Supporting Document required



PSSR Committee



Reviewers list:

- TOP Operation Manager (Chairman)
- TOP Operation Coordinator
- TOP Project Engineers (Elec./ Inst./Mech./Inspector/ Civil)
- TOP Safety Representative (both Project & APU)
- Contractor's Project Engineers
- Contractor's Safety Mgr. & Representative
- Support Team

Reviewed/Approved by:

- TOP Operation Manager
- TOP Project Manager
- TOP Technologist Manager
- TOP Safety Manager
- Contractor's Project Manager

Link: PSSR Procedure P.9



Need Attention



- ✓ Management commitment?
- ✓ Not clear R&R
- ✓ Less PSSR competency (both facilitator & team)
- ✓ Less PSSR awareness (all levels)
- ✓ Improper PSSR checklist
- ✓ No PSSR checklist for specific equipment
- ✓ Poor quality of PSSR report
- ✓ PSSR report complete after start up
- ✓ No PSSR tracking process
- ✓ Not clear on Punch A, B and C definition and the period to close out
- ✓ Not clear PSSR document control (Who, Where and How long)



PSSR Performance and Efficiency Metrics



Leading Indicators

- Number of startups for which PSSRs were not performed
- Number of field revisions made during startup to deal with issues not discovered during the PSSR
- Number of action items completed after startup

Lagging Indicators

- Number of startups deferred due to problems found during PSSRs
- Number of incidents that occur during startup
- Number of spurious shutdowns after Startup
- Number of improperly assembled pieces of equipment found during PSSRs
- Amount of off-spec product or loss of raw material due to startup problems

Key Successor Factors



**Visible Mgt.
commitment**



**Clear PSSR
Work Process**



**Excellent team Work
(Involvement)
with competence**



**Systematic Quality
Assurance &
Tracking Process**



**Good Document
Control**

CHALLENGES: Keeping Your Balance

Risk Value Understanding

Today



Tomorrow ?



Significant Challenges:

- Mgt. commitment
- Cost pressures
- Delay schedule
- **Managing process safety (PSSR)**



(ALARP or Risk Based Management)



Q & A



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