

**Hilscher-Clarke**  
**Process Safety Management**  
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## Process Safety Management Program

<b>Worksite/Contract Name &amp; Number</b> _____
Physical Location _____
Name of Person Completing this Program _____
Title of Person Completing this Program _____ Date _____

### Introduction

Hilscher-Clarke, has developed this program for the *(insert the process that this PSM program covers)* to meet the requirements of OSHA standard 29 CFR 1910.119 Process Safety Management of Highly Hazardous Substances (PSM). Additional program requirements have been taken from applicable ANSI (American National Standards Institute) Standards.

### Responsibilities

#### President:

- Assign sufficient resources and qualified employees to ensure safe operating and material conditions are maintained;
- Assign the Safety Manager to oversee and direct *(insert the process that this PSM program covers)* operations, maintenance and training.
- Involve *(insert the process that this PSM program covers)* operators in the various elements of this program;
- Request, as necessary, assistance from Company Engineering to execute the PSM Program and conduct effective audits.

#### Safety Manager:

- Train all *(insert the process that this PSM program covers)* operators in hazards of the *(insert the process that this PSM program covers)* process, safe operating procedures, and good engineering practices;
  - Assign tasks based on operators' level of knowledge.
  - Monitor maintenance and operations activities to ensure they comply with good engineering practice;
  - Ensure contractors are provided the information required by this program;
  - Document the information, activities, inspections, etc. required by this program.
- (Insert the process that this PSM program covers)* Operators:
- Actively participate in the PSM Program;
  - Exercise good engineering practices in the operation and maintenance of the *(insert the process that this PSM program covers)* systems;
  - Comply with all safety procedures.
  - Provide PSM overview indoctrination training for all new employees as part of Hilscher-Clarke's New Hire Safety Orientation training.

**Section 1: Process Safety Information (PSI)** is the technical information on the process and equipment in the ( Name of Process ) system. This information allows for accurate Process Hazard Analysis and maintaining information on the system for operator training and reference.

**Records:**

PSI Records are contained in this section, equipment manuals, Operating Procedures section, Mechanical Integrity section, and at Hilscher-Clarke main office.

Record maintenance and update is the responsibility of ( Insert Name of Responsible Officer ).

**Hazards of ( Insert Name of Process Chemical ) :**

**(Place MSDS Information Here)**

**Block Flow Diagram:**

**(Insert Process Block Diagram Here)**

**Piping and Instrument Diagrams:**

**(Generally, engineering drawings are extensive. State the location of the drawings)**

**Process Chemistry:**

(Insert Name of Process) is a \_\_\_\_\_ process. The (Insert Chemical Name) used in the (Insert Name of Process), is processed to \_\_\_\_\_. The (Insert Name of Process) cycle consists of (Insert Number) of processes:

(List and briefly describe each process, the physical and chemical changes that occur in each process.)

**Process Safety Information**  
**for (Name of Process Chemical)**

**Maximum Intended Inventory:**

The maximum intended (Insert Name of Process Chemical) inventory at this facility is (Insert Number of Pounds Mass or Gallons or Cubic Feet). This is based upon contractor calculations and charges to the system since start-up. The normal operating inventory is \_\_\_\_\_.

**Technology of Process Changes:**

(Briefly describe the technology used in the process, unique attributes of the process and who controls the technology (i.e., Hilscher-Clarke, the client, standard process, accepted industry standards for the process).

**Materials of Construction:**

The (Insert Name of Process) piping system was constructed of:  
(Insert List of Materials)

conforming to American Society of Testing and Materials specification \_\_\_\_\_ for service at or above \_\_\_\_\_ degrees F. and \_\_\_\_\_ for service below \_\_\_\_\_ degrees F. All pipe greater than or equal to 2½" is schedule \_\_\_\_\_ and all pipe less than or equal to 2" is schedule \_\_\_\_\_. All future piping will conform to these standards.

All Pressure Vessels, compressors, reactors, storage vessels, oil pots, and any other equipment in the (Insert Name of Process) system is designed and built according to industry standards. Specific data is located in the equipment manuals in the (List Location Where Manuals Are Maintained).

**Electrical Classification:**

The electrical classification for the (Insert Name of Process) system conforms to the safety code for mechanical (Insert Name of Process) ANSI Standard \_\_\_\_\_.

**Pressure Relief System Design:**

The (Insert Name of Process) pressure relief system is designed in accordance with the American National Standard for equipment Design and Installation of (Insert Name of Process) Mechanical (Insert Name of Process) Systems ANSI/IIAR \_\_\_\_\_ and ANSI/ASHRAE \_\_\_\_\_.

Refer to the Operating Procedures for more information. A list of the Pressure Relief Valves is provided.

**Ventilation System Design:**

The \_\_\_\_\_ ventilation system is designed in accordance with the American National Standard for Equipment, Design, and Installation of (Insert Name of Process) Systems ANSI/IIAR \_\_\_\_\_ Section \_\_\_\_\_.





**Section 2: Process Hazard Analysis (PHA):** Hilscher-Clarke has established a PHA team to identify equipment, operating procedures, and conditions where the potential exists for employee exposure and environmental hazards associated with (Insert Name of Process).

Employee exposure hazards would typically involve liquid (Insert Name of Process) spills and/or accidental releases of (Insert Name of Process Chemical).

Environmental hazards occur when vapor releases or liquid spills reach beyond the property line, into the atmosphere, or into the ground.

#### **PHA Team:**

The team consists of:

1. (Insert Name and Title)
2. (Insert Name and Title)
3. (Insert Name and Title)
4. (Insert Name and Title)

(Insert Name and Title) is the designated Competent Person. (Insert Name) is experienced in (Insert Name of Process) and has received training in Process Hazard Analysis.

(Insert Name and Title) is the designated Team Leader.

#### **PHA Method:**

The What-If methodology has been selected as the process for PHA at this worksite.

- The team develops "What-If" questions using sub-systems from the PI & D's and identified consequences, identified safeguards, identified recommendations, and ranked severity and likelihood.
- Recommendations are made based upon the "What-If" questions and are submitted to Engineering for review.
- PHA's are conducted for:
  - Initial Program Development;
  - When there are changes to PSI; and
  - Are revalidated at least every 5 years.

#### **PHA Resolution System:**

When PHA's are completed/reviewed by the team, the recommendations will be sent to the Company Engineer for comment. After the Engineer's review is completed, the PHA Team Leader will develop a plan of action for:

- Documenting reasons recommendations were not utilized;
- Implementing necessary recommendations;
- Documenting system changes in PSI;
- Documenting PHA Recommendation completed items.

Basic Resolution Time Frame Guidelines:

- Submit PHA's to Engineering within 1 week of completion;
- Document Engineering review when returned;
- Develop PHA resolution within 2 weeks after Engineering Review.

**Section 3: Written Operating Procedures** have been developed for (Insert Name of Process) system. The Operating Procedures are available to all employees, contractor employees, and authorized representatives.

### **Operating Procedure Format**

Most Operating Procedures will follow the following format:

1. Description/Purpose of the equipment.
2. Name of the procedure.
3. Listing of equipment involved in the procedure.
4. Desired operating ranges for temperature, etc.
5. Consequences of deviation from desired temperature, etc.
6. Steps required to correct and/or avoid deviation.
7. Safety systems.
8. Safety and health considerations.
9. Operator requirements.
10. Step by step procedures.
11. Comments, table of contents, and/or revisions section, with original date.
12. Developed and revision dates and distribution instructions.

### **Operating Procedure Content**

The following procedures will be addressed, as applicable, in each Operating Procedure.

1. Initial startup.
2. Normal operations.
3. Temporary operations.
4. Emergency operations.
5. Power failure.
6. Emergency shutdown.
7. Normal shutdown.
8. Startup following a turnaround or emergency shutdown.
9. Alarm testing and response.
10. Charging (Insert Name of Process) to the receiver or storage vessel.
11. Transferring (Insert Name of Process) from a storage vessel to a receiver or seal vessel.
12. Valving in/Valving out (Insert Name of Process) equipment in the system.
13. Tying multiple systems together (where applicable).
14. Removal or disposal of (Insert Name of Process) vessels.
15. Draining compressor oil from (Insert Name of Process) vessels.
16. Changes in operating limits and alarms during modes other than normal operation.

### **Equipment Procedures:**

Operating Procedures are to be maintained (if applicable) for the following (Insert Name of Process) equipment:

1. Compressors
2. Reactors
3. Condensers
4. Pressure Vessels
5. Purgers
6. Pumps
7. Mixers
8. Filter Systems
9. Alarm Systems
10. Distribution Stations

**Section 4 - Training:** Training is an essential part of the PSM Program. It provides a means of conveying information and ensuring comprehension of information.

There are 3 categories of persons who must have training as required by the OSHA PSM Standard:

- (Insert Name of Process Chemical) Operators/Technicians.
- Other employees.
- Contractor Employees (this training is discussed in Section #6 of this plan).

The Safety Manager is responsible for conducting and ensuring effective training of employees and contractors. There are 4 phases of Operator training:

1. Initial training covering the elements of the PSM Program and an overview of the process and operating procedures. The training shall include emphasis on the specific safety and health hazards, normal and emergency operations including shutdown, and safe work practices applicable to the employee's job tasks. Initial training will also include:
  - Understanding various parameters;
  - Identification of abnormal conditions; and
  - Procedures for restoring the system to normal.

This training is required before any unsupervised tasks are assigned. Additional Emergency Response Team Training and training in other Safety Policies and Procedures will be conducted in the same manner as for other employees.

- Materials such as training videos and computer review and examinations will be used to ensure the quality and correctness of training.
- Other training material will include documents such as PHA, PSI Operating Procedures specific to the (Insert Name of Process) equipment at this worksite.

2. On-the-Job Training on the system and the hazards associated shall be a continuous process for each employee. This continuing training shall be accomplished by:
  - Assigning new employees to assist more experienced Hilscher-Clarke employees in complex tasks and evolutions.
  - Having employees review the latest technical material such as Vendor "Equipment News Releases" or "Equipment Bulletins".
  - Employee participation in Safety Meetings and/or "Toolbox Topics".
3. Refresher training will be conducted periodically by knowledgeable individuals covering all aspects of the initial training. Refresher training will be conducted at a minimum every 3 years.
4. Training on changes in the process or systems will occur when the "Management of Change" procedures dictates the need.

**Other Employees:**

Employees who do not work with the (Insert Name of Process) system are provided a brief and written information on the PSM program as part of the New Employee Orientation Program.

**Documentation:**

A training file is maintained on each Hilscher-Clarke employee. This file documents all training and involvement in the PSM/(Insert Name of Process) and Safety Programs. The Human Resources Representative maintains these training files.

**Process Safety Management Training Document  
for (Insert Name of Process Covered by PSM)**

Worksite/Contract Name & Number _____
Physical Location _____
Name & Title of Person Providing Training _____
Signature of Person Providing Training _____ Date _____

Hilscher-Clarke has implemented a Process Safety Management (PSM) Program, in compliance with OSHA Standard 29 CFR 1910.119. The purpose of this program is to prevent or minimize the consequences of catastrophic releases of toxic, reactive, flammable or explosive chemicals and to ensure that employees are not exposed to undue risk.

Hilscher-Clarke's PSM Program details specific precautions and procedures affecting the safe operation and maintenance of the (Insert Name of Process) process. This program has been developed with the participation of employees involved with the operation and maintenance of this process.

All employees have access to the PSM manuals and files, under the following conditions:

- Approval is required to remove any documents from the file.
- Original documents may not be removed from the "Job Trailer" or Hilscher-Clarke's Home Office.
- Copies of original documents will be provided, upon written request, within 10 working days.
- No markings shall be made on original documents.

**Training**

Those employees involved with the (Insert Name of Process), including any contractor employees, shall complete specific training as detailed in the PSM program.

*Verify that I have read (or had read to me) and understand I have been informed of the existence of the Process Safety Management program for (Insert Name of Process). I acknowledge that I may contact the President or Safety Manager for answers to any questions I may have about this program.*

Employee Name \_\_\_\_\_

Unique Employee I.D. No. \_\_\_\_\_

Signature \_\_\_\_\_

Date \_\_\_\_\_

## Section 5: Contractors

Contractors under the Process Safety Management program are those who are involved in the installation or maintenance of (Insert the Process Covered in this Program) equipment and systems at this worksite. All contractors, covered in this PSM Program will be provided necessary information concerning the (Insert the Process Covered in this Program) process, equipment and procedures.

### Specific Requirements

**Pre-Work Review:** Prior to allowing a contracting company to commence work in the (Insert Process Covered in this Program) process the following requirements must be met:

- Obtain and evaluate information regarding the contract employer's safety performance and programs (written documentation is required).
- Inform contract employers of the known potential fire, explosion, or toxic release hazards related to the contractor's work and the process.
- Explain to contract employers the applicable provisions of the "Emergency Action Plan".
- Provide contractors with copies of worksite safety policies and procedures, safety and emergency procedures and a copy of this PSM program.
- Complete all the requirements of the Company Contractors Liability Agreement.
- Inform the contractor that a periodic performance evaluation will be conducted to ensure the Contractor and contract employees are fulfilling their obligations.
- Inform the Contractor that a contract employee injury and illness log related to the contractor's work in process areas must be maintained on site for the duration of the contract work.
- The contractor employer must provide information relating to any unique hazards presented by the contractor employee's work or any hazards found by the contractor employees.

**Prior to the start of any work the Contractor must provide the following documentation:**

- Their safety program information and other documentation required by the Company Contractors Liability and Safety Agreement.
- Certification that they have informed their employees of potential fire, explosion, or toxic release hazards that may exist at or near their work area at this worksite and that they have explained the worksite Emergency Action Plan to their employees.
- Training documentation concerning training provided to their employees to insure they understand the safe work necessary to safely perform tasks.
- Certification that they have explained the Company Hot Work Permit Program and other permits Hilscher-Clarke uses that will be needed during their time on Hilscher-Clarke worksite.
- Agreement to advise Hilscher-Clarke of any unique hazards presented by their work and any found during their work.
- Certification that materials, parts and equipment to be installed in the (Type in the Process Covered in this Program) system meet industry and engineering standards for the application used.

The Safety Manager is responsible for issuing information and documents to the contractor and collection and review of contractor information and certifications.

### Access Control

\_\_\_\_\_ maintains security around the facility and process area to insure that no unauthorized contractors or contractor employees have entrance or presence in or to the process area, and that a safe exit is provided and maintained.

Access to the facility is through \_\_\_\_\_ and \_\_\_\_\_ controlled by \_\_\_\_\_.

## Process Safety Management Program – Contractor Safety Information

Company Name:			
Physical Address:		Mailing Address:	
City:		State:	Zip Code:
Phone #:	Fax #:	E-Mail:	
Company Contact:		Person Completing Application:	
Describe the type of services to be provided/performed by your company:			

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### Safety Performance

**Definitions:**

**Employee** – Any person engaged in activities for an employer from whom direct payment for services is received. Including owners and officers.

**Employee Hours** – Total number of hours worked, during the defined year, by all employees, including those in operating, production, maintenance, transportation, clerical, administrative, sales and all other activities.

**EMR** - A copy of the company's most current experience exhibit from the Ohio Bureau of Workers' Compensation or proof of your EMR from a third-party administrator.

$$\text{Incidence Rate of Recordable Cases - } \frac{\text{Number of Recordable Cases x 200,000}}{\text{Total Employee Hours}}$$

$$\text{Incidence Rate of Lost Workday Cases - } \frac{\text{Number of Lost Workday Cases x 200,000}}{\text{Total Employee Hours}}$$

**Number of Fatalities** – Total number of fatalities that result from occupational injuries or illnesses. Deaths that occur in the workplace but are not the result of occupational injuries or illnesses should not be included.

**Number of Lost Workdays** – Recordable cases that result in one or more days away from work. Do not include the employee's normally scheduled "Days Off" from the number of days away from work.

**Number of Lost Workday Cases** – Any Recordable Case that results in death or lost workdays with days away from work.

*Note: Recordable cases that result in lost workdays with restricted activity should not be added in this figure. Only Recordable Cases that result in one or more days away from work should be counted.*

**Recordable Cases** – Any work-related injury case requiring more than first-aid and all occupational illnesses. Recordable cases include all occupational illnesses, and all occupational injuries resulting in lost workdays either days away from work or days of restricted work activity, medical treatment other than first aid, loss of consciousness, restriction or work or motion, temporary or permanent transfer, or the termination of an injured or ill employee.

$$\text{Severity Rate - } \frac{\text{Total Number of Lost Workdays x 200,000}}{\text{Total Employee Hours}}$$

$$\text{Vehicle Accident Rate - } \frac{\text{Total Vehicle Accidents x 1,000,000}}{\text{Total Miles Driven By all Company Vehicles}}$$

1. List your company's Experience Modification Rate (EMR) for the three most recent years. Proof of EMR verification must be attached to this application:

Year	Experience Modification Rate

1. Utilize your company's OSHA 300 logs for the three (3) most recent years. Copies of the relevant OSHA 200 logs must be attached to this application:

Year	Ave. No. Of Employees	Exposure or Empl. Hrs.	Number Of Recordable Cases	Incident Rate of Recordable Cases	No. of Lost Workday Cases	Incidence Rate of Lost Workday Cases	No. Of Lost Workdays	Severity Rate	No. Of Fatalities	Vehicle Accident Rate

2. Please use information from your current OSHA 300 log to supply the following information (current to date of application):

Number of lost workday cases.	
Number of restricted workday cases.	
Number of cases with medical attention only.	
Number of fatalities	

3. Are accident reports (OSHA 301) and report summaries sent to the following? If yes, how often?

	Yes	No	Monthly	Quarterly	Annually
Site Supervisor					
Safety Manager					
President					

## Safety Program

### 1. Safety Program Documentation

	Yes	No
Do you have a written safety field manual? <ul style="list-style-type: none"> <li>▪ If yes, last revision date: _____</li> </ul>		
Does each level of management have assigned safety duties and responsibilities?		
Do you have a disciplinary process for enforcement of your safety program?		
Do you have a written policy on accident reporting and investigation?		
Do you have a light-duty, return-to-work policy?		
Do you safety pre-qualify subcontractors?		

2. Does your company offer safety instruction/training on the following?

Program/ Training	Formal Training Provided (Yes/No)	Written Program Available (Yes/No)	Frequency of Training	Last Program Revision Date
Barricades, Signs, & Signals				
Blasting				
Bloodborne Pathogens				
Compressed Air & Gasses				
Concrete work				
Confined Space Entry				
Confined Space Attendant				
Confined Space Rescuer				
CPR/First Aid				
Cranes/Rigging & Hoisting				
Disciplinary Program				
Electrical Grounding				
Electrical Safety – Authorized				
Electrical Safety – Qualified				
Emergency Procedures/Evacuation				
Fall Protection				
Fire Protection & Prevention				
Flammable Material Handling/Storage				
Floor & Wall Openings				
Hazard Communication (HAZCOM)				
Hearing Conservation				
Housekeeping				
Ladders & Scaffolds				
Lead Exposure				
Energized/Pressurized Equipment				
Lockout/Tagout - Affected				
Lockout/Tagout - Authorized				
Material Handling/Storage				
Mechanical Equipment/Maintenance/ Pre-op Checks & Operation				
Overhead Power Lines				
Personal Protective Equipment (PPE)				
Powered Industrial Trucks (Forklift)				
Respiratory Protection				
Sandblasting				
Scaffold				
Tools – Power & Hand				
Traffic Control				
Trenching/Shoring				
Vehicle Safety				
Walking, Working Surfaces				
Welding & Cutting (Hot Work)				
Additional Training:				
Additional Training:				
Additional Training:				

**3. Training and Orientation:**

- a. Do you conduct safety orientation training for each employee?  Yes  No
- b. Do you conduct site safety orientation for every person new to the job site?  Yes  No
- c. Does your safety program require safety training meetings for each supervisor (foreman and above)?  
 Yes  No  
If yes, how often?  
 Weekly  Monthly  Quarterly  Annually
- d. Do you hold Toolbox/Tailgate safety meetings focused on specific worksite safety topics/issues?  
 Yes  No  
If yes, how often?  
 Weekly  Bi-Weekly  Monthly  Quarterly
- e. Do you require equipment operation/certification training?  Yes  No

**4. Administration & Procedures**

- a. Do you conduct job site safety inspections?  Yes  No  
If yes, how often?  
 Weekly  Bi-Weekly  Monthly  Quarterly  
If yes, who conducts this inspection? \_\_\_\_\_

Do these inspections include routine safety inspection of equipment (i.e., scaffold, ladders, fire extinguishers, etc.)?  Yes  No

How, and to whom, are the results communicated? \_\_\_\_\_

If the inspection documents deficiencies in any safety issue, what is the procedure for correcting the safety violation(s) and in what time frame?  
\_\_\_\_\_  
\_\_\_\_\_

- b. Do you investigate accidents?  Yes  No  
How are they reported?  
 Total Company  By Superintendent  
 By Project  By Safety Manager  
 By Foreman  Other; Please explain \_\_\_\_\_
- c. Do you discuss safety at all preconstruction and progress meetings?  Yes  No
- d. Do you perform rigging and lifting checks prior to lifting?  Yes  No
- e. Do you have a written substance abuse program?  Yes  No (If yes attach copy to application).  
If yes does it include:  
 Pre-Employment  Return-to-duty  
 Random  Reasonable Cause/Suspicion  
 Post Accident  Other; Please explain \_\_\_\_\_

If yes, does your alcohol/drug testing program conform to DOT requirements?  Yes  No

Comments: \_\_\_\_\_  
\_\_\_\_\_

f. Does your company use subcontractors?  Yes  No

If yes, explain: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Does your company review the safety procedures of subcontractors?  Yes  No

If yes can you supply documentation?  Yes  No

Does your company verify that subcontractors meet or exceed your safety and training requirements?  
 Yes  No If no, please explain: \_\_\_\_\_  
\_\_\_\_\_

**5. OSHA Inspections**

a. Have you been inspected by OSHA in the last three years?  Yes  No

b. If yes, were any of these inspections in response to complaints?  Yes  No

c. Have you been cited as a result of these inspections?  Yes  No

If yes, describe the details (attach additional documentation if necessary):  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**6. Are all documents pertaining to this questionnaire available for auditing?  Yes  No**

**If No, provide details:**  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Your signature below will serve as certification that Hilscher-Clarke can have access to property and data generated from the records related to this application and your safety and health program.**

Name (Type or Print):	Title:
Signature	Date:

## Process Safety Management Program – Contractor Safety Evaluation

*Return one (1) copy of this completed form and the associated documentation required to:*

**Hilscher-Clarke  
519 Fourth Street, N.W.  
Canton, Ohio 44703**

### Comment Section

Contractor Name:	Contractor EMR:	
Extenuating Circumstances (if applicable give complete detailed explanation):		
Specific Steps To Be Implemented To Improve Existing Safety Program:		
<input type="checkbox"/> <b>Approved</b> <input type="checkbox"/> <b>Disapproved</b> If Disapproved, date subcontractor can resubmit package for consideration: _____		
Name of Person Reviewing Submission:	Signature of Person Reviewing Submission:	Date:

Attachments: Example of Contractor Safe Work Permit  
Example of Contractor Safety Audit Form

### Contractor Safe Work Permit

Contractor				
Project Description				
Location				
Start Date		Completion Date		Review Date
Contractor Safety Officer			Phone #	
Contractor Insurance Reviewed			Date	
Permit Prepared By			Date	
Permit Approved By			Date	
Check if Project Involves	Yes	No	Initial After Review of Contractor Safety Procedures	
			Completed	Comments
Hot Work – Welding, etc.				
Electrical Systems				
Rigging or Heavy Lifting				
Elevated Work				
Confined Space Entry				
Hazardous Chemicals				
Ladders/Scaffolds				
Powered Industrial Trucks				
Respirators				
Roof Work				
Systems Covered by PSM/RMP				
Structural Work				
Notes & Updates				

**Issued by:**

Signature	Title	Date
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**This Permit is void after: \_\_\_\_\_**

## Contractor Safety Audit Form

Worksite/Contract Name & Number:		Physical Location:	
Name of Person Performing Audit:		Date of Audit:	
Area	Satisfactory	Action Required	Corrective Action Taken (Date)
<b>Employee Knowledge</b>			
Last Date of Training			
Contractor Requirements			
<b>Program Administration</b>			
Last Audit Date			
Written Program			
Company Safety Contact for Contractors			
<b>Records</b>			
Contractor Training			
Inspections			
Contractor Insurance			
Contractor Agreements			
Subcontractor Agreements			
<b>Safeguards</b>			
Engineering Safeguards			
Administrative Safeguards			
Training Safeguards			
<b>Area Inspection</b>			
Contractor Areas Isolated			
PPE Used by Contractors			
Signs Posted (if applicable)			
<b>Notes</b>			

**Section 6: Pre-Startup Safety Review**

Hilscher-Clarke will perform a pre-startup safety review for new worksites and for existing structures when the modification is significant enough to require a change in the process safety information already on file/documentated.

<b>Worksite/Contract Name &amp; No:</b>		<b>Physical Location:</b>	
<b>Name of Person Performing Pre-startup Safety Review:</b>		<b>Title of Person Performing Pre-startup Safety Review:</b>	
<b>Signature:</b>		<b>Date:</b>	
	<b>Satisfactory</b>	<b>Action Required</b>	<b>Corrective Action Taken (Date)</b>
Verify that all construction is in accordance with specification(s).			
Ensure that appropriate tests & inspections have been performed.			
Ensure, safety, operating, and maintenance procedures are adequate.			
PHA has been conducted.			
PHA recommendations have been addressed prior to start up.			
Operating Procedures are current, reflecting system modifications.			
Training of operating personnel in changes has been completed.			
<b>Notes/Comments:</b>			

## Section 7: Mechanical Integrity

Hilscher-Clarke will provide written procedures for inspections and testing in order to properly maintain the equipment involved in (Insert Name of Process).

### Operator Training

All Operators for the (Insert Name of Process) will be trained to:

- Understand system parameters and actions for out of specification readings.
- Properly conduct and document tests and inspections.
- Use and understand proper maintenance procedures.
- Identify and use correct material and parts for maintenance.
- Properly tour the (Insert Name of Process) system, including log taking requirements.

### Tests and Inspections

A schedule of periodic tests and inspections (T & I) has been developed to ensure pressure boundaries, safety systems and controls function to design standards. For all equipment the schedule will identify:

- Equipment name and/or specific identifier.
- Required periodic maintenance, inspections and tests.
- Procedure for conducting maintenance, tests and inspections.

### Maintenance Procedures

Written Maintenance Procedures have been developed for all expected routine maintenance, tests and inspections. These procedures include:

- Equipment Identification
- Required Tools & Equipment
- Safety Hazards and Cautions
- Documentation Required
- Step-by-Step Procedure
- Required Inspections or Tests

### Correction of Deficiencies

Prompt correction of deficiencies is an important part of the Mechanical Integrity Program. When any equipment is found to have a parameter out of normal or expected range for the current operating condition, corrective action will be taken to adjust the equipment/system to restore normal conditions or the specific equipment will be placed in a safe condition. Generally, a safe condition is off line and shutdown.

### Deficiency Identification

- *Deficiencies found during normal operations* will be logged on the tour sheet with a remark as to the time identified, specific parameter, action taken to restore parameter to normal, and the time the parameter returned to normal range.
- *Deficiencies found during inspections and tests* will be recorded on the Test and Inspection Sheet. All discrepancies found will be corrected prior to bringing the specific equipment back on line after the test or inspection.
- *Discrepancies found in piping or other pressure boundaries* will be evaluated to ensure safe operation may continue. These deficiencies will be recorded and scheduled for further evaluation or repair.

## Quality Control

To maintain proper mechanical integrity of the (Insert Name of Process) system, it is important that materials, parts and equipment meet the required design specifications for the application. Quality Control procedures provide the process for ensuring correct material and parts are used.

**Parts and Material Identification** – Prior to using any material, part or equipment in the (Insert Name of Process) system, the following actions, as applicable, are required.

- Check part number and material against manufacturer's parts list and specifications.
- Conduct a visual inspection of the material to ensure there are no defects in manufacturing or damage caused by improper shipping or storage.
- Compare old to new part to ensure same material, configuration and size.
- Compare name plate data to system application requirements.
- Old gaskets will not be re-used unless designed for re-use. When a sealing surface has been disassembled, the old gasket is to be thrown away.

**Parts Storage** – Proper storage and receipt inspection will prevent damage to spare parts. The parts storage and receipt guidelines are:

- All material, parts and equipment will be stored so as to prevent damage.
- When received, new material, parts and equipment will be labeled for identification.
- Used and new material, parts or equipment will not be stored in the same bin or shelf.

## Periodic Monitoring and Logging

Monitoring of system parameters is essential for evaluating proper mechanical operation of equipment in the (Insert Name of Process) process. A log sheet has been developed to record system parameters. This is in addition to any computer log generated by an automatic control system.

**Logging and Tours** – Every 4 hours a qualified (Insert Name of Process) operator will record specified readings on gages, thermometers and other direct reading instrumentation. Additionally, the Operator will complete a thorough inspection tour of the system every 4 hours and annotate the Inspection Tour Checklist. Once checklist will be filled out for each tour.

**Out of Normal Readings** – The log sheets have the normal range for each parameter logged. When out of normal readings are observed, the operator will take the necessary action to restore normal conditions. The operator will also record the actions taken on the comment section of the log sheet. If the Operator is unable to restore normal conditions, the Operator will immediately notify the Safety Manager.

**Log Review** – Each day the Safety Manager will review the logs from the previous day to look for trends and ensure corrective action was taken for out of normal readings. A spot check of written log readings will be made against the computer generated data to ensure both the direct reading instrumentation and computer monitoring system agree within accepted tolerance.

**Retention of Logs** – All written log and tour sheets will be retained permanently. The previous 90 days logs will be kept in the Worksite Trailer. All other logs and tour sheets may be stored offsite.

### **Maintenance, Tests & Inspections**

The Planned Maintenance System is an important part of the Mechanical Integrity Program. It provides for:

- Identification and scheduling of tests and inspections.
- Documentation of tests and inspections.
- Development of maintenance procedures.
- Scheduling of periodic maintenance procedures.

*Daily Inspections* are carried out every 4 hours as operators tour the worksite/facility and record system parameters. They are trained to recognize deficiencies in material conditions and out of specification parameters. Inspections that are scheduled for daily accomplishment are listed and recorded on the daily logs.

Other inspections range from simple monthly checks of air units to complex annual system inspection. These inspections are scheduled by the President.

*Testing* – Tests are more complex than inspections. They require either removal of a component from the system or abnormal manipulation of the system to ensure a component functions properly. All tests are scheduled and controlled by the President.

*Planned Maintenance* – Planned Maintenance items generally require a high level of system knowledge to properly align, isolate and prepare the system for maintenance. The opportunity for accidental release of (Insert Name of Process) is greater during these times than during normal operation. The President will:

- Schedule all Maintenance
- Assign Personnel who have the knowledge and the experience.
- Oversee the conduct and completion of maintenance.

## **Section 8: Hot Work**

Hot work is classified as any welding, brazing, grinding, flame or spark producing operation. The requirements for hot work on (Insert Name of Process) equipment are the same as those for all other hot work performed at this worksite.

### **Qualifications**

Only certified welders employed by contractors approved by Hilscher-Clarke are permitted to do any welding on (Insert Name of Process) equipment. Company Maintenance Personnel may conduct hot work operation on equipment that does not require a qualified welder.

### **Hot Work Restrictions**

Welding on or near (Insert Name of Process) equipment is considered an unusual event. The following additional restrictions apply:

- Welding is not allowed on any (Insert Name of Process) component that contains oil, flammable vapor/liquid or (Insert Name of Chemical).
- Prior to conducting hot work on (Insert Name of Process) equipment, that section of the system will be de-pressurized and, if possible, voided.
- All system equipment and piping within the hot work boundary must be voided, cleaned or purged with inert gas to prevent fire, explosion or other hazardous conditions from developing. All oil will be removed from equipment interiors and the internal areas cleaned of residue prior to commencing hot work.
- A qualified Operator or Technician will be continually present during all hot work operations on the (Insert Name of Process) system.

### **Hot Work Permit**

Hilscher-Clarke will issue a hot work permit for hot work operations conducted on or near a covered process. The permit shall document that the fire prevention and protection requirements in 29 CFR 1910.252(a) have been implemented prior to beginning the hot work operations;

- It shall indicate the date(s) authorized for hot work; and
- Identify the object on which hot work is to be performed.

The permit shall be kept on file until completion of the hot work operations.

## Hilscher-Clarke

This Hot Work Permit is required for any operation involving open flames or producing heat and/or sparks and must be completed by a Competent Hot Work Supervisor and posted at the site. Hot work includes but is not limited to: Brazing, Torch Cutting, Grinding, Soldering, and Welding.

If the required precautions cannot be met, and maintained, Hot Work is not permitted.

This permit is good for this shift only.	
Date Issued: _____ From: _____ To: _____ <div style="display: flex; justify-content: space-around; width: 100%;"> <span>Time</span> <span>Time</span> </div>	
Work to be done: _____ _____ _____ _____	
Work Performed by: _____ <div style="display: flex; justify-content: space-around; width: 100%;"> <span>Name</span> <span>Name</span> </div> <div style="display: flex; justify-content: space-around; width: 100%;"> <span>_____</span> <span>_____</span> </div> <div style="display: flex; justify-content: space-around; width: 100%;"> <span>Name</span> <span>Name</span> </div>	
Fire Watcher(s) assigned? Yes <input type="checkbox"/> No <input type="checkbox"/>	
Name of Fire Watcher(s): _____	
Safety Checklist	
<ul style="list-style-type: none"> <li><input type="checkbox"/> Available sprinklers, hose streams, &amp; extinguishers are in service/operable.</li> <li><input type="checkbox"/> Hot work equipment in good repair.</li> </ul> <p>Requirements within 35 ft. of work</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Flammable liquids, dust, lint and oil deposits removed.</li> <li><input type="checkbox"/> Explosive atmosphere in area eliminated.</li> <li><input type="checkbox"/> Floors swept clean of combustibles.</li> <li><input type="checkbox"/> Combustible floors wet down, covered with damp sand or fire resistant sheets.</li> <li><input type="checkbox"/> Remove other combustibles where possible. Otherwise protect with fire-resistant tarpaulins, screens or shields.</li> <li><input type="checkbox"/> All wall and floor openings covered.</li> <li><input type="checkbox"/> Fire resistant tarpaulins suspended beneath elevated hot work.</li> </ul> <p>Work on walls, ceilings or enclosed equipment</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Construction is noncombustible and without combustible covering or insulation.</li> <li><input type="checkbox"/> Combustibles on other side of walls moved away.</li> <li><input type="checkbox"/> No danger exists by conduction of heat into another room or area.</li> <li><input type="checkbox"/> Enclosed equipment cleaned of all combustibles.</li> <li><input type="checkbox"/> Containers purged of flammable liquids and vapors.</li> </ul>	<p>Fire Watch/Hot work area monitoring</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Fire watch will be provided during and continuously for 30 minutes after work, including during any work breaks.</li> <li><input type="checkbox"/> Fire watch is supplied with suitable extinguishers.</li> <li><input type="checkbox"/> Fire watch is trained in use of this assigned equipment and in sounding alarm.</li> <li><input type="checkbox"/> Fire watch may be required for adjoining areas, above and below.</li> <li><input type="checkbox"/> Hot work area inspected 30 minutes after job is completed.</li> </ul> <p>Other precautions taken</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Confined space entry permit required.</li> <li><input type="checkbox"/> Area is protected with smoke or heat detection.</li> <li><input type="checkbox"/> Ample ventilation to remove smoke/vapor from work area.</li> <li><input type="checkbox"/> First Aid equipment readily available at work site.</li> <li><input type="checkbox"/> Lockout/Tagout required.</li> <li><input type="checkbox"/> Respiratory protection required.</li> <li><input type="checkbox"/> Comments:</li> </ul>

## Hot Work Permit (page 2 of 2)

Signatures Required Before Beginning Work (all employees involved in the performing of work, as identified on page one of this form must sign):

I have been instructed and I understand the hazards as well as the precautions necessary to do this work safely.

\_\_\_\_\_  
Signature of person performing work

\_\_\_\_\_  
Signature of person performing work

\_\_\_\_\_  
Signature of person performing work

\_\_\_\_\_  
Signature of person performing work

Signatures Required After Completing Work (all employees involved in the performing of work, as identified on page one of this form must sign):

**This work was completed:** \_\_\_\_\_  am  pm  
Date Time

\_\_\_\_\_  
Signature of person performing work

\_\_\_\_\_  
Signature of person performing work

\_\_\_\_\_  
Signature of person performing work

\_\_\_\_\_  
Signature of person performing work

**I have personally inspected the worksite after completion of the work and find the area to be in safe condition.**

\_\_\_\_\_  
Signature of Supervisor Date Time  am  pm

**Section 9: System Entry Work Permit**

This permit is required for opening system, removal of fittings, piping repairs, etc.

(Insert Name of Process) **System Entry Work Permit**

Date Issued		Date Expires (Date-Time)	
Equipment/System		Equipment Location	
Work being conducted by: Hilscher-Clarke Contractor (if contractor list contractor below):			
Description of work to be covered by this permit:			
<b>Precautions &amp; Pre-Work Requirements</b>			
<i>(Check all applicable requirements and list date completed)</i>			
	<b>Applicable</b>	<b>Date Completed</b>	<b>Initials</b>
Confined Space Permit Issued & Posted.			
Hot Work Permit Issued & Posted.			
Water Hoses stationed and pressurized.			
Work and Safety Precautions reviewed with all workers.			
Escape Route planned and discussed.			
Safety Equipment identified and staged.			
When applicable, defrost coil installed on system to be worked.			
System isolated, voided and depressurized.			
All valves out of normal position are tagged with Maintenance Position.			
Lockout-Tagout completed according to Hilscher-Clarke's Hazardous Energy Control Policy and Procedure.			
Other:			
Other:			
<b>C-A-U-T-I-O-N:</b> When cutting into or opening an isolated system, some residual fluid may be released. Take steps to anticipate this event and provide protection for workers and the environment.			
Signature		Print Name & Title	Date
<b>System Restoration Procedure (All items listed below must be completed.)</b>			
	<b>Applicable</b>	<b>Date Completed</b>	<b>Initials</b>
Valve line up has been returned to normal.			
Leak check completed.			
All Operators notified of completed repairs.			
System is in safe normal operating condition.			
Written Machinery History & Log Entry detailing completed repairs.			
Other:			
Signature		Print Name & Title	Date

## Section 10: Management of Change

This section of Hilscher-Clarke's PSM program outlines the guidelines to establish and implement written procedures to manage changes (except for "replacement in kind") to process chemicals, technology, equipment and procedures; and, changes to facilities that affect a covered process.

### General

The Management of Change Program is an aid to ensure:

- Proper material and equipment is placed in the system.
- Management and Engineering review of proposed changes.
- PHA is conducted prior to changes.
- PSI is updated.
- Operator training is accomplished for the changes.

### Scope

The Management of Change procedure applies to:

- All modifications to equipment in the (Insert Name of Process) system.
- All changes in procedures.
- All changes to control, indication or alarm systems.
- Changes to facilities that affect the (Insert Name of Process) process.

The Management of Change procedure **does not** apply to:

- Changes-in-kind.
- Minor clarification revisions to operating, test or maintenance procedures.

### Management of Change Procedure

When a need for change is identified, the President/Safety Manager will initiate the Management of Change Procedure. Approval from Company Engineering is required prior to implementing any changes in the (Insert Name of Process) System design, parts or equipment.

#### Procedure:

- Initiate MOC form, providing all required information.
- Conduct and document PHA for proposed change.
- Submit MOC form and documents to management for review.
- Forward to Company Engineering for approval.
- Obtain approval for change from Company Engineer.
- Obtain certification documents on all parts and equipment to be added to the system.
- Document all contractor requirements met.
- Conduct change.
- Update and document PSI changes.
- Conduct and document operator training.
- Conduct and document Pre-Startup Review.

## Management of Change Form

<b>Information About the Change:</b>			
Originator	Date of Origination		
Proposed Date of Change	Area/Equipment Identification (i.e., serial number, building, etc.)		
Change is (check one): <input type="checkbox"/> Permanent <input type="checkbox"/> Temporary      From: _____ To: _____			
Description & Location of Change (Scope)			
Technical Basis for Change			
<b>Nature of the Change:</b>			
Change affects (check all applicable): <input type="checkbox"/> Safety <input type="checkbox"/> Loss Prevention <input type="checkbox"/> Environment <input type="checkbox"/> Health			
Type of Change (check all applicable): <input type="checkbox"/> Alarm <input type="checkbox"/> Shutdown Point <input type="checkbox"/> Addition or Removal of Equipment			
<input type="checkbox"/> Piping Modification <input type="checkbox"/> Chemical <input type="checkbox"/> Process Computer Control <input type="checkbox"/> Job Procedure <input type="checkbox"/> Instrument			
<input type="checkbox"/> Equipment/Material Modification <input type="checkbox"/> Other _____			
<b>Premodification Checklist:</b>			
	Applicable	N/A	Initials
Consult piping and equipment specifications.			
Perform reactive chemicals testing. _____ In process?			
Add involved materials to Chemical Inventory List (per Hilscher-Clarke's Hazcom program specifications).			
Comply with Engineering Practices.			
Comply with EPA guidelines for operations.			
Comply with Safety & Loss Prevention guidelines.			
Consult Maintenance Dept. (Name) _____			
Consult Instrument & Electrical Technician (Name) _____			
Consult Parts Technician (Name) _____			
Evaluate & modify relief system (Name) _____			
Consult Industrial Hygienist (Name) _____ (Firm/Company) _____			
Consult Process Engineer (Name) _____			
Complete Required Reviews (name reviews)			
1. _____			
2. _____			
3. _____			
4. _____			
Other:			

**Management of Change Form (cont.)**

<b>Postmodification Checklist (Before Startup):</b>			
	<b>Applicable</b>	<b>N/A</b>	<b>Initials</b>
Performed pre-startup audit.			
Completed or updated training program.			
Wrote & obtained approval for job procedures.			
Updated process flow sheets & plot plans.			
Trained all affected personnel on the change.			
Updated critical instrument checklist.			
Changed computer code & documentation.			
Other:			
Other:			
<b>Approvals:</b>			
	<b>Name</b>	<b>Signature</b>	<b>Date</b>
Originator			
First Reviewer			
President			

**Definitions:**

**Change** – Any modification which affects the capability of a process to maintain control of the physical and chemical transformations taking place; including all modifications to equipment, procedures, raw materials and processing conditions other than “replacement kind”.

**Change in Equipment** – Temporary or permanent modifications made to operating equipment.

Examples:

- Substitution of a material of construction with a different material.
- Replacement of a vessel with one of a different pressure rating.
- Piping changes.
- Replacing an existing field mounted, local pump control panel with a logic computer.
- Changing the elevation of a vessel nozzle or the discharge location of a vessel.
- Installation of a bypass around a section of equipment.
- Installation of a parallel piece of equipment, such as a standby pump.
- Replacing a control valve with one of a different size.

**Changes in Facility** – A change in facilities occurs whenever a change is made to plant services or utilities that would not necessarily appear on a P & ID.

Examples:

- Emergency back-up systems.
- Power supply system.
- Plant security.
- Fire detection and prevention system.
- Adjacent processes/equipment.
- New construction (i.e., offices, warehouses).

**Changes in Procedures** – Temporary or permanent modifications of written procedures.

Examples (except minor changes for clarification):

- Standard Operating Procedures
- Preventative Maintenance Procedures
- Inspection & Testing Procedures
- Emergency Operating Procedures
- Training Procedures & Requirements

**Changes in Process Technology** – A change in the process technology occurs when the process or mechanical design is altered. A change in process technology may occur as a result of changes in the operating parameters (e.g., pressure, temperature), design inventories, instrumentation and control systems, or materials of construction.

Examples :

- An increase in the (Insert Name of Process) inventory.
- Equipment unavailability.
- Installation of new equipment, such as a computer.
- Change in operating pressure (or temperature, or flow rate, etc.)

**Definitions (cont.):**

**Major Change** – A modification that has significant impact on process conditions or system parameters.

Examples:

- Installation of an additional pumping system.
- Increase in toxic chemical inventory.
- Decommissioning major pieces of equipment.
- Installation of a significant amount of temporary piping.
- Installation of a distributed control system.
- Change in process variables, such as a significant increase or decrease in flow, temperature, or pressure.

**Minor Change** – A modification that does not have a major impact on process conditions or system parameters.

Examples:

- Installation of process instrumentation.
- Change in written Standard Operating Procedure.
- Revision to document forms.

**Replacement in Kind** – Any process or equipment change performed in accordance with established design specifications. A “replacement in kind” does not require enactment of the Management of Change Procedure.

Examples:

- Replacement of parts or equipment that meet the same design requirements and specifications.
- Replacement of parts or equipment that require no changes to Process Safety Information.

**Temporary Change** – A change with a limited and clearly specified duration. The time limit for a temporary change is not to exceed seven days. If necessary, a seven day extension may be requested. No more than 2 extensions should be required. Any change with a duration of greater than six weeks should follow procedures for a permanent change.

Examples:

- Temporary piping, clamps, connections, utility connections, or hoses.
- Temporary operation with specific safeguards bypassed or inoperative.
- Temporary changes to operating procedures.

**Emergency Procedures** – A situation may be treated as an emergency in order to prevent an incident that could result in exposure of personnel, the environment, or facility to unreasonable risk. A situation only qualifies as an emergency if applying the normal Management of Change (MOC) procedure would not mitigate the situation in time to avoid potential accidents. In emergency situations, the following procedure will be used:

1. Assemble an emergency task team composed of two or three trained and qualified operators  
Contact the appropriate Safety Manager or the President for approval of changes.
2. Emergency team examines the safety and environmental aspects of the change.
3. If the change can be implemented safely, conduct the change.
4. Complete the MOC form as soon as possible after the emergency.

## **Section 11: Incident Investigation**

Hilscher-Clarke will investigate each incident that resulted in, *or could reasonably have resulted in*, a catastrophic release of highly hazardous chemical in the workplace. An incident investigation shall be initiated as promptly as possible, but not later than 24 hours following the incident.

### **General**

Incident investigation is the process of identifying the underlying or basic causes of incidents and implementing steps to prevent similar events from occurring. The intent of an incident investigation is to learn from past experiences and avoid future events of the same nature.

### **Investigation Team**

Hilscher-Clarke will establish an **“Incident Investigation Team”** which will consist of at least one person knowledgeable in the process involved, including a contract employee if the incident involved work of the contractor, and other persons with appropriate knowledge and experience to thoroughly investigate and analyze the incident.

### **Incident Report**

A report shall be prepared at the conclusion of the investigation that includes at a minimum:

- Date of Incident.
- Date investigation began.
- Description of the incident.
- Factors that contributed to the incident.
- Recommendations resulting from the investigation.

### **Incident Analysis Committee**

Incidents of a more serious nature require a thorough evaluation to obtain a better understanding of the event and measures necessary to prevent a recurrence. The President will assist the Safety Manager in determining if a committee should be appointed to conduct a formal incident analysis. An **“Incident Analysis Committee”** is usually appointed because:

- The incident presents a high risk to individuals, the environment, or to Hilscher-Clarke property.
- Significant loss of property or damage is involved.
- The cause of an incident is not readily apparent.
- There is a high likelihood that the incident will recur.
- Controls or barriers did not perform as expected.
- Management requests a thorough, independent analysis.

The incident analysis committee may consist of three to five persons, one of who is designated by the President to serve as chair. It is preferable for the chair to be from the line organization where the incident occurred. At least one member of the committee must have received formal training, and be deemed a **“Competent Person”** in accident investigation. No member of the committee shall have supervisory responsibility for the work activity or for any person directly involved in the incident.

**Post Incident Actions**

*Corrective Actions* detailed in the incident report shall be promptly addressed and resolved along with other report findings and recommendations. Resolutions and corrective actions shall be documented.

*Report Review* will be conducted with all affected personnel whose job tasks are relevant to the incident findings including contract employees where applicable. Incident investigation reports shall be retained for five years.

**Section 12: Emergency Planning & Response**

Hilscher-Clarke will establish and implement an emergency action plan for each worksite in accordance with the provisions of 29 CFR 1910.38(a) and 29 CFR 1910.120(a), (p) and (q). In addition, each emergency action plan will include procedures for handling, at a minimum, small releases.

*(Insert a copy of the relevant plan at this point.)*

### **Section 13: Compliance Audits**

An audit is a technique used to gather sufficient facts and information, including statistical information, to verify compliance with this policy and procedure. The audit includes an evaluation of the design and effectiveness of the process safety management system and a field inspection of the safety and health conditions and practices to verify that the employer's systems are effectively implemented.

In order to verify that the procedures and practices developed under the PSM standard are adequate and are being followed, Hilscher-Clarke will conduct an audit of its individual PSM plans annually. The 2 most recent compliance audit reports will be retained in an "Active" file for ease of accessibility.

#### **Essential Elements of the Audit**

- **Planning** – a sufficient number of processes should be selected to ensure a true overall "picture" of the Company's current level of compliance.
- **Staffing** – Team members should be chosen for their experience, knowledge, and training and should be familiar with the processes and auditing techniques, practices, and procedures. The size of the team should vary depending on the size and complexity of the process(s) under consideration.
- **Format** – Due to the individual nature of each "Process" the format for the audit or "checklist" for each individual process will be designed by the Engineering Department and the President. The format will be designed to provide the Lead Auditor with a procedure or checklist that details the requirements of each section of the standard. The names of the audit team members will be listed as part of the format. The checklist will serve as the verification sheet that provides the auditors with the necessary information to expedite the review of the program and ensure that all requirements of the standard are met. This verification sheet will identify those elements that will require an evaluation or a response to correct deficiencies. This sheet will also be used for developing the follow-up and the documentation requirements.
- **Conducting the Audit** – The Audit Team will, at a minimum:
  - Review the relevant documentation and process safety information;
  - Review the written training program for adequacy of content, frequency of training and effectiveness of training.
  - Inspect the physical facilities;
  - Interview all levels of personnel (to help determine level of training and knowledge);
  - Observe actual practices such as safety and health policies, procedures, and work authorization practices.

### Essential Elements of the Audit (cont.)

Utilizing the audit procedure and checklist developed in the preplanning stage, the audit team can systematically analyze compliance with the provisions of the standard and Hilscher-Clarke's existing Safety and Corporate Policies and Procedures.

- **Evaluation** – The audit team, will document areas that require corrective action as well as where the process safety management system is effective. This provides a record of the audit procedures and findings and serves as the baseline of operation data for future audits.
- **Corrective Action** – This is considered to be the most important element of the audit process. This section includes identifying deficiencies, and planning, follow-up, and documenting the corrections. The corrective action process begins with a review of the audit findings by the Engineering Department and the Safety Manager. The purpose of this review is to determine what actions are appropriate, and to establish priorities, timetables, resource allocations, requirements and responsibilities.

There may be instances where no action is necessary; this is a valid response to an audit finding. However, all actions taken, including an explanation of why no action was taken on a "finding", must be documented.

To ensure that the recommended corrective action measures are being taken, Hilscher-Clarke requires that periodic status reports be issued and shared with all affected levels of management (i.e., engineering study, purchase orders, final implementation report to provide closure of the audit findings).

### **Section 14: Trade Secrets**

Rules and procedures set forth in OSHA Standard 1910.1200, employees and their designated representatives shall have access to trade secret information contained within the process hazard analysis and other documents required to be developed by this standard.

#### **General**

Employers must make available all information necessary to comply with Process Safety Management to employees in charge of:

- Compiling the process safety information;
- Developing the process hazard analysis;
- Developing the operating procedures;
- Performing incident investigations;
- Developing emergency planning and response; and
- Performing compliance audits...

...without regard to possible trade secret status of such information.

Nothing in Process Safety Management, however, precludes the employer from requiring those persons to enter into confidentiality agreements not to disclose the information.

**Section 15: PSM List of Chemicals**

OSHA Regulations (Standards – 29 CFR)

List of Highly Hazardous Chemicals, Toxics and Reactives (Mandatory) – 1910.119 App. A

This section contains a listing of toxic and reactive highly hazardous chemicals which present a potential for a catastrophic event at or above the threshold quantity.

<b>Chemical Name</b>	<b>CAS</b> (Chemical Abstract Service Number)	<b>TQ</b> (Threshold Quantity in Pounds)*
Acetaldehyde	75-07-0	2500
Acrolein (2-Propenal)	107-02-8	150
Acrylyl Chloride	814-68-6	250
Allyl Chloride	107-05-1	1000
Allylamine	107-11-9	1000
Alkylaluminums	Varies	5000
Ammonia, Anhydrous	7664-41-7	10,000
Ammonia Solutions (greater than 44% by weight)	7664-41-7	15,000
Ammonium Pervchlorate	7790-98-9	7500
Ammonium Permanganate	7787-36-2	7500
Arsine (also called Arsenic Hydride)	7784-42-1	100
Bis (Chloromethyl) Ether	542-88-1	100
Boron Trichloride	10294-34-5	2500
Boron Trifluoride	7637-07-2	250
Bromine	7726-95-6	1500
Bromine Chloride	13863-41-7	1500
Bromine Pentafluoride	7789-30-2	2500
Bromine Trifluoride	7787-71-5	15,000
3-Bromopropyne (also called Propargyl Bromide)	106-96-7	100
Butyl Hydroperoxide (Tertiary)	75-91-2	5000
Butyl Perbenzoate (Tertiary)	614-45-9	7500
Carbonyl Chloride (see Phosgene)	75-44-5	100
Carbonyl Fluoride	353-50-4	2500
Cellulose Nitrate (concentration greater than 12.6% nitrogen)	9004-70-0	2500
Chlorine	7782-50-5	1500
Chlorine Dioxide	10049-04-4	1000
Chlorine Pentafluoride	13637-63-3	1000
Chlorine Trifluoride	7790-91-2	1000
Chlorodiethylaluminum (also called Diethylaluminum Chloride)	96-10-6	5000
1-Chloro-2, 4-Dinitrobenzene	97-00-7	5000
Chloromethyl Methyl Ether	107-30-2	500
Chloropicrin	76-06-2	500
Chloropicrin & Methyl Bromide Mixture	None	1500
Chloropicrin & Methyl Chloride Mixture	None	1500

**Hilscher-Clarke**  
**Process Safety Management List of Chemicals**

<b>Chemical Name</b>	<b>CAS</b> (Chemical Abstract Service Number)	<b>TQ</b> (Threshold Quantity in Pounds)*
Commune Hydroperoxide	80-15-9	5000
Cyanogen	460-19-5	2500
Cyanogen Chloride	506-77-4	500
Cyanuric Fluoride	675-14-9	100
Diacetyl Peroxide (concentration greater than 70%)	110-22-5	5000
Diazomethane	334-88-3	500
Dibenzoyl Peroxide	94-36-0	7500
Diborane	19287-45-7	100
Dibutyl Peroxide (Tertiary)	110-05-4	5000
Dichloro Acetylene	7572-29-4	250
Dichlorosilane	4109-96-0	2500
Diethylzinc	557-20-0	10,000
Diisopropyl Peroxydicarbonate	105-64-6	7500
Dilauroyl Peroxide	105-74-8	7500
Dimethyldichlorosilane	75-78-5	1000
Dimethylhydrazine, 1,1-	57-14-7	1000
Dimethylamine, Anhydrous	124-40-3	2500
2, 4-Dinitroaniline	97-02-9	5000
Ethyl Methyl Ketone Peroxide (also Methyl Ethyl Ketone Peroxide; concentration greater than 60%)	1338-23-4	5000
Ethyl Nitrite	109-95-5	5000
Ethylamine	75-04-7	7500
Ethylene Fluorohydrin	371-62-0	100
Ethylene Oxide	75-21-8	5000
Ethyleneimine	151-56-4	1000
Fluorine	7782-41-4	1000
Formaldehyde (Formalin)	50-00-0	1000
Furan	110-00-9	500
Hexafluoroacetone	684-16-2	5000
Hydrochloric Acid, Anhydrous	7647-01-0	5000
Hydrofluoric Acid, Anhydrous	7664-39-3	1000
Hydrogen Bromide	10035-10-6	5000
Hydrogen Chloride	7647-01-0	5000
Hydrogen Cyanide, Anhydrous	74-90-8	1000
Hydrogen Fluoride	7664-39-3	1000
Hydrogen Peroxide (52% by weight or greater)	7722-84-1	7500
Hydrogen Selenide	7783-07-5	150
Hydrogen Sulfide	7783-06-4	1500

**Hilscher-Clarke**  
**Process Safety Management List of Chemicals**

Chemical Name	CAS (Chemical Abstract Service Number)	TQ (Threshold Quantity in Pounds)*
Hydroxylamine	7803-49-8	2500
Iron, Pentacarbonyl	13463-40-6	250
Isopropylamine	75-31-0	5000
Ketene	463-51-4	100
Methacrylaldehyde	78-85-3	1000
Methacryloyl Chloride	920-46-7	150
Methacryloyloxyethyl Isocyanate	30674-80-7	100
Methyl Acrylonitrile	126-98-7	250
Methylamine, Anhydrous	74-89-5	1000
Methyl Bromide	74-83-9	2500
Methyl Chloride	74-87-3	15,000
Methyl Chloroformate	79-22-1	500
Methyl Ethyl Ketone Peroxide (concentration greater than 60%)	1338-23-4	5000
Methyl Fluoroacetate	453-18-9	100
Methyl Fluorosulfate	421-20-5	100
Methyl Hydrazine	60-34-4	100
Methyl Iodide	74-88-4	7500
Methyl Isocyanate	624-83-9	250
Methyl Mercaptan	74-93-1	5000
Methyl Vinyl Ketone	79-84-4	100
Methyltrichlorosilane	75-79-6	500
Nickel Carbonyl (Nickel Tetracarbonyl)	13463-39-3	150
Nitric Acid (94.5% by weight or greater)	7697-37-2	500
Nitric Oxide	10102-43-9	250
Nitroaniline	100-01-6	5000
Nitromethane	75-52-5	2500
Nitrogen Dioxide	10102-44-0	250
Nitrogen Oxides (NO; NO(2); N2O4; N2O3)	10102-44-0	250
Nitrogen Tetroxide (also called Nitrogen Peroxide)	10544-72-6	250
Nitrogen Trifluoride	7783-54-2	5000
Nitrogen Trioxide	10544-73-7	250
Oleum (65% to 80% by weight; also called Fuming Sulfuric Acid)	8014-94-7	1000
Osmium Tetroxide	20816-12-0	100
Oxygen Difluoride (Fluorine Monoxide)	7783-41-7	100
Ozone	10028-15-6	100
Pentaborane	19624-22-7	100

**Hilscher-Clarke**  
**Process Safety Management List of Chemicals**

<b>Chemical Name</b>	<b>CAS</b> (Chemical Abstract Service Number)	<b>TQ</b> (Threshold Quantity in Pounds)*
Peracetic Acid (concentration greater than 60% Acetic Acid; also called Peroxyacetic Acid)	79-21-0	1000
Perchloric Acid (concentration greater than 50% by weight)	7601-90-3	5000
Perchloromethyl Mercaptan	594-42-3	150
Perchloryl Fluoride	7616-94-6	5000
Peroxyacetic Acid (concentration greater than 60% Acetic Acid; also called Peracetic Acid)	79-21-0	1000
Phosgene (also called Carbonyl Chloride)	75-44-5	100
Phosphine (Hydrogen Phosphide)	7803-51-2	100
Phosphorus Oxychloride (also called Phosphoryl Chloride)	10025-87-3	1000
Phosphorus Trichloride	7719-12-2	1000
Phosphoryl Chloride (also called Phosphorus Oxychloride)	10025-87-3	1000
Propargyl Bromide	106-96-7	100
Propyl Nitrate	627-3-4	2500
Sarin	107-44-8	100
Selenium Hexafluoride	7783-79-1	1000
Stibine (Antimony Hydride)	7803-52-3	500
Sulfur Dioxide (liquid)	7446-09-5	1000
Sulfur Pentafluoride	5714-22-7	250
Sulfur Tetrafluoride	7783-60-0	250
Sulfur Trioxide (also called Sulfuric Anhydride)	7446-11-9	1000
Sulfuric Anhydride (also called Sulfur Trioxide)	7446-11-9	1000
Tellurium Hexafluoride	7783-80-4	250
Tetrafluoroethylene	116-14-3	5000
Tetrafluorohydrazine	10036-47-2	5000
Tetramethyl Lead	75-74-1	1000
Thionyl Chloride	7719-09-7	250
Trichloro (chloromethyl) Silane	1558-25-4	100
Trichloro (dichlorophenyl) Silane	27137-85-5	2500
Trichlorosilane	10025-78-2	5000
Trifluorochloroethylene	79-38-9	10,000
Trimethoxysilane	2487-90-3	1500

\*TQ - Threshold Quantity in Pounds (Amount necessary to be covered by this standard.)