



SARNIA REFINERY

PRE-STARTUP SAFETY REVIEW

Issue Date: June 16, 2017 Revision #: 1

STANDARD

Document Number:

4000-ZSD-SMSAFESA-010030

Next Review Date: March 16, 2020

Document Owner: Manager, EH&S

Document Contact: Safety Advisor

SCOPE AND PURPOSE

This document applies to Suncor Personnel at the Sarnia Refinery. References in this document to “Suncor Personnel” include directors, officers, employees, contract workers, consultants and agents of Suncor. The purpose of this document is to define and communicate the elements of the Sarnia Refinery’s Pre-Startup Safety Review (PSSR) process to Suncor Personnel working at the Sarnia Refinery.

The purpose of the PSSR is to confirm that all Safety, Environmental & Risk Management requirements have been satisfied and addressed prior to the introduction of any hazardous materials or energy into a new or modified process. The PSSR will confirm that all process safety elements have been appropriately addressed and the facility is safe to start-up and operate.

A PSSR verifies that construction for a project or modified facility has been completed as specified and that all MOC and PHA identified requirements have been completed prior to start up or planned for as appropriate.

The refinery PSSR process incorporates aspects of the Ontario Health and Safety Act’s Pre-Start Health and Safety Review (PSHSR), however it does not fulfill all the requirements of the act should a PSHSR report be required.

PRE-STARTUP SAFETY REVIEW

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1.0 ROLES & RESPONSIBILITIES

Refinery Vice President is the owner of the PSSR standard at Sarnia Refinery

- Accountable for ensuring process is in place for commissioning new or modified assets and that they are safe to operate

Director of Engineering is the owner of project PSSR process

- Accountable for ensuring auditing system is developed for project PSSR
- Accountable for establishing and monitoring the metrics for project PSSR

Director of Operations

- Accountable for ensuring auditing system is developed to ensure facilities area safe to operate

Director of Maintenance

- Accountable for ensuring auditing system is developed for PSSR related to turnaround and/or maintenance execution as required

Engineering Manager

- Accountable for auditing project PSSR for proper documentation and effectiveness.
- Accountable for ensuring that Corrective Actions are completed
- Responsible for monitoring the metrics for PSSR

Project Manager is responsible for ensuring PSSR is completed on capital projects

- Accountable for ensuring that PSSR is completed
- Accountable for identifying the required Cross Functional Team member requirements for each project PSSR.
- Accountable for ensuring that PSSR discussion and action items are documented
- Responsible for ensuring that Corrective Actions are entered in appropriate tracking system completed in a timely manner for each project PSSR

Maintenance Manager

- Responsible for organizing PSSR on maintenance work as required

Turnaround Manager

- Responsible for organizing PSSR on Turnarounds as required

PSSR Leader is responsible for arranging and documenting PSSR

- Responsible for conducting the PSSR
- Responsible for documenting the discussion and action items from PSSR

Refinery Directors/Managers (all functional groups)

- Responsible for ensuring that appropriate resources are available for participation on the cross-functional PSSR teams
- Responsible for ensuring corrective actions assigned to their resources are appropriately addressed

Asset Owner (Operations Manager for Process Equipment) is responsible for ensuring that the equipment is safe to operate

- Responsible for screening the corrective actions to ensure they are required, prioritized and timelines are realistic
- Responsible for approving completion of PSSR and signing off that facility is safe to operate.

Environmental Advisor

- Responsible to ensure that the PSSR meets all Environmental Regulations
- Responsible to ensure that all requirements under the applicable Environmental Regulations & Refinery Environmental procedures are met

Refinery Safety Engineer

- Provide direction/consultation as necessary on the required make-up of PSSR team

Construction Co-ordinator

- Responsible for being the PSSR Leader for capital projects

2.0 GUIDANCE & STANDARDS

The following principles provide the framework for this Standard:

- The refinery shall establish, implement and maintain a process to ensure that new or modified equipment is thoroughly reviewed to ensure that it is safe to operate from a process safety viewpoint.

This Refinery standard complies with the Corporate Process Safety Management Standard related to Pre-Startup Safety Reviews.

The Ontario government has a regulation (O. Reg. 851/07) which mandates the requirements and situations whereby a formalized Pre-Start Health and Safety Review is required. The refinery PSSR process supports this process but does not replace the formal PSHSR report.

3.0 PSSR PROCESS

3.1 PSSR Requirements

A formal PSSR is required to be completed for any situation whereby the work that was completed has impacted the process safety information for the unit. The following situations require the completion of a PSSR prior to the introduction of hazardous materials or energy to the process:

- New facilities and modified facilities when the modification is significant enough to require a change in the process safety information
- Engineered Management of Change (MOC) where the physical equipment has been changed or altered
- Startups after turnarounds or unit outages
- Startups after a production unit or major piece of equipment have been mothballed or out of service for an extended period

The following situations are examples that do not require the completion of a formalized PSSR prior to operation of the equipment:

- Start up of equipment after replacement in kind maintenance work.
- Start up of equipment after routine maintenance has been completed and there has been no change to process safety information.

The intent of the PSSR process is to ensure that it is safe to operate equipment. As a result, the process must ensure:

- Construction of equipment is in accordance with design specifications.
- Safety, operating, environmental, maintenance, and emergency procedures are developed, adequate and authorized.
- Process Hazard Analysis (PHA) and/or HAZOP recommendations are resolved.
- Training required as a result of the change is developed and delivered to each affected employee involved in operating and maintaining the equipment
- Process safety information (drawings, specifications, etc.) has been updated and stored in Livelink.
- General requirements for safety, health, and environmental considerations are adequate (i.e. fire protection, ergonomics, physical conditions, etc.)
- The asset owner (typically the Operations Manager for process units) is aware of the review and approves the facility as safe to operate.

3.2 Assembly of PSSR Team

The PSSR should be completed by a cross functional team that is able to review the facilities to determine if it is safe to operate. The team must be composed of one or more persons with expertise and experience related to the issues involved in the modification or new production unit. This may include the following personnel:

- Refinery engineers (Operations Technical Specialist, Process Engineers and/or Reliability Specialists) knowledgeable in the process
- Individuals knowledgeable in design and construction requirements
- Operations representatives - Operators, OSL, OMC and/or Shift Engineers
- Maintenance representatives - various crafts
- Safety representatives
- Environmental representatives
- Occupational Hygiene representative
- Equipment inspection representatives
- Other personnel as determined based upon the type, complexity and size of the change

3.3 Execution of PSSR

ased on the criteria in the PSSR requirements section, once it has been determined that a PSSR is required to be completed, the appropriate PSSR leader will assemble a team to complete the review. The formal PSSR needs to be conducted when all, or essentially all, of the field installations are complete, but before the commissioning work has started.

A PSSR checklist has been developed to help guide the discussions and focus the review effort on ensuring all process safety considerations have been completed so that the equipment can be considered safe to operate.

To assist in executing the PSSR team, the PSSR leader will need to ensure that the documentation for the changes is readily available for the team. The following documents should be available prior to the start of the PSSR session, if applicable:

- Process description and operating conditions
- As-built P&ID
- PHA Recommendation status
- Operations and maintenance procedures/manuals
- Control narratives
- Safety systems descriptions
- NTE/OEL documentation
- Instrumentation Checklists

The review will consist of two parts:

- A conference room review of the changes and the PSSR checklist in an effort to discuss the status of the checklist items not requiring a field visit (i.e. training, procedures, etc.) and to generate a list of items for review in the field.
- A field visit by the PSSR team to verify the status of items requiring a field visit as well as to verify the status of issues identified during the conference room review.

The PSSR leader should lead the team in completing the PSSR checklist. For each portion of the checklist, the team must determine if the status of the item is adequate to allow the unit to start safely.

If the team determines that there are substandard conditions, they must identify the corrective action and the individual who is responsible for ensuring the issues are resolved as well as the appropriate due date for the resolution of the issue. The team must also determine if the issues must be resolved prior to starting the equipment. Equipment cannot be started until all corrective actions that require resolution prior to start up are verified as completed.

3.4 Tracking of Corrective Actions

All corrective actions that are identified as part of the PSSR process must be tracked using Action Management. Priority on resolution of these corrective actions should be based on the residual risk associated with the items, with highest priority given to those items that must be completed prior to start up of the equipment.

3.5 Authorization of PSSR

Once the PSSR is complete and all corrective actions required for safe start up of the equipment is complete, the PSSR leader will seek out the necessary approvals of the PSSR.

There are a number of approvals required prior to commissioning of new or modified assets. The following individuals must complete the approvals and authorization section of the PSSR checklist:

- PSSR Leader.
 - This signature authorizes that the PSSR Leader has completed the review and the actions items required prior to start up have been completed.
- Project Manager for Capital work (or Maintenance/Turnaround Manager if PSSR is for maintenance changes or after a turnaround)
 - This signature authorizes that the PSSR has been reviewed by the project/maintenance/turnaround manager and that all corrective actions have been entered into Action Management

- Area Environmental Advisor
 - This signature indicates approval that the new or modified equipment meets all environmental regulations and that environmental impacts have been considered.
- Technical Specialist (typically will be the Operations Technical Specialist for changes to process units)
 - This signature provides authorization that the PSSR has addressed technical concerns and that the new or modified equipment meets all technical design requirements
- Operations Maintenance Coordinator
 - This signature provides authorization that the PSSR has addressed general operational concerns and that the new or modified equipment meets all requirements that would be required by operations
 - This signature is only required for new or modified process equipment
 - For the case of turnarounds, the Operations Turnaround Coordinator would have authority to sign off on this process.
- Asset Owner / Operations Manager
 - This signature provides the final approval that the PSSR has addressed all concerns and that the new or modified equipment is safe to operate

The PSSR leader should seek out all appropriate approvals prior to reviewing the PSSR with the Asset owner (typically Operations Manager) and seeking out their final approval.

Only after the final approval from the asset owner deeming that it is safe to operate the equipment can the asset be started.

3.6 Documentation of PSSR

The final PSSR document for capital projects must be stored with the project files for the asset. After all of the outstanding action items relating to the pre-startup safety review have been completed, the project manager is responsible for scanning the document into the project information file. The file should be stored in the “Environmental Health & Safety” section of the project folder.

For modifications that are not being managed by the engineering group or for major pieces of equipment being returned to service after it has been mothballed or out of service for an extended period, the completed PSSR must be stored with the initiating MoC. To do so, the PSSR leader will electronically scan the PSSR document and attach it to the MoC within the SAP tool.

For a PSSR associated with a turnaround or a major outage, the completed PSSR must be stored with the EH&S documents related to the outage.

4.0 EXCEPTIONS

For new or modified assets that impact process safety information, there are no exceptions to this standard.

5.0 REFERENCES TO RELATED DOCUMENTS


The following Corporate Suncor documents are reference material for this standard and can be found in Livelink under the Suncor Process Safety Management System Standards folder or by clicking link below:

- [Process Safety Management Core Standard, CO-S09A](#)
- [Pre-Startup Safety Review Standard, CO-S19A](#)
- [Process Safety Management System Definitions](#)

The following external document is also a reference for this standard:

- Ontario Industrial Regulation 851, Section 7.

END OF REFINERY STANDARD

		<u>REVISION LOG</u>	
Date MM/DD/YYYY	Revision	Section	Comment
08/31/2010	0		Initial Issue of Standard
06/26/2012	1	All	Updated format but content was NOT altered
07/24/2013	-	Header	Document Owner & Contact Updated, but NO content changed. (L. Lebert)
06/16/2017	2	All	Document Contact Updated, but NO content changed. (T. Richard)

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The following individuals have approved and signed this document.

UserName: Todd Murray (toddmurray)

Title: Mgr EH&S Sarnia Refinery

Date: Wednesday, 05 July 2017, 06:45 AM Mountain Time

Meaning:

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