

PSM Chemical Pre-Startup Safety Review (PSSR) Checklist

A systematic review of new or modified facilities performed at mechanical completion prior to startup or the introduction of regulated PSM/RMP chemicals. PSSRs must be performed for all new facilities/stationary sources and for modified facilities/stationary sources when the modification is significant enough to require a change in the process safety information.

Complete the PSSR Checklist after mechanical completion and prior to facility startup.

By:

Updated:

Pressure/Vacuum Consideration				
1. Has protection been provided against overpressure and vacuum and is the correct size and setting relief device installed?	Yes	No	N/A	Comments
2. Is relief device discharge piping adequately braced against reaction forces and directed away from personnel?	Yes	No	N/A	Comments
3. Have weep holes or drains been provided in the discharge piping of pressure relief devices?	Yes	No	N/A	Comments
4. Have block valves been installed in relief device piping? If YES are they full port valves and are they locked open?	Yes	No	N/A	Comments

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5. Have new safety valves and rupture discs been tagged and entered into the routine maintenance program?	Yes	No	N/A	Comments
6. Have provisions for cleaning relief device piping been provided?	Yes	No	N/A	Comments
7. Have pressure relief device calculations been properly documented and incorporated into the master relief device records?	Yes	No	N/A	Comments
8. Have pressure relief devices been captured on the safety valve lock list if required?	Yes	No	N/A	Comments
9. Have pressure gauges or monitors been installed in the space between a rupture disc and pressure relief valve and is this space being monitored via operator rounds or DCS? Ensure gauge is on operator rounds checklist.	Yes	No	N/A	Comments

Temperature/Reaction Considerations

10. Have personnel been adequately protected from contact with hot surfaces?	Yes	No	N/A	Comments
11. Has potential for instrument failure (including computer shutdown) and loss of utilities been adequately addressed?	Yes	No	N/A	Comments
12. Has potential for leaks into or out of the process been adequately addressed?	Yes	No	N/A	Comments
13. Has potential for improper valve set-up or operating error been adequately addressed?	Yes	No	N/A	Comments

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Valve, Piping, and Vessel Considerations

14. Have cross-tied lines (pump headers, utility lines, etc.) been avoided where contamination, pressure, or temperature problems are likely?	Yes	No	N/A	Comments
15. Has a line by line review been conducted to assure that valves, piping, and vessels are installed as specified?	Yes	No	N/A	Comments
16. Are vents and drains located such that they do not create a personnel hazard?	Yes	No	N/A	Comments
17. Are sample points installed and properly configured for safe sampling?	Yes	No	N/A	Comments
18. Can valves and equipment be safely accessed for operation and maintenance? Do adequate provisions exist for cleanup and can all valves be locked, blinded or disconnected?	Yes	No	N/A	Comments
19. Are hoses and fittings the proper type and have bleedoffs been provided at hose connection points? Have hoses been fitted with current inspection tags? Were brittle pipe failure issues addressed?	Yes	No	N/A	Comments
20. Has adequate back-flow prevention been provided and installed properly?	Yes	No	N/A	Comments
21. Has appropriate testing been completed to ensure integrity of new or revised piping systems and is the piping system adequately supported or braced?	Yes	No	N/A	Comments

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22. Are process sight glasses, flow indicators, gauges, etc. properly armored?	Yes	No	N/A	Comments
23. Have lines and vessels been clearly labeled, including flow arrows and hazard identification symbols?	Yes	No	N/A	Comments
24. Has material of construction been verified to assure correct material was received and installed as per specifications? Were brittle pipe failure issues addressed?	Yes	No	N/A	Comments
25. Has the testing fluid been properly flushed from the piping or vessel and all test blanks and blinds been removed?	Yes	No	N/A	Comments
26. Have drawings been revised to show "as installed" condition?	Yes	No	N/A	Comments
27. Have equipment and piping been registered in the inspection program with new inspection due dates included? Has baseline Mechanical Integrity Inspection been performed and documented?	Yes	No	N/A	Comments
28. Have valve, piping, and equipment been pressure checked?	Yes	No	N/A	Comments
29. Have stress relieving requirements been met?	Yes	No	N/A	Comments
30. Has Risk Based Inspection evaluation and grouping been performed as required by N-G-MC-105?	Yes	No	N/A	Comments

Rotating and Mechanical Equipment Considerations

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31. Have adequate equipment guards been installed and adequate provisions exist for clean-up, isolation, and lock-out of equipment to perform maintenance?	Yes	No	N/A	Comments
32. Have deadhead pressure and seal leakage been considered for pumps?	Yes	No	N/A	Comments
33. Has the rotation of equipment been checked to assure it is correct and the lubricants and seal fluids been properly charged?	Yes	No	N/A	Comments
34. Is equipment adequately labeled?	Yes	No	N/A	Comments
35. Are capacities of lifting equipment, floors, and hoists clearly displayed and visible to the operator?	Yes	No	N/A	Comments
36. Are mechanical interlocks operating properly?	Yes	No	N/A	Comments
37. Has stress on machinery due to piping or nozzle loading been addressed?	Yes	No	N/A	Comments
38. Has the Reliability Group been notified in order to establish baseline vibration data or to add equipment to oil analysis monitoring?	Yes	No	N/A	Comments
39. Have flex hoses or hoists been installed that must be added to proper inspection programs?	Yes	No	N/A	Comments
Control Systems Considerations				

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40. Are instruments and alarms provided where necessary and unnecessary alarms avoided?	Yes	No	N/A	Comments
41. Has the fail safe function of valves been properly installed and tested and the actuator air supplies been valved in?	Yes	No	N/A	Comments
42. Has the potential for interaction with existing controls been reviewed?	Yes	No	N/A	Comments
43. Has the operation of interlocks, alarms, and control loops been verified? Have Z-devices been locked and tested?	Yes	No	N/A	Comments
44. Can automatic valves be properly isolated and cleaned for servicing or removal?	Yes	No	N/A	Comments
45. Have provisions been made for routine maintenance?	Yes	No	N/A	Comments
46. Have instrument loop drawings, cause and effects documents, and specification sheets been updated?	Yes	No	N/A	Comments
47. Have Z-devices been included on the lock list for review?	Yes	No	N/A	Comments
48. Have analyzers been included in the PM program?	Yes	No	N/A	Comments
49. Have SIL calculations been performed on "Z" devices as required by PA-P-EI-100?	Yes	No	N/A	Comments

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50. Have new Gas Chromatographs or other process stream analyzers been installed in the process that will require scheduled calibration or inspection?	Yes	No	N/A	Comments
Electrical System Considerations				
51. Have the correct electrical classification rules been observed?	Yes	No	N/A	Comments
52. Have start/stop switches and electrical switchgear been properly labeled and can electrical equipment be isolated safely by lock-out provisions for repair work?	Yes	No	N/A	Comments
53. Have conduit fitting covers been installed, conduit seals poured, and electrical equipment been adequately protected from weather and corrosion?	Yes	No	N/A	Comments
54. Have electrical protective relays and safety devices been checked for proper calibration?	Yes	No	N/A	Comments
55. Have electrical guards been installed and indicator lights operating properly?	Yes	No	N/A	Comments
56. Has ground installation been verified against construction drawings and tested per plant standard?	Yes	No	N/A	Comments
57. Are ground wires available for tank trucks, rail cars, and drums (as required)?	Yes	No	N/A	Comments
58. Has electrical heat tracing been properly installed, labeled, and provisions for lockout established?	Yes	No	N/A	Comments

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59. Is critical spare equipment fed from a separate power source?	Yes	No	N/A	Comments
60. Have electrical drawings been revised to reflect "as installed" condition?	Yes	No	N/A	Comments
61. Where needed are guards provided to prevent accidental tripping of switches?	Yes	No	N/A	Comments
Safety/Environmental Protection				
62. Have inert blankets, purges, sprinklers, and fire proofing been installed where specified?	Yes	No	N/A	Comments
63. Has the installation created the need for relocating or adding fire extinguishers, fire monitors, safety showers, eye baths, or air packs?	Yes	No	N/A	Comments
64. Is the lighting adequate?	Yes	No	N/A	Comments
65. Have tripping hazards or head knockers been avoided?	Yes	No	N/A	Comments
66. Do walkways and ladders provide safe access at all levels and are walking or working surfaces level, properly secured, and do they provide proper traction? Are safety gates properly installed?	Yes	No	N/A	Comments
67. Does equipment layout provide safe access for operation and maintenance?	Yes	No	N/A	Comments

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68. Have elevated work requirements been met?	Yes	No	N/A	Comments
69. Is the work area adequately ventilated where needed?	Yes	No	N/A	Comments
70. Are adequate provisions made for drum and cylinder handling?	Yes	No	N/A	Comments
71. Has the HAZCOM program been updated to reflect changes in chemicals? Are MSDS available?	Yes	No	N/A	Comments
72. Do signs adequately identify work area hazards and provide proper instruction?	Yes	No	N/A	Comments
73. Are exit and egress routes clearly identified?	Yes	No	N/A	Comments
74. Have any new noise areas been created or existing areas been made worse?	Yes	No	N/A	Comments
75. Has the system been reviewed to assure minimal personnel exposure to toxic chemicals during operation and maintenance?	Yes	No	N/A	Comments
76. Can hazardous materials from spills or maintenance preparation be safely handled? Have adequate provisions been made for disposal of all wastes? Have waste lines been routed to appropriate sewers?	Yes	No	N/A	Comments
77. Will run-off water be adequately contained if it becomes contaminated? Have all containment	Yes	No	N/A	Comments

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issues been adequately addressed?				
78. Have all environmental permits been obtained? 18. VOC Equipment List update needed and provided to LDAR contractor to ensure new components are tagged and monitored?	Yes	No	N/A	Comments
79. Has LDAR P&IDs been color coded with appropriate stream identification and provided to the LDAR contractor and TES department as required by PA-P-BR-205?	Yes	No	N/A	Comments
80. If expansion joints are being installed, have they been added to the inspection program required by PA-P-MC103?	Yes	No	N/A	Comments
81. Have any site boundary isolation points been created or modified? If so, update Master Boundary Isolation documentation.	Yes	No	N/A	Comments
Other Considerations				
82. Have all Management of Change items been completed as required by the MOC Form?	Yes	No	N/A	Comments
83. Does the facility comply with all applicable engineering standards and design specifications?	Yes	No	N/A	Comments
84. Were any safety problems created during the construction package?	Yes	No	N/A	Comments
85. Have operating procedures been written, and operating parameters established and has operator training been conducted?	Yes	No	N/A	Comments

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86. Have the safety and emergency procedures been updated?	Yes	No	N/A	Comments
87. Has the potential impact of the change on unchanged facilities been adequately addressed?	Yes	No	N/A	Comments
88. Has spare critical equipment been provided and set up in the warehouse inventory?	Yes	No	N/A	Comments
89. Have maintenance procedures been updated?	Yes	No	N/A	Comments
90. Have all equipment files been updated?	Yes	No	N/A	Comments
91. Have instrument/analyzer procedures been updated?	Yes	No	N/A	Comments
92. Have specialty items been documented and included in the PM program?	Yes	No	N/A	Comments
93. Does any new equipment installed make existing spare parts obsolete from the storeroom or other staged areas?	Yes	No	N/A	Comments
94. Has Equipment Registration along with creation of Functional Location, spare parts, and preventive maintenance been completed as required by PA-P-ME101?	Yes	No	N/A	Comments
95. Has MOC Coordinator updated the Control Room Master P&IDs by attaching the redline P&IDs to the affected master P&IDs?	Yes	No	N/A	Comments

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