1. Employee Involvement – four (4) elements
   a. Employees and Representatives consultation to develop PSM
      i. Team Involvement and Responsibilities for every element
   b. Training and Education
   c. Communication (e.g. incident investigation results)
   d. Access to PSM, records, outcomes

2. Process Safety Information (PSI) – Twenty (20) elements
   a. Hazards of Regulated Substance (e.g. MSDS) – six (6) elements
      i. Toxicity (e.g. health hazard)
      ii. PEL (e.g. health hazard)
      iii. Physical Data
      iv. Reactivity Data (e.g. fire, explosion)
      v. Corrosive Data
      vi. Thermal and Chemical Stability Data (e.g. storage, handling)
      vii. MSDS, Manufacturers Specifications and Training
      viii. Properties and hazards of the regulated chemicals
   b. Technology of the Process – five (5) elements
      i. Block Flow Diagram and/or Process Flow Diagram
         1. interconnecting flow lines, flow rates, stream composition, temperatures, pressures, feed lines, valves, headers, heat exchangers, points of pressure and temperature control, and control loops
         2. pump capacities, pressure heads, compressor HP and vessel design
      ii. Process Chemistry
      iii. Maximum Intended Inventory – include minimums
      iv. Safe Upper & Lower Limits (e.g. safe or upset conditions)
      v. Consequences of Deviation (e.g. qualitative estimate, results of)
      vi. Facility Operating Manuals, Design criteria
   c. Equipment in the Process – eight (8) elements
      i. Materials of Construction (e.g. alloys, coatings, co-annular plumbing)
      ii. Piping and Instrumentation Diagrams (P & ID) and/or Vendor “As-builts” and/or piping schedules
      iii. Electrical Classification
      iv. Relief System Design & Design Basis including scenarios/relief calculations
      v. Ventilation System Design
      vi. Design Codes and Standards Employed – ASME/ANSI/NFPA/ASTM/etc
      vii. Material and Energy Balances
      viii. Safety Systems (e.g. interlocks, detection or suppression) – what they are and what they do (e.g. analyzers/detectors/, isolation/vent valves, scrubbers, fire and explosion suppression)
      ix. Manufacturers Operating Manuals and Specification Sheets
3. Process Hazard Analysis – seven (7) elements
   a. Process steps and flow (e.g. from NTO receipt to disposal) – block diagram
      i. Identify hazards
      ii. Equipment, instrumentation, utilities, human actions, external factors
   b. Previous Incidents and Investigation results
   c. Failure Consequence
   d. Engineering & Administrative Controls
   e. Facility Information - Site Location Map, Plot Plan, “Siting”, Evacuation Map
      (Exits/Muster-Rally points)
   f. Human Factors
   g. Safety and Health impact (qualitative)
   h. Methodologies – What-If, What-If/Checklist, HAZOP, FMEA, Fault Tree, JHA

4. Operating Procedures – eleven (11) elements
   a. Operational Instructions (e.g. SOP/LWI) all tasks, each step, all operating phases
      i. Initial startup – hardening,
      ii. Normal operation - within safe operating limits (i.e. normal operation)
      iii. Temporary operation
      iv. Emergency operation - shutdown
      v. Examples: shift handover, shift logs, initial setup, normal operations, temporary
         operations, emergency shutdown and emergency operation, LOTO, Hot Work,
         chemical handling, RCRA
      vi. Emergency procedures – upset conditions including what visible/audible alarms
         will be expected, handoff to qualified personnel
   b. Operating Limits – three (3) elements
      i. Include pressure limits, flow rates, temperature range
      ii. Consequences of Deviation
      iii. Steps to correct or avoid deviation
   c. Safety and Health Considerations – five (5) elements
      i. Engineering and Administrative Controls to avoid exposure
      ii. Personal Protective Equipment to avoid exposure
      iii. Safety Systems and their functions
      iv. Quality Control Steps for raw materials and control of hazardous chemical
          inventory
      v. Special and Unique Hazards

5. Training for Process & Operations – three (3) elements
   a. Initial Training – process overview and Operating Instructions
   b. Refresher Training (every 3 years)
   c. Documentation

6. Contractors – three (3) elements
   a. Applicability – in/on/around process doing Maint/Repair/Turnaround/Renovation/etc
   b. Employer Responsibility Checklist
   c. Contractor Responsibility Checklist
7. Pre-Startup Safety Review – four (4) elements
   a. Confirm construction & equipment in accordance with design
   b. Confirm Safety, Operating and Emergency Procedures in place
   c. PHA and recommendations completed
   d. Training Completed

8. Mechanical Integrity (documentation) – four (4) elements
   a. Written procedures for Testing & Inspection & Certification
   b. Written procedures for Maintenance and Repair
   c. Written procedures for Mechanic Training and Qualification, include schedule
   d. Written procedures for Quality Control of spare parts, materials and equipment

9. Hot Work – three (3) elements
   a. Written policy/procedure for HW program
   b. HW permits
   c. Training

10. Management of Change Process – four (4) elements
    a. Facilities
       i. Type of modification (Addition/Change vs. Replacement-in-kind)
       ii. Written procedure for Review and Authorization
           1. Technical basis and rationale for proposed change
    b. Modification of PSI, PHA and Operating Procedures – Hazard Impact
    c. Safety, Health and Environmental (SHE) Implications
    d. Time Period for change – Project Management, Trial Evaluation

11. Incident Investigation – three (3) elements
    a. Policy/Procedure for Incident Investigation
    b. Incident Investigation Forms
    c. Training

12. Emergency Response Plan (ERP) – two (2) elements
    a. Policy/Procedure for Emergency Action/Response Plan 29 CFR 1926.35(a)
    b. Crosscheck 29CFR1926.65(a, p, q) applicability
    c. Training

13. Compliance Audits – one (1) element
    a. Certification of Compliance every three (3) years

14. Trade Secrets – one (1) element
    a. Employers must make available all information necessary to comply with PSM to those persons responsible for compiling the process safety information, those developing the process hazard analysis, those responsible for developing the operating procedures, and those performing incident investigations, emergency planning and response, and compliance audits, without regard to the possible trade secret status of such information. Nothing in PSM, however, precludes the employer from requiring those persons to enter into confidentiality agreements not to disclose the information.