

T. MICHAEL JONES & ASSOCIATES
Regulatory Management Consultants

P.O. BOX 890482 ☆

HOUSTON, TEXAS 77289-0482 ☆

(713) 286-8001

Full w/
7. PSM
audit

Mr. Mike Guyer
Plant Manager - Henry
The GEON Company
RR#1 Box 15
Henry Illinois 61537

October 12, 1994

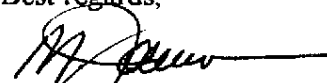
Dear Mike,

It was certainly a pleasure to visit the Henry plant and hopefully to provide a useful service that will add value to the organization. I have enclosed one draft copy of the PSM assessment narrative for your review. Please review this document for accuracy and completeness as discussed during the wrap-up meeting. Make comments in red as necessary and return to my attention in Houston, Texas. I will make final draft, bind and supply copies per your direction.

Feel free to call for any clarification that may be necessary. I will be in the Far East from October 19 through October 30. I can be reached through my office voice mail so call if I can be of help. I will get back to you as soon as possible.

Thanks for the good cooperation and I look forward to future services that I may provide.

Best regards,


T.M. Jones

cc: ~~John Greider - Cleveland~~
File 94117

ENVIRONMENT ☆ HEALTH ☆ SAFETY

NGC 12320

DRAFT

PROCESS SAFETY MANAGEMENT ASSESSMENT HENRY PLANT OCTOBER 3 THRU 7, 1994

The purpose for conducting this review was to audit the requirements of OSHA's 1910.119 Process Safety Management of Highly Hazardous Chemicals standard respective to the implementation status at the Henry facility. Through this process, opportunities for improvement and recognition of exceptional safety systems already implemented to address the PSM standard would be achieved.

An assessment of the implementation status of each element of the 1910.119 standard is included in this document. The implementation status corresponds to the following classification and is based on findings during the assessment process.

Stage I	No action
Stage II	Evaluating plant practices against system requirements
Stage III	Developing plans to implement system requirements
Stage IV	Implementing action plans
Stage V	System in place
Stage VI	Improvement reviewed and reaffirmed this year

A narrative summary for each element of the process safety management standard is included in order to provide a rationale for the status of each element. The Geon Company and the Henry, Illinois plant were extremely cooperative during this assessment process.

DRAFT

PROCESS SAFETY MANAGEMENT

FACILITY: Henry Illinois

REVIEW DATE: October 3 thru 7 1994

REVIEWER: T. Michael Jones

PSM ELEMENT

APPLICATION

EMPLOYEE PARTICIPATION

PROCESS SAFETY INFORMATION

PROCESS HAZARD ANALYSIS

OPERATING PROCEDURES

TRAINING

CONTRACTORS

PRE START-UP SAFETY REVIEW

MECHANICAL INTEGRITY

HOT WORK PERMIT

MANAGEMENT OF CHANGE

INCIDENT INVESTIGATION

EMERGENCY PLANNING/RESPONSE

COMPLIANCE AUDIT

TRADE SECRET

IMPLEMENTATION STATUS					
I	II	III	IV	V	VI
		X			
		X			
			X		
		X			
				X	
				X	
				X	
		X			
				X	
		X			
				X	
				X	
			X		
		X			

NA EVAL. DEV. IMP. IN REAFFIR.
PLC

"Safety - A Continuous Improvement Process"

DRAFT

PROCESS SAFETY MANAGEMENT ASSESSMENT SUMMARY

Application: 1910.119 (a)

Documentation of the rationale for including a facility in the PSM program is oftentimes overlooked. Presently vinyl chloride monomer, because of its flammability, is the only material used in the process which causes the Henry plant to be included in the 1910.119 PSM program. The inventory amount of this material should be listed to include storage in spheres, railroad cars, processing tankage and process piping under normal operating parameters. The facility should graphically illustrate clear delineation of the PSM area from all other parts of the facility and document this drawing in the PSM file.

There was sufficient information available to assemble the application file however, it was cumbersome to discover documentation and records. In order to enhance the retrieval process it is recommended that a central filing system be established containing appropriate information for each element of the process safety management standard. This may also be achieved by establishing a index system which identifies the location of all the various components of the PSM standard and the person(s) responsible for same.

(Opportunity Nos. A9401, A9402)

Employee Participation: 1910.119 (c)

The standard requires an employer to involve its employees at an elemental level respective to the PSM program. Minimum requirements of an employee participation program must include a written plan of action for implementing employee consultation on the development of process hazard analyses and other elements of process hazard management contained in the 1910.119 standard. It should be noted that employers shall make available all information required to develop this standard.

The Henry plant has in place an employee safety committee comprised of representation from each discipline within the organization. This forum will help to facilitate information up and down the organization and provides an opportunity for employees to participate in the day- to-day safety effort.

(Opportunity No. EP9403)

Process Safety Information: 1910.119 (d)

Complete and accurate information relating to the process is essential for an effective process safety management program and for conducting process hazard analyses. In order to comply with paragraph (e) (1) of the standard the employer is required to compile

DRAFT

written process safety information on process chemicals, process technology and process equipment before conducting any process hazard analysis.

Material safety data sheets on vinyl chloride monomer will satisfy paragraph (d) (1). It will be necessary to assemble and in some cases develop the following information to comply with paragraph (d) (2).

- ⇒ Block flow diagram for suspension and dispersion resins
- ⇒ Process chemistry
- ⇒ Maximum intended inventories
- ⇒ Safe upper and lower limits (temperatures, pressures, flow, etc.)
- ⇒ Evaluation of consequences of deviation(including safety and health of employees)

The plant is thought to be dealing with consequences of deviation through its operating procedures developed by WPS. This should be verified at the first opportunity as discussed during the wrap-up meeting 7 October.

The Henry plant recognizes the importance for having this type of process data and in fact has most of the information. Collecting this information in a retrievable format will insure that complete and accurate data is available.

(Opportunity No. PSI9404)

Process Hazard Analysis: (1910.119 (e))

Employers are required with employee participation to develop a thorough, orderly, systematic approach for identifying, evaluating and controlling processes involved in highly hazardous chemicals. The Henry plant needs to identify areas of the plant where process hazard analyses must be achieved based on the process material involved. (Opportunity No. PHA 9405)

There are six specific sections of the PHA which needs to be addressed and are listed below.

1. **Setting priorities:** Prioritize and schedule identified PHA areas based on; 1) extent of the process hazard, 2) number of affected employees including BFG, 3) age of the process, 4) operating history.(Opportunity No. PHA 9406)
2. **Appropriate methodology:** Document the hazard evaluation method the plant intends to utilize in accomplishing its PHA requirements.(Opportunity No. 9406)
When conducting PHA's on the process covered by the standard it is required to address facility sitings and human factors. Employee work stations, valve location, engress/egress from units, lighting are some examples of human factors to be considered. Location of new construction such as tankage, control rooms, offices, prevailing wind directions are considerations respective to plant or equipment locations (siting). Documentation that these two elements have been considered is required by the standard. (Opportunity No. PHA 9407)

- DRAFT
3. **Disposition and Resolution of Team Findings:** A formal closure and/or reason for action must be documented. The plant needs to assure that a system exists to promptly address team findings and recommendations to include documentation and communications to all affected plant and contract personnel.(Opportunity No. PHA 9408)
 4. **Process Hazard Analyses Will Address:** Previous process incidents (accidents, releases, spill, fires, explosions, etc.) at the facility and ^{possible} ~~possible~~ other similar Geon operations can provide experience yielding opportunities to prevent recurrence. The Company culture of sharing this type information will provide dividends in this area. In order to comply with this section of the standard this historical data must become part of the information considered during PHA's. (Opportunity No. PHA9409)
 5. **Process Hazard Analyses Team:** Team membership should include experience from the work force as required to address the task at hand. This team must include experience from plant and process engineering, operating personnel, safety and environmental as appropriate and at least one person skilled in the HAZOP methodology being utilized. It is recommended as PHA team members are assembled that a biographical profile be completed on each team member and included as part of that specific PHA file. (Opportunity No. PHA 9410)
 6. **Engineering/Code Standards:** It is recommended that as the PHA's are being conducted that applicable regulations and codes that are being considered during the evaluation process be identified and included as part of the PSM documentation i.e., ASME, API, ASTM, ANSI, NEC, or internal engineering design standards for piping specifications, materials for construction and other design parameters. (Opportunity No. PHA9411)

Operating Procedures: 1910.119 (f)

The requirement of this paragraph is for the employer to provide clear instructions for safely conducting activities involved in the covered process consistent with the process safety information assembled by the Henry plant. The standard requires that the operating procedures be reviewed as often as necessary to assure that they reflect current operating practice and technology. Annually, the procedures must be certified that they are current and accurate. (Opportunity No. OP9412)

Note: This service may be provided by WPS.

Operating procedures must include operating limits that outline consequences of process deviation and steps to correct or avoid these deviations. Discuss this PSM section, (1910.119 (f)(1)(ii), with WPS to assure that this requirement is being achieved. (Opportunity No. OP9413)

The plant should be commended on the fine effort put forth in rewriting the plants process operating procedures. The procedure books in the field are user friendly and most important are being utilized by the operating personnel in the units as verified through employee interviews.

NGC 12325

Training: 1910.119 (g)

The purpose of this paragraph is to help employees understand the nature and causes of problems arising from process operations. Training will increase an employees awareness with respect to the hazards particular to a process. An effective training program can significantly reduce the number and severity of incidents arising from process operations and can be instrumental in preventing small problems from becoming or leading to catastrophic events. Minimum training programs must include initial training, refresher training and documentation.

Initial training has been achieved and is well documented. The plant has gone the extra mile in that actual certification under the WPS training procedures has been achieved rather than simply "grandfather" existing operators. The plant is commended for this effort.

Refresher training is presently within the three year cycle as required by the standard. The plant is reminded that their obligation as an employer under the standard is to consult with employees in the operating process to determine the appropriate frequency for refresher training. (Opportunity No. 9414)

Contractors: 1910.119 (h)

The intent of this paragraph is to require employers who use contractors to perform work in and around or near processes that involve highly hazardous chemicals to establish a screening process so that they retain and use contractors who can accomplish an assigned task without compromising the safety and health of employees at the Henry plant. The contractor as an employer also has responsibilities and must assure their employees are trained on performing the job at hand safely. Additionally the contractor must communicate to their employees the hazards of the job and understand the provisions of the owners emergency response plan.

The Geon plant at Henry is doing a good job handling contractors. A three-hour contractor training program was attended involving several contractors doing different jobs in the plant and instructions and evaluations were very good.

Since the Geon Company is now a separate business it is recommended that Geon files for contractor questionnaire, performance evaluations, training documentation, contractor's verification of training and etc. be established beginning January 1, 1995. (Opportunity No. C9415)

Pre-Startup Safety Review: 1910.119 (i)

New facilities and modified facilities that necessitate a change to the plant's process safety information dictates certain considerations before highly hazardous chemicals are introduced into the process. These requirements include a pre-startup review to confirm that the following actions have been addressed.

1. Construction and equipment is in accordance with design and specifications.
2. Safety, operating, maintenance and emergency procedures are in place and are adequate.
3. A process hazard analysis has been performed and all recommendations have been addressed and communicated to appropriate personnel.
4. Management of change and training of each involved employee/contractor in the process has been completed.

Although pre-startup safety reviews have been routinely achieved at this facility for some time and documentation is in place. There is a need to develop a check list to verify that the four items listed in the paragraph above takes place prior to introduction of highly hazardous chemicals to the process. (Opportunity No. PSSR9416)

Mechanical Integrity: 1910.119 (j)

The mechanical integrity section of the standard establishes requirements to assure that equipment used to process, store, or handle highly hazardous chemicals is designed, constructed, installed and properly maintained in order to minimize the risk of release of the chemical. Elements of a mechanical integrity program includes the identification and categorization of equipment and instrumentation, development of written maintenance procedures, training for process maintenance activities, inspection and testing, correction of deficiencies in equipment that are outside acceptable limits defined by the process safety information and development of a quality assurance program.

The plant needs to develop its own written mechanical integrity procedure to comply with the PSM standard. During the assessment it was noted that many of the requirements of the PSM mechanical integrity paragraph were being addressed. However, a procedure must be developed to assure that all element of this critically important section of the standard is achieved and documented. (Opportunity No. MI9417)

One specific consideration which needs to be emphasized is to carefully and completely document each inspection and test. There is no doubt that the activity is being carried out but there is an opportunity to improve the system with good documentation.
(Opportunity No. MI9418)

Hot Work: 1910.119 (k)

Employers must control, in a consistent manner, non-routine work in the PSM areas covered by this standard. Specifically this paragraph is concerned about permitting hot work operations associated with welding and cutting in highly hazardous chemical process areas. Minimum requirements to comply with this section include meeting the requirements of OSHA's 1910.252 (a).

Hot work is tightly controlled in this plant as expected. Hot work for category I areas are all pre planned. Good contractor understanding is being achieved evidenced by interviews. Disciplinary action for failure to follow plant hot work procedures is on record.

There are no recommendations thought necessary at this time.

Management of Change: 1910.119 (l)

Careful consideration of all modifications to procedures, raw materials and process conditions other than "replacement in kind" must be controlled by identifying and reviewing prior to implementing a change. The Henry plant needs to develop and implement its own management of change procedure to address the following parameters (Opportunity No. MOC9419)

1. Technical basis for proposed change.
2. Impact of change on safety and health of employees.
3. Modifications to the operating procedures.
- 4 Necessary time period for the chance.
5. Authorization requirements for change.

A key consideration of the M.O.C. policy is to provide communication to all affected Geon and contract personnel and to make certain that all impacted procedures, of any kind, are updated appropriately. (Opportunity No. MOC9420)

Incident Investigation: 1910.119 (m)

Every incident that occurs in the plant that did or could have resulted in a catastrophic release of a highly hazardous chemical in the work place must be investigated. The plant's culture is to report any incident with potential. Root cause analysis to pin point why incidents occur is taking place. The plant needs to develop a system to document closure relating to incident investigation recommendations/corrective actions and the same information should become part of the PSM file if the incident occurs in a PSM area. (Opportunity No. II9421)

DRAFT

Emergency Planning and Response: 1910.119 (n)

This paragraph requires employers to address what action employees are to take when there is an accidental release of a highly hazardous chemical. The plant has an adequate emergency response plan. In-house personnel are trained to handle fires, spills, and release scenarios. The plant has a limited number of response personnel (including BFG) to manually intervene in a large fire situation. Careful plans should be developed as pre-fire fighting action to be implemented based on the limited personnel to respond. > ?

There is one area that will enhance the emergency response plan and that is to illustrate areas at which information concerning an emergency can be obtained and where assembly points are located if the plant is evacuated. These maps are to be placed in high traffic areas for maximum visibility. (Opportunity No.EPR9422) *What does this mean?*

Compliance Audits: 1910.119 (o)

Employers are required to audit the effectiveness of their PSM program in order to identify improvement opportunities and too take appropriate corrective action to resolve deficiencies. Minimum requirements include:

- 1) Audit at least every three years.
- 2) Maintain at least the last two audits.
- 3) Track to completion the audit findings and document the closure action.

Trade Secrets: 1910.119 (p)

This paragraph requires employers to provide all information necessary to comply with personnel developing section (d) process safety information,(e) process hazard analysis, (f) operating procedures,(n) emergency planning and response and (o) compliance audits without regards to possible trade secrets. The one recommendation thought to be in order would be to develop a secrecy agreement document to be signed by specific contract employees that work in sensitive areas of the Henry plant. (Opportunity No. TS9423)

Opportunities for Improvements Henry Plant

- A9401 Develop a central filing system for all PSM information.
- A9402 Graphically illustrate the plant's PSM areas and list VCM storage capacity complete with locations.
- EP9403 Develop a written GEON employee participation procedure to involve employees in the development of PHA's and all other elements of the 1910.119 standard.
- PSI9404 Assemble all required process safety information in a central file system or index to identify where data is located and person responsible for same.
- PHA9405 Identify and document areas of the plant where PHA's (HAZOP) must be achieved.
- PHA9406 Prioritize and schedule identified PHA's to meet internal GEON requirements.
- PHA9406 Document preferred method(s) for hazard evaluation at Henry and insure appropriate personnel are trained in the methodology(s).
- PHA9407 Provide documentation that PHA's address human factors and facility siting.
- PHA9408 Provide a system to address PHA recommendations in a timely manner including communication to impacted personnel.
- PHA9409 Historical data (previous incidents) must be considered during PHA's. Document that this information is utilized and make part of each PHA file when available.
- PHA9410 Develop biographical profiles on each HAZOP team member. Include this information in the PHA file.
- PHA9411 Include in PHA file documentation the specific regulations or codes being considered while conducting PHA's.
- OP9412 To comply with paragraph (f) (3) of the standard the plant needs to annually certify that operating procedures in the PSM area are current and accurate.
- OP9413 Review with WPS to assure they have addressed operating limits that outline consequences of process deviation and steps to correct or avoid deviations.
- T9414 Consult with employee in the operating process to determine the appropriate frequency for refresher training.
- C9415 Establish GEON files for contractor safety information to include reasons for selection, training documentation, contractor's verification of training, selection process, performance evaluation etc.
- PSSR9416 Develop a check list for conducting pre-startup reviews to address paragraph (i) (2) of the standard.
- MI9417 Develop a written mechanical integrity procedure to comply with the standard.
- MI9418 Provide documentation of each inspection and test required by the standard.
- MOC9419 Develop and implement a GEON management of change procedure to comply with the standard.
- MOC9420 Insure a system exists to address communication issues. All impacted employees must be advised of changes.

DRAFT

- IP9421** Develop a system to track to closure all incidents which require investigation in a PSM area.
- EPR9422** Provide evacuation orientation maps to clearly indicate safe assembly and/or evacuation routes. Post in high traffic areas.
- TS9423** Develop a secrecy agreement for contractors who work in sensitive areas of the plant.

**ASSESSMENT REPORT
PROCESS SAFETY MANAGEMENT
OF
HIGHLY HAZARDOUS CHEMICALS
29 CFR 1910.119**

**FOR
HENRY PVC PLANT
HENRY, ILLINOIS**

**Auditor
THOMAS M. JONES
OCTOBER 3 THROUGH 7, 1994**

**Prepared By
T. Michael Jones & Associates
P. O. Box 890482
Houston, Texas**

NGC 12332

PROCESS SAFETY MANAGEMENT ASSESSMENT

HENRY PVC PLANT

OCTOBER 3 THROUGH 7, 1994

The purpose for conducting this review was to audit the requirements of OSHA's 1910.119 Process Safety Management of Highly Hazardous Chemicals standard respective to the implementation status at the Henry facility. Through this process, opportunities for improvement and recognition of exceptional safety systems already implemented to address the PSM standard would be achieved.

An assessment of the implementation status for each element of the 1910.119 standard is included in this document. The implementation status corresponds to the following classification and is based on findings during the assessment process.

- Stage I: No action
- Stage II: Evaluating plant practices against system requirements
- Stage III: Developing plans to implement system requirements
- Stage IV: Implementing action plans
- Stage V: System in place
- Stage VI: Improvement reviewed and reaffirmed this year

A narrative summary for each element of the process safety management standard is included in order to provide a rationale for the status of each element. The GEON Company and the Henry, Illinois Plant were extremely cooperative during this assessment process.

PROCESS SAFETY MANAGEMENT

FACILITY: HENRY, ILLINOIS

REVIEW DATE: October 3 through 7, 1994

REVIEWER: T. Michael Jones

PSM ELEMENT

APPLICATION

EMPLOYEE PARTICIPATION

PROCESS SAFETY INFORMATION

PROCESS HAZARD ANALYSIS

OPERATING PROCEDURES

TRAINING

CONTRACTORS

PRE START-UP SAFETY REVIEW

MECHANICAL INTEGRITY

HOT WORK PERMIT

MANAGEMENT OF CHANGE

INCIDENT INVESTIGATION

EMERGENCY PLANNING/RESPONSE

COMPLIANCE AUDIT

TRADE SECRET

IMPLEMENTATION STATUS					
I	II	III	IV	V	VI
		X			
		X			
			X		
		X			
				X	
				X	
				X	
		X			
				X	
		X			
				X	
				X	
			X		
		X			
NA	EVAL	DEV	IMP	IN PLC	REAFFIR

"Safety - A Continuous Improvement Process"

PROCESS SAFETY MANAGEMENT ASSESSMENT SUMMARY

APPLICATION: 1910.119(a)

Documentation of the rationale for including a facility in the PSM program is oftentimes overlooked. Presently vinyl chloride monomer, because of its flammability, is the only material used in the process which causes the Henry Plant to be included in the 1910.119 PMS program. The inventory amount of this material should be listed to include storage in spheres, railroad cars, processing tankage and process piping under normal operating parameters. The facility should graphically illustrate clear delineation of the PSM area from all other parts of the facility and document this drawing in the PSM file.

There was sufficient information available to assemble the application file however, it was cumbersome to discover documentation and records. In order to enhance the retrieval process, it is recommended that a central filing system be established containing appropriate information for each element of the process safety management standard. This may also be achieved by establishing an index system which identifies the location of all the various components of the PSM standard and the person(s) responsible for same. (*Opportunity Nos. A9401, A9402*)

EMPLOYEE PARTICIPATION: 1910.119(c)

The standard requires an employer to involve its employees at an elemental level respective to the PSM program. Minimum requirements of an employee participation program must include a written plan of action for implementing employee consultation on the development of process hazard analyses and other elements of process hazard management contained in the 1910.119 standard. It should be noted that employers shall make available all information required to develop this standard.

The Henry Plant has in place an employee safety committee comprised of representation from each discipline within the organization. This forum will help to facilitate information up and down the organization and provides an opportunity for employees to participate in the day-to-day safety effort. (*Opportunity No. EP9403*)

PROCESS SAFETY INFORMATION: 1910.119(d)

Complete and accurate information relating to the process is essential for an effective process safety management program and for conducting process hazard analyses. In order to comply with paragraph (e)(1) of the standard, the employer is required to compile written process safety information on process chemicals, process technology and process equipment before conducting any process hazard analysis.

Material safety data sheets on vinyl chloride monomer will satisfy paragraph (d)(1). It will be necessary to assemble and in some cases develop the following information to comply with paragraph (d)(2).

- ⇒ Block flow diagram for suspension and dispersion resins
- ⇒ Process chemistry
- ⇒ Maximum intended inventories
- ⇒ Safe upper and lower limits (temperatures, pressures, flow, etc.)
- ⇒ Evaluation of consequences of deviation (including safety and health of employees)

The plant is thought to be dealing with consequences of deviation through its operating procedures developed by WPS. This will be verified by WPS during their retainer visit in November / December, 1994.

The Henry Plant recognizes the importance of having this type of process data and in fact has most of the information. Collecting this information in a retrievable format will insure that complete and accurate data is available. (*Opportunity No. PSI9404*)

PROCESS HAZARD ANALYSIS: 1910.119(e)

Employers are required with employee participation to develop a thorough, orderly, systematic approach for identifying, evaluating and controlling processes involved in highly hazardous chemicals. The Henry Plant needs to identify areas of the plant where process hazard analyses must be achieved based on the process material involved. (*Opportunity No. PHA9405*)

There are six specific sections of the PHA which needs to be addressed and are listed below.

1. **Setting Priorities:** Prioritize and schedule identified PHA areas based on; 1) extent of the process hazard, 2) number of affected employees including BFG, 3) age of the process, 4) operating history. (*Opportunity No. PHA 9406*)

2. **Appropriate Methodology:** Document the hazard evaluation method the plant intends to utilize in accomplishing its PHA requirements. (*Opportunity No. PHA9407*) When conducting PHA's on the process covered by the standard, it is required to address facility sitings and human factors. Employee work stations, valve location, ingress/egress from units, lighting are some examples of human factors to be considered. Location of new construction, such as tankage, control rooms, offices and prevailing wind directions, are considerations respective to plant or equipment locations (siting). Documentation that these two elements have been considered is required by the standard. (*Opportunity No. PHA9408*)
3. **Disposition / Handling Team Findings:** A formal closure and/or reasons for action must be documented. The plant needs to assure a system exists to promptly address team findings and recommendations to include documentation and communications to all affected plant and contract personnel. (*Opportunity No. PHA 9409*)
4. **Process Hazard Analysis Will Address:** Previous process related incidents (accidents, releases, spill, fires, explosions, etc.) at the facility and other similar GEON operations can provide experience yielding opportunities to prevent recurrence. The company culture of sharing this type information will provide dividends in this area. In order to comply with this section of the standard, this historical data must become part of the information considered during PHA's. (*Opportunity No. PHA9410*)
5. **Process Hazard Analysis Team:** Team membership should include experience from the work force as required to address the task at hand. This team must include experience from plant and process engineering, operating personnel, safety and environmental, as appropriate, and at least one person skilled in the HAZOP methodology being utilized. It is recommended as PHA team members are assembled that a biographical profile (Figure No. 1) be completed on each team member and included as part of that specific PHA filed. (*Opportunity No. PHA9411*)
6. **Engineering / Code Standards:** It is recommended as the PHA's are being conducted that applicable standards and codes which are being considered during the evaluation process be identified as part of the PSM documentation i.e., ASME, API, ANSI, or internal company engineering standards for piping specifications, materials for construction and other design parameters. (*Opportunity No. PHA9412*)

OPERATING PROCEDURES: 1910.119(f)

The requirement of this paragraph is for the employer to provide clear instructions for safely conducting activities involved in the covered process consistent with the process safety information assembled by the Henry Plant. The standard requires that the operating procedures be reviewed as often as necessary to assure that they reflect current operating practice and technology. Annually, the procedures must be certified that they are current and accurate. Note: This service is provided by WPS but documentation is needed. (*Opportunity No. OP9413*)

Operating procedures must include operating limits that outline consequences of process deviation and steps to correct or avoid these deviations. Discuss this PSM section (1910.119(f)(1)(ii) with WPS to assure that this requirement is being achieved. (*Opportunity No. OP9414*)

The plant should be commended on the fine effort put forth in rewriting the plant's process operating procedures. The procedure books in the field are user friendly and most important are being utilized by the operating personnel in the units as verified through employee interviews.

TRAINING: 1910.119(g)

The purpose of this paragraph is to help employees understand the nature and causes of problems arising from process operations. Training will increase an employee's awareness with respect to the hazards particular to a process. An effective training program can significantly reduce the number and severity of incidents arising from process operations and can be instrumental in preventing small problems from becoming or leading to catastrophic events. Minimum training programs must include initial training, refresher training and documentation.

Initial training has been achieved and is well documented. The plant has gone the extra mile in that actual certification under the WPS training procedures has been achieved rather than simply "grandfather" existing operators. The plant is commended for this effort.

Refresher training is presently within the three year cycle as required by the standard. The plant is reminded that their obligation as an employer under the standard is to consult with employees in the operating process to determine the appropriate frequency for refresher training. (*Opportunity No. T9415*)

CONTRACTORS: 1910.119(h)

The intent of this paragraph is to require employers who use contractors to perform work in and around processes that involve highly hazardous chemicals to establish a screening process so that they retain and use contractors who can accomplish an assigned task without compromising the safety and health of employees at the Henry Plant. The contractor as an employer also has responsibilities and must assure their employees are trained on performing the job at hand safely. Additionally, the contractor must communicate to their employees the hazards of the job and understand the provisions of the owner's emergency response plan.

The GEON Plant at Henry is doing a good job handling contractors. A three-hour contractor training program was attended involving several contractors doing different jobs in the plant and instructions and evaluations were very good.

Since the GEON Company is now a separate business, it is recommended that GEON files for contractor questionnaire, performance evaluations, training documentation, contractor's verification of training, etc. be established beginning January 1, 1995. *(Opportunity No. C9416)*

PRE START-UP REVIEW: 1910.119(i)

New processes and modified processes which necessitate a change to the plant's process safety information dictates certain considerations before highly hazardous chemicals are introduced into the process. These requirements include a pre start-up review to confirm that the following actions have been addressed:

1. Construction and equipment is in accordance with design and specifications.
2. Safety, operating, maintenance and emergency procedures are in place and adequate.
3. A process hazard analysis has been performed and all recommendations have been addressed and communicated to appropriate personnel.
4. Management of change and training of each involved employee / contractor in the process has been completed.

Although pre-startup safety reviews have been routinely achieved at this facility for some time and documentation is in place, there is a need to develop a check list to verify that the four items listed in the paragraph above takes place prior to introduction of highly hazardous chemicals to the process. *(Opportunity No. PSSR9417)*

MECHANICAL INTEGRITY: 1910.119(j)

The mechanical integrity section of the standard establishes requirements to assure that equipment used to process, store, or handle highly hazardous chemicals is designed, constructed, and maintained in order to minimize the risk of a chemical release. Elements of a mechanical integrity program includes the identification and categorization of equipment and instrumentation, development of written maintenance procedures, training for process maintenance activities, inspection, testing, correction of deficiencies in equipment that are outside acceptable limits defined by the process safety information and quality assurance program.

The plant needs to prepare its own written mechanical integrity procedure to comply with the PSM standard. During the assessment, it was noted that many of the requirements of the PSM mechanical integrity paragraph were being addressed. However, a procedure must be developed to assure that all elements of this critically important section of the standard is achieved and documented. (*Opportunity No. MI9418*)

One specific consideration which needs to be emphasized is to carefully and completely document each inspection and test. There is no doubt that the activity is being carried out, but there is an opportunity to improve the system with good documentation. (*Opportunity No. MI9419*)

HOT WORK PERMIT: 1910.119(k)

Employers must control, in a consistent manner, non-routine work in the PSM areas covered by the standard. Specifically, this paragraph is concerned about permitting hot work operations associated with welding and cutting in highly hazardous chemical process areas. Minimum requirements to comply with this section include meeting the requirements of OSHA's 1910.252(a).

Hot work is tightly controlled in this plant as expected. Hot work for category I areas are all pre-planned. Good contractor understanding is being achieved evidenced by interviews. Disciplinary action for failure to follow plant hot work procedures is on record.

There are no recommendations thought necessary at this time.

MANAGEMENT OF CHANGE: 1910.119(l)

Careful consideration of all modifications to procedures, raw materials and process conditions other than "replacement in kind" must be controlled by identifying and reviewing prior to implementing a change. The plant is presently using the BFGoodrich M.O.C. policy. The Henry Plant needs to develop and implement its own site specific management of change procedure to address the following parameters. (*Opportunity No. MOC9420*)

1. Technical basis for proposed change.
2. Impact of change on safety and health of employees.
3. Modifications to the operating procedures.
4. Necessary time period for the change.
5. Authorization requirements for change.

A key consideration of the M.O.C. policy is to provide communication to all affected GEON and contract personnel and to make certain that all impacted procedures, of any kind, are updated appropriately. (*Opportunity No. MOC9421*)

INCIDENT INVESTIGATION: 1910.119(m)

Every incident that occurs in the plant that could have resulted in a catastrophic release of a highly hazardous chemical in the work place must be investigated. The plant's culture is to report any incident with potential. Root cause analysis to pin point why incidents occur is taking place. The plant needs to develop a system to document closure relating to incident investigation recommendations/corrective actions and the same information should become part of the PSM file if the incident occurs in a PSM area. (*Opportunity No. I19422*)

EMERGENCY PLANNING AND RESPONSE: 1910.119(n)

This paragraph requires employers to address what action employees are to take when there is an accidental release of a highly hazardous chemical. The plant has an adequate emergency response plan. In-plant personnel are trained to handle fires, spills, and release scenarios. The plant has a limited number of response personnel (including BFG) to manually intervene in a large fire situation. Careful plans should be developed as pre-fire fighting action to be implemented based on the limited personnel to respond.

There is one area that will enhance the emergency response plan and that is to illustrate areas at which information concerning an emergency can be obtained and where assembly points are located if the plant is evacuated. These maps are to be placed in high traffic areas in the plant where people can observe them. (*Opportunity No. EPR9423*)

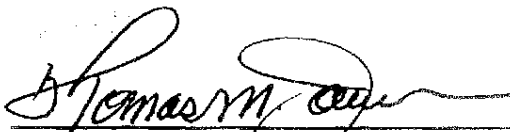
COMPLIANCE AUDITS: 1910.119(o)

Employers are required to self evaluate the effectiveness of their PSM program in order to identify improvement opportunities and to take appropriate corrective action to resolve deficiencies. Minimum requirements include:

1. Audit at least every three years.
2. Maintain at least the last two audits.
3. Track to completion the audit findings and document the closure action.

TRADE SECRETS: 1910.119(p)

This paragraph requires employers to provide all information necessary to comply with personnel developing sections (d) process safety information, (e) process hazard analysis, (f) operating procedures, (n) emergency planning and response, and (o) compliance audits without regards to possible trade secrets. The one recommendation thought to be in order would be to develop a secrecy agreement document to be signed by specific contract employees that work in sensitive areas of the Henry Plant. (*Opportunity No. TS9424*)



T. Michael Jones, CSP

November 21, 1994

Date

NGC 12342

HAZOP TEAM MEMBER BIOGRAPHY

1) NAME: _____

2) JOB TITLE: _____

3) PREVIOUS POSITIONS HELD: _____

4) YEARS EXPERIENCE: _____

5) FIRE SCHOOL EXPERIENCE: _____

6) EMERGENCY RESPONSE TEAM EXPERIENCE: _____

7) FIELD OF EXPERTISE (ie: Poly Room Head Operator, Charge Operator, Pipefitter):

8) OTHER QUALIFICATIONS: _____

IMPROVEMENT OPPORTUNITIES HENRY PLANT

PSM AUDIT

1994

ELEMENT	ID#	DESCRIPTION	RESPONSIBILITY	TARGET DATE
Application 1910.119(a)	A9401	Develop a central filing system for all PSM information.		
	A9402	Graphically illustrate the plant's PSM areas and list VCM storage capacity complete with locations.		
Employee Participation 1910.119(c)	EP9403	Develop a written GEON employee participation procedure to involve employees in the development of PHA's and all other elements of the 1910.119.		
Process Safety Information 1910.119(d)	PSI9404	Assemble all required process safety information in a central file system or index to identify where data is located and person responsible for same.		
Process Hazard Analysis 1910.119(e)	PHA9405	Identify and document areas of the plant where PHA's (HAZOP) must be achieved.		
	PHA9406	Prioritize and schedule identified PHA's to meet internal GEON requirement.		
	PHA9407	Document preferred method(s) for hazard evaluation at Henry and insure appropriate personnel are trained in the methodology(ies).		
	PHA9408	Provide documentation that PHA's address human factors and facility siting.		
	PHA9409	Provide a system to address PHA recommendations in a timely manner including communication to impacted personnel.		
	PHA9410	Historical data (previous incidents) must be considered during PHA's. Document that this information is utilized and make part of each PHA file if available.		
	PHA9411	Develop biographical profiles on each HAZOP team member. Include this information in the PHA file that person served on.		

NGC 12344

ELEMENT	IO#	DESCRIPTION	RESPONSIBILITY	TARGET DATE
Process Hazard Analysis 1910.119(e) (continued)	PHA9412	Include in PHA file documentation the specific regulations or codes being considered while conducting PHA's.		
Operating Procedures 1910.119(f)	OP9413	To comply with paragraph (f)(3) of the standard, the plant needs to annually certify that operating procedures in the PSM area are current and accurate.		
	OP9414	Review with WPS to assure they have addressed operating limits that outline consequences of process deviation and steps to correct or avoid deviations have been addressed.		
Training 1910.119(g)	T9415	Consult with employee in the operating process to determine the appropriate frequency (if less than three years) for refresher training. Document the results.		
Contractors 1910.119(h)	C9416	Establish GEON files for contractor safety information to include reasons for selection, training documentation, contractor verification of training, selection process, performance evaluation, etc.		
Pre-startup Safety Review 1910.119(i)	PSSR9417	Develop a check list for conducting Pre-startup safety reviews to address paragraph (i)(2) of the standard.		
Mechanical Integrity 1910.119(j)	MI9418	Develop a written mechanical integrity procedure to comply with the standard.		
	MI9419	Provide documentation of each inspection and test required by the standard.		
Management of Change 1910.119(l)	MOC9420	Develop and implement a GEON management of change procedure to comply with the standard.		
	MOC9421	Insure a system exists to address communication issues to all impacted employees and to assure procedures that are impacted are revised.		

ELEMENT	ION	DESCRIPTION	RESPONSIBILITY	TARGET DATE
Incident Investigation 1910.119(m)	II9422	Develop a system to track to closure all incidents which require investigation in a PSM area.		
Emergency Planning and Response 1910.119(n)	EPR9423	Provide evacuation orientation maps to clearly indicate safe assembly and/or evacuation routes. Post in high traffic areas.		
Trade Secrets 1910.119(p)	TS9424	Develop a secrecy agreement for contractors who work in sensitive areas of the plant.		

AUDITOR QUALIFICATIONS

T. MICHAEL JONES:

Mike Jones has worked in the petrochemical industry with The BFGoodrich Chemical Company, Diamond Shamrock Chemicals, Cain Chemical and Occidental Chemical Corporation for 29 years. He was the Corporate Manager - Facility Safety and Industrial Hygiene for OxyChem until he elected early retirement in September, 1993, to form the company of T. Michael Jones & Associates. Mike is a Certified Safety Professional with extensive experience in plant operations, maintenance, engineering design/construction, safety, industrial hygiene, emergency management, and process safety management. Product manufacturing experience includes synthetic rubber, PVC resin, vinyl chloride monomer, olefins and aromatics, ethylene dichloride, caustic soda, chlorine, and ethylene oxides/derivatives. He holds a B.S. Degree in Industrial Arts and Chemistry from Stephen F. Austin University and a M.S. Degree in Engineering Management from Louisiana State University Baton Rouge.

HENRY PLANT - PSM AUDIT
OCTOBER 3-7, 1994 *Stromm, J. CSP*

1910.119 (c): EMPLOYEE PARTICIPATION

I. PROGRAM SUMMARY

The intent of this paragraph is to require employers to involve employees at an elemental level of the PSM program. Minimum requirements for an Employee Participation Program for PSM must include a written plan of action for implementing employee consultation on the development of process hazard analyses and other elements of process hazard management contained within 1910.119. The employer must also provide ready access to all the information required to be developed under the standard.

II. QUALITY CRITERIA REFERENCES

A. 1910.119(c): Employee Participation

III. VERIFICATION OF PROGRAM ELEMENTS

	Criteria Reference	Met Y/N
A. Records Review		
1. Does a written program exist regarding employee participation? FIELD NOTE REFERENCE(S): CONVERT TO GEON POLICY - PRESENTLY USING BFG.	.119(c) (1)	No ~
2. Does the written program include consultation with employees and their representatives on the conduct and development of process hazard analyses and on the development of other elements in the PSM standard? FIELD NOTE REFERENCE(S): NEED TO DEVELOP	.119(c) (2)	~
3. Does the written program provide employees and their representatives access to process hazard analyses and all other information developed as required by the PSM standard? FIELD NOTE REFERENCE(S): NEED TO DEVELOP	.119(c) (3)	~ ↓
B. On-site Conditions		
Not applicable.		N/A

C. Interviews 1. Based on interviews with a representative number of employees and their representatives, have they been consulted on the conduct and development of the process hazard analyses? FIELD NOTE REFERENCE(S):	.119(c) (2)	Yes
2. Based on interviews with a representative number of employees and their representatives, have they been consulted on the development of other elements of the Process Safety Management program? FIELD NOTE REFERENCE(S):	.119(c) (2)	Yes
3. Based on interviews with a representative number of employees and their representatives, have they been provided access to process hazard analyses and to all other information required to be developed by the PSM standard? (Ask about unreasonable delays in access to information and whether time is given during the working hours to access information required by the PSM standard.) FIELD NOTE REFERENCE(S):	.119(c) (3)	Yes

1910.119 (d): PROCESS SAFETY INFORMATION

I. PROGRAM SUMMARY

The intent of this paragraph is to provide complete and accurate information concerning the process which is essential for an effective process safety management program and for conducting process hazard analyses. Therefore in accordance with the schedule set forth in paragraph (e)(1) the employer is required to compile written process safety information on process chemicals, process technology, and process equipment before conducting any process hazard analysis.

II. QUALITY CRITERIA REFERENCES

- | | | |
|----|-----------------|----------------------------|
| A. | 1910.119(d): | Process Safety Information |
| B. | 1910.119(e)(1): | Process Hazard Analysis |
| B. | 1910.1200: | Hazard Communication |

III. VERIFICATION OF PROGRAM ELEMENTS

A. Records Review

1. Has written process safety information been compiled before conducting any process hazard analysis (PHA)?

FIELD NOTE REFERENCE(S): DATA IS AVAILABLE BUT NOT ASSEMBLED

Criteria
Reference

Met
Y/N

.119(d)

See
Note

2. Is information included pertaining to the hazards of the highly hazardous chemicals used or produced by the process, and does the information include at least: • toxicity information • PEL's • physical data • reactivity data • corrosivity data • thermal and chemical stability data • hazardous effects of inadvertent mixing of different materials that could foreseeable occur? NOTE: MSDS's meeting the requirements of 29CFR1910.1200(g) may be used to the extent they contain the information required. FIELD NOTE REFERENCES: MSDA SHEET FOR VCM BEING USED.	.119(d) (1) .1200 (g)	YES
3. Is information included concerning the technology of the process, and does it include at least: • a block flow diagram or simplified process flow diagram? PRESENTLY BEING DRAFTED • process chemistry? AVAILABLE NOT ASSEMBLED • maximum intended inventory? DATA AVAILABLE NOT ASSEMBLED • safe upper and lower limits? SAME • an evaluation of the consequences of deviations? NOT ASSEMBLED (Where the original technical information no longer exists, it may be developed in conjunction with the PHA.) FIELD NOTE REFERENCES: NEED TO GATHER DATA IN RETRIEVABLE FORM!	.119(d) (2)	NO
4. Is information included pertaining to equipment in the process, and does it include at least: • materials of construction? • piping and instrument diagrams (PID's)? • electrical classification? • relief system design and design basis? • ventilation system design? • design codes and standards employed? • material and energy balances for processes built after May 26, 1992? • safety systems (e.g. interlocks, detection or suppressions systems)? FIELD NOTE REFERENCES: FOLLOWING BFG ENGR. STANDARDS, API, ASME, ASTM, ANSI ETC.	.119(d) (3)(i)	YES

5. Has the employer documented that equipment complies with recognized, generally accepted good engineering practices? (Review the documentation for evidence that compliance with the appropriate consensus standards has been researched.) FIELD NOTE REFERENCE(S):	.119(d) (3)(ii)	Yes
6. Has the employer determined and documented that existing equipment designed and constructed in accordance with codes, standards, or practices no longer in general use are designed, maintained, inspected, tested, and operating in a safe manner? (Documentation may be through methods such as: documenting successful prior operation procedures; documenting that the equipment is consistent with the appropriate editions of codes and standards; or performing an engineering analysis to determine that the equipment is appropriate for its intended use.) FIELD NOTE REFERENCES:	.119(d) (3) (iii)	Yes
B. On-site Conditions 1. Do observations of a representative sample of process chemicals and equipment indicate that the process information is complete? (Information that does not correspond to the actual conditions demonstrates incomplete information. Check critical equipment and components to see if they have been properly identified.) FIELD NOTE REFERENCE(S):	.119(d)	Yes
2. Do observations of a representative sample of process components indicate that the process complies with recognized and generally accepted good engineering practice? (Review a representative number of safety devices such as pressure relief devices for proper sizing according to the maximum anticipated pressure.) FIELD NOTE REFERENCE(S):	.119(d) (3)(ii)	Yes

3. Do observations of a representative sample of the existing equipment designed and constructed according to codes, standards, or practices no longer in general use indicate that this equipment is inspected and is operated in a safe manner (as documented by the employer)? FIELD NOTE REFERENCE(S):	.119(d) (3) (iii)	Yes
C. Interviews Process Hazard Analysis (PHA) Team: 1. Based on interviews with a representative number of PHA team members, was the process safety information complete before the process hazard analysis was conducted? FIELD NOTE REFERENCE(S):	.119(d) <u>AVAILABLE</u>	
Operators: 2. Based on interviews with a representative number of operators, is MSDS information readily available to the operators who work with hazardous materials? FIELD NOTE REFERENCE(S):	.1200	Yes
Engineers (if any; or other qualified persons capable of providing the information requested; see NOTE, p. A-2): 3. Based on interviews with a representative number of engineers, has the employer documented that the process equipment complies with recognized and generally accepted good engineering practice? (Ask about the technical bases for design and selection of equipment, the materials of construction, electrical classifications, relief devices sizing versus maximum anticipated pressures, installation procedures to assure equipment meets design specifications, etc.) FIELD NOTE REFERENCE(S): LIMITED DISCUSSION AND REVIEW	.119(d) (3)(ii)	Yes

For more information on Process Safety Information, see Appendix D, references 8. and 9.

1910.119 (e): PROCESS HAZARD ANALYSIS

I. PROGRAM SUMMARY

The intent of this paragraph is to require the employer to develop a thorough, orderly, systematic approach for identifying, evaluating and controlling processes involving highly hazardous chemicals. Minimum requirements include: (1) Setting a priority order and conducting analyses according to the required schedule; (2) Using an appropriate methodology to determine and evaluate the process hazards; (3) Addressing process hazards, previous incidents with catastrophic potential, engineering and administrative controls applicable to the hazards, consequences of failure of controls, facility siting, human factors, and a qualitative evaluation of possible safety and health effects of failure of controls on employees; (4) Performing PHA by a team with expertise in engineering and process operations, the process being evaluated, and the PHA methodology used; (5) Establishing a system to promptly address findings and recommendations, assure recommendations are resolved and documented, document action taken, develop a written schedule for completing actions, and communicate actions to operating, maintenance and other employees who work in the process or might be affected by actions; (6) Updating and revalidating PHA's at least every 5 years; and (7) Retaining PHA's and updates for the life of the process.

II. QUALITY CRITERIA REFERENCES

A. 1910.119(e): Process Hazard Analysis

III. VERIFICATION OF PROGRAM ELEMENTS

	Criteria Reference	Met Y/N
A. Records Review 1. Has the employer determined and documented a priority order for conducting initial PHA's based on a rationale that includes at least these factors: • the extent of process hazards • number of potentially affected employees • age of process • operating history? FIELD NOTE REFERENCES: THERE ARE RECENT CHECKLIST/WHAT IF'S ON VARIOUS PARTS OF THE PROCESS. NEED TO DEVELOP GOOD PRIORITY LIST AND SCHEDULE	.119(e) (1)	See note

2. Are the initial PHA's for processes covered by the PSM standard being performed as soon as possible? FIELD NOTE REFERENCES: WILL DEVELOP LIST AND SCHEDULE. TAKE CREDIT FOR EXISTING WORK WHERE POSSIBLE. KEEP DATES, DEADLINES AND PRESENT COMPLETE IN FOCUS	.119(e) (1)	Yes
3. Does the priority schedule for PHA's assure that all initial PHA's will be performed by 5/26/97 and that: • No less than 25% of the PHA's shall be completed by 5/26/94? • No less than 50% of the PHA's shall be completed by 5/26/95? • No less than 75% of the PHA's shall be completed by 5/26/96? (PHA's completed after May 26, 1987 which meet the requirements of this paragraph are acceptable as initial PHA's; they must be updated and revalidated at least every 5 years.) FIELD NOTE REFERENCES: TAKE CREDIT FOR WORK ALREADY ACCOMPLISHED. KEEP SCHEDULE CURRENT.	.119(e) (1)	NO
4. Does the hazard evaluation use one or more of the following PHA methodologies: • What-if? (Yes) • Checklist? (Yes) • What-if/Checklist? • Hazard & Operability Study (HAZOP)? (Yes) • Failure Mode and Effects Analysis (FMEA)? • Fault Tree Analysis (FTA)? • Other appropriate methodology? (See Appendix B for a discussion of appropriate methodologies). FIELD NOTE REFERENCES: NEED TO DOCUMENT CITATION METHODOLOGY(S)	.119(e) (2)	Yes

5. (Continued) Does the PHA address the following: • Engineering and administrative controls applicable to the hazards and their interrelationships? (Such controls may include appropriate application of detection methodologies to provide early warning of releases; inventory reduction; substitution of less hazardous materials; protective systems such as deluges, monitors, foams; increased separation distances; modification of the process temperature or pressure; redundancy in instrumentation; etc.) FIELD NOTE REFERENCE(S): • Facility siting? (Review calculations, charts, and other documents that verify facility siting has been considered. For example, safe distances for locating control rooms may be based on studies of the individual characteristics of equipment involved such as: types of construction of the room, types and quantities of materials, types of reactions and processes, operating pressures and temperatures, presence of ignition sources, fire protection facilities, capabilities to respond to explosions, drainage facilities, location of fresh air intakes, etc.) FIELD NOTE REFERENCE(S): • Human factors? (Such factors may include a review of operator/process and operator/equipment interface, the number of tasks operators must perform and the frequency, the evaluation of extended or unusual work schedules, the clarity and simplicity of control displays, automatic instrumentation versus manual procedures, operator feedback, clarity of signs and codes, etc.) FIELD NOTE REFERENCE(S): • A qualitative evaluation of a range of possible safety and health effects of failure of controls on employees in the workplace? FIELD NOTE REFERENCE(S):	.119(e) (3)	Yes NO NO Yes
--	------------------------	---

PRIMATECH
MAY
INCLUDE IN
LATEST
EDITION
OF
SOFTWARE

6. Are the process hazard analyses performed by teams with expertise in engineering and process operations, including at least one employee with experience and knowledge specific to the process being evaluated and one member knowledgeable in the specific PHA methodology used? FIELD NOTE REFERENCE(S):	.119(e) (4)	YES
7. Has a system been established to promptly address the team's findings and recommendations? FIELD NOTE REFERENCES: THIS PORTION IS CRITICALLY IMPORTANT TO THE COMPLETION OF PHA. A TRACKING SYSTEM TO INSURE THIS ACTION TAKES PLACE MUST BE COMPLETED. Review a representative sample of the documentation. Has the system been able to: • Assure that the recommendations are resolved and documented in a timely manner? FIELD NOTE REFERENCE(S): • Document actions to be taken? FIELD NOTE REFERENCE(S): • Complete actions as soon as possible? FIELD NOTE REFERENCE(S): • Develop a written schedule of when actions are to be completed? FIELD NOTE REFERENCE(S): • Communicate the actions to operating, maintenance and other employees whose work assignments are in the process and who may be affected by the recommendations or actions? FIELD NOTE REFERENCE(S):	.119(e) (5)	NO
8. Are the PHA's updated and revalidated at least every five years by a qualified team meeting the requirements in paragraph (e)(4), to assure that the process hazard analysis is consistent with the current process? FIELD NOTE REFERENCE(S): HAS NOT CYCLED	.119(e) (6)	N/A

9. Are all initial PHA's, updates or revalidations, and documented resolutions of recommendations kept for the life of the process? FIELD NOTE REFERENCE(S): WRITE INTO PLANTS "APPLICATION" FILE OR RETROD RETENTION FILE.	.119(e) (7)	YES
B. On-site Conditions		
1. Do observations of a representative sample of process-related equipment indicate that obvious hazards have been identified, evaluated, and controlled? (For example, hydrocarbon or toxic gas monitors and alarms are present; electrical classifications are consistent with flammability hazards; destruct systems such as flares are in place and operating; control room siting is adequate or provisions have been made for blast resistant construction, pressurization, alarms, etc.; pressure relief valves and rupture disks are properly designed and discharge to a safe area; pipework is protected from impact; etc.) FIELD NOTE REFERENCE(S): (REACTOR JACKET JOBS)	.119(e) (1)	YES
2. Do observations of a representative sample of process-related equipment indicate that PHA recommendations have been promptly resolved? FIELD NOTE REFERENCE(S):	.119(e) (5)	DND. (DID NOT OBSERVE)
C. Interviews		
PHA Team Members:		
1. Based on interviews with a representative number of the PHA team members, are the PHA methodologies used appropriate for the complexity of the process? FIELD NOTE REFERENCE(S):	.119(e) (1)	YES
2. Based on interviews with a representative number of the PHA team members, is the priority order for conducting PHA's based on the extent of the process, the number of potentially affected employees, the age of the process, and the operating history of the process? FIELD NOTE REFERENCE(S):	.119(e) (1)	DND.

3. Based on interviews with a representative number of the PHA team members, have the following been addressed: • The hazards of the process? • Previous incidents with likely potential for catastrophic consequences? • Engineering and administrative controls applicable to the hazards? • Consequences of control failures? • Facility siting? • Human factors? (Ask about shift rotations, extended schedules, and other possible sources of error.) • A qualitative evaluation of a range of possible safety and health effects of failure of controls on employees in the workplace? FIELD NOTE REFERENCE(S):	.119(e) (3)	D.N.O.
4. Based on interviews with a representative number of the PHA team members, do the members have the appropriate expertise in engineering, process operations, and the process methodology used? Does one member of the team have experience and knowledge in the specific process? FIELD NOTE REFERENCE(S):	.119(e) (4)	Yes
5. Based on interviews with a representative number of the PHA team members, does the system established by the employer address the team's findings and recommendations promptly? FIELD NOTE REFERENCE(S):	.119(e) (5)	Yes
Operators and maintenance: 6. Based on interviews with a representative number operator and maintenance employees, have the PHA's addressed the recognized hazards of the process and previous incidents which had a likely potential for catastrophic consequences? FIELD NOTE REFERENCE(S):	.119(e) (3)	Yes
7. Based on interviews with operator, maintenance, and other employees who may be affected by PHA recommendations, have actions taken to resolve PHA findings been communicated to these employees? FIELD NOTE REFERENCE(S):	.119(e) (5)	Yes

For more information on PHA, see Appendix D, references: 8.; 9.; 10.; 11.; 12.; 13.; 14.; 15.; 16.; 17.; 25.; 26.; 27; Part I, Section UG-125; 31.; 32.; and 33.

1910.119 (f): OPERATING PROCEDURES

I. PROGRAM SUMMARY

The intent of this paragraph is to provide clear instruction for conducting activities involved in covered processes that are consistent with the process safety information. The operating procedures must address steps for each operating phase, operating limits, safety and health considerations, and safety systems and their functions.

II. QUALITY CRITERIA REFERENCES

- | | |
|----------------|--------------|
| A. 1910.119(f) | D. 1910.1000 |
| B. 1910.120 | E. 1910.1200 |
| C. 1910.147 | |

III. VERIFICATION OF PROGRAM ELEMENTS

	Criteria Reference	Max Y/N
A. Records Review		
1. Do written operating procedures exist for each covered process? Do the procedures provide clear instructions for conducting activities safely? FIELD NOTE REFERENCES:	.119(f) (1)	Yes
2. Do the operating instructions address, as a minimum, steps for each operating phase, including: yes Initial start-up? yes Normal operations? yes Temporary operations? yes Emergency shutdowns? • Conditions requiring emergency shutdown? • Assignment of shutdown responsibility to qualified operators? yes Emergency operations? yes Normal shutdown? yes Start-ups following a turnaround or emergency shutdown? FIELD NOTE REFERENCES: <i>PER ROB CALDER</i>	.119(f) (1)(i)	Yes

3. Do the operating procedures include operating limits that outline consequences of process deviation and steps required to correct or avoid deviations? FIELD NOTE REFERENCE(S):	.119(f) (1)(ii)	Yes
4. Have safety and health considerations been included in the operating procedures? Do they include at a minimum: • Properties of, and hazards presented by, chemicals used in the process? MSDS UTILIZATION • Precautions necessary to prevent exposure, including engineering controls, administrative controls, and personal protective equipment? YES • Control measures to be taken if physical contact or airborne exposure occurs? YES • Quality control for raw materials and control of hazardous chemical inventory levels? YES • Any special or unique hazards? NOT IN THIS PROCESS. FIELD NOTE REFERENCE(S):	.119(f) (1) (iii)	YES
5. Are safety systems and their functions included in the operating procedures? FIELD NOTE REFERENCE(S):	.119(f) (1)(iv)	YES
6. Are the operating instructions consistent with the process safety information? FIELD NOTE REFERENCE(S):	.119(f) (1)	YES
7. Are operating procedures readily accessible to employees who work in or maintain a process? FIELD NOTE REFERENCE(S):	.119(f) (2)	YES

8. Are operating procedures reviewed as often as necessary to assure that they reflect current operating practice? <u>Are</u> they certified annually by the employer that they are current and accurate? Do they reflect current operating practice that have resulted from changes in: • Process chemicals? • Technology? • Equipment? • Facilities? FIELD NOTE REFERENCE(S): YES PER ROB CALDER 11/3/94	.119(f) (3)	YES
9. Have safe work practices been developed and implemented for employees and contractors to control hazards during operations such as: • Lockout/tagout? • Confined space entry? • Opening process equipment or piping? • Control over entrance into a facility by maintenance, contractor, laboratory or other support personnel? FIELD NOTE REFERENCE(S):	.119(f) (4)	YES
B. On-site Conditions		
1. Does observation of a representative sample of processes indicate that the written operating procedures are being implemented? FIELD NOTE REFERENCE(S):	.119(f) (1)	YES
2. Does observation of a representative sample of processes indicate that the written operating procedures are readily accessible to employees who work or maintain a process? FIELD NOTE REFERENCE(S):	.119(f) (2)	YES
3. Does observation of a representative sample of processes indicate that operating procedures reflect current practice, including changes that result from process chemicals, technology, equipment, and facilities? (Observe to see if actual procedures match the written operating procedures.) FIELD NOTE REFERENCE(S):	.119(f) (3)	YES

4. Does observation of representative operations indicate that safe work practices have been implemented for company and contractor employees? Do such work practices include, where appropriate: • Lockout/tagout? • Confined space entry? • Opening process equipment or piping? • Control over entrance into a facility by maintenance, contractor, laboratory, and other support personnel? FIELD NOTE REFERENCE(S):	.119(f) (4)	YES
C. Interviews 1. Based on interviews with a representative number of operators, are the written operating procedures implemented for each covered process? FIELD NOTE REFERENCE(S):	.119(f) (1)	YES
2. Based on interviews with a representative number of operators, do operating procedures provide clear instructions for safely conducting activities? (Specifically ask for conditions requiring emergency shutdown, the operating limits of a particular process or item of equipment, what might occur if a deviation from those limits should take place, steps to avoid the deviation, and precautions necessary to prevent exposure to hazardous chemicals.) FIELD NOTE REFERENCE(S):	.119(f) (1)	YES
3. Based on interviews with a representative number of employees who work in or maintain a process, are the operating procedures readily accessible? FIELD NOTE REFERENCE(S):	.119(f) (2)	YES
4. Based on interviews with a representative number of operators and maintenance employees, do the operating procedures reflect current operating practice? FIELD NOTE REFERENCE(S):	.119(f) (3)	YES

1910.119 (g): TRAINING

I. PROGRAM SUMMARY

The intent of this paragraph helps employees understand the nature and causes of problems arising from process operations, and increases employee awareness with respect to the hazards particular to a process. An effective training program significantly reduces the number and severity of incidents arising from process operations, and can be instrumental in preventing small problems from leading to a catastrophic release. Minimum requirements for an effective training program include: Initial Training, Refresher Training, and Documentation.

II. QUALITY CRITERIA REFERENCES

- A. 1910.119(g): Training
- B. 1910.119(f)(1): Operating procedures

III. VERIFICATION OF PROGRAM ELEMENTS

A. Records Review

1. For employees involved in operating a process, do initial and refresher training records exist? Do the records contain the identity of the employee, the date of the training, and the means used to verify that the employee understood the training?

FIELD NOTE REFERENCE(S):

.119(g)
(1)(1)

YES

2. Has each employee been trained before being involved in a newly assigned process (except employees involved in operating a process prior to 5/26/92)?

FIELD NOTE REFERENCE(S):

.119(g)
(1)(1)

YES

3. If initial training has not been given to employees involved in operating a process prior to 5/26/92, is there written certification that they have the required knowledge, skills and abilities to safely carry out the duties and responsibilities specified in the operating procedures? (Review the documents to make sure the certification has not be invalidated by a change in duties.) FIELD NOTE REFERENCE(S): ACTUALLY CERTIFIED WITH W.P.S. SYSTEM	.119(g) (1)(ii)	YES
4. Has each employee involved in operating a process been trained in an overview of the process and the operating procedures including: • Steps for each operating phase? Initial startup, normal operations, temporary operations, emergency shutdown, emergency operations, normal shutdown, and startup following a turnaround or emergency shutdown • Operating limits? Consequences of deviations and steps required to avoid deviations • Safety and health considerations? Properties and hazards of chemicals used and precautions for preventing exposure • Safety systems and their functions? FIELD NOTE REFERENCE(S):	.119(g) (1)(i)	YES NEED TO VERIFY WITH W.P.S. YES YES
5. Has the employer consulted with employees involved in operating the process to determine the appropriate frequency for refresher training? Is the frequency at least once every 3 years? FIELD NOTE REFERENCE(S): DISCUSSED WITH BOB MUHLSTADT --- WILL BE ACTIVED BY END OF 1994.	.119(g) (2)	NO
B. On-site Conditions Verification is not required.	.119(g) (1) or (2)	N/A

C. Interviews 1. Based on interviews with a representative number of employees, has their training emphasized specific safety and health hazards, emergency operations including shutdown, and safe work practices applicable to their tasks? FIELD NOTE REFERENCE(S):	.119(g) (1)(1)	Yes
2. Based on interviews with employees named as having provided consultation, has the employer consulted with employees involved in operating the process to determine the appropriate frequency of refresher training? FIELD NOTE REFERENCE(S):	.119(g) (2)	D.N.O.

1910.119 (h) CONTRACTORS

I. PROGRAM SUMMARY

The intent of this paragraph is to require employers who use contractors to perform work in and around processes that involve highly hazardous chemicals to establish a screening process so that they hire and use contractors who accomplish the desired job tasks without compromising the safety and health of employees at a facility. The contractor must assure that contract employees are trained on performing the job safely, of the hazards related to the job, and applicable provisions of the emergency action plan.

II. QUALITY CRITERIA REFERENCES

- A. 1910.119(h)
- B. 1910.119(f)(4)
- C. 1910.119(n)

III. VERIFICATION OF PROGRAM ELEMENTS

	Criteria Reference	Met Y/N
A. Records Review - Employer's Program 1. Does the program include all contractors performing maintenance or repair, turnaround, major renovation or specialty work on or adjacent to covered processes? (Contractors performing incidental services which do not influence process safety such as janitorial work, food and drink services, laundry, delivery, and other supply services need not be included.) FIELD NOTE REFERENCE(S):	.119(h) (1)	YES
2. Is the information regarding the contractor's safety performance and programs obtained and evaluated for selection of contractors? FIELD NOTE REFERENCE(S):	.119(h) (2)(i)	YES

3. Are the contract employers informed of the known potential fire, explosion, or toxic release hazards related to the contractor's work and the processes? FIELD NOTE REFERENCE(S):	.119(h) (2)(ii)	Yes
4. Are contract employers informed of the applicable provisions of the emergency action plan required by .119(n)? FIELD NOTE REFERENCE(S):	.119(h) (2) (iii)	Yes
5. Have safe work practices to control the entrance, presence and exit of contract employers and contract employees in covered process areas been developed and implemented? FIELD NOTE REFERENCE(S):	.119(h) (2)(iv) .119(f) (4)	Yes
6. Are contract employers evaluated for their performance in fulfilling their obligations to: • Assure their employees are trained in safe work practices needed to perform the job? • Assure their employees are instructed in the known potential fire, explosion, or toxic release hazards related to the job and the applicable provisions of the emergency action plan? • Document the required training and the means to verify their employees have understood the training? • Assure their employees follow the facility safety rules and work practices? • Advise the employer of unique hazards presented by the contractor's work? FIELD NOTE REFERENCE(S):	.119(h) (2)(v)	Yes
7. Does the employer maintain a contract employee injury and illness log related to the contractor's work in process areas? FIELD NOTE REFERENCE(S):	.119(h) (2)(vi)	Yes
Records Review - Contractor's Programs 8. Are all contractor employees trained in the work practices necessary to perform their jobs safely? FIELD NOTE REFERENCE(S):	.119(h) (3)(i)	Yes

9. Is each contract employee instructed in the known potential fire, explosion, or toxic release hazards related to his/her job and the processes and applicable provisions of the emergency action plan? FIELD NOTE REFERENCE(S):	.119(h) (3)(ii)	Yes
10. Is there documentation that each contract employee has received and understands the required training? FIELD NOTE REFERENCE(S):	.119(h) (3) (iii)	Yes
11. Do the contract employee training records contain the following: • The identity of the employee? • The date of the training? • The means used to verify that the training was understood? FIELD NOTE REFERENCE(S): THIS INFORMATION HAS NOT BEEN REQUESTED.	.119(h) (3) (iii)	Yes
12. Are there means to assure that contract employee follow the safety rules of the facility, including safe work practices required in .119(f)(4)? (Review evidence of enforcement by the contractor.) FIELD NOTE REFERENCE(S):	.119(h) (3)(iv) .119(f) (4)	Yes
13. Is the employer advised of any unique hazards presented by the contract employer's work or any hazards found by the contract employer's work? FIELD NOTE REFERENCE(S):	.119(h) (3)(v)	Yes
B. On-site Conditions		.119(h) (2)(iv)
1. Based on a representative sample of observations of contractor employees, has the employer's program to control their entrance, presence, and exit been implemented? FIELD NOTE REFERENCE(S):		Yes

2. Based on a representative sample of observations of contractor employees, do they follow the safety rules of the facility? (These rules include the employer's safe work practices such as lockout/tagout, confined space entry, and opening process equipment or piping; they may also include other rules such as excavation procedures or use of PPE.) FIELD NOTE REFERENCE(S):	.119(h) (3)(iv)	YES
C. Interviews 1. Based on interviews with contractor employers, have they been informed of the known fire, explosion, or toxic release hazards related to their work and the processes in which they are involved? FIELD NOTE REFERENCE(S):	.119(h) (2)(ii)	YES
2. Based on interviews with contractor employers, have they been informed of the applicable provisions of the employer's emergency action plan? FIELD NOTE REFERENCE(S):	.119(h) (2) (iii)	YES
3. Based on interviews with contractor employers and employees, have work practices to control their entrance, presence, and exit of covered process areas been implemented? FIELD NOTE REFERENCE(S):	.119(h) (2)(iv)	YES
4. Based on interviews with the contractor employer, has the employer evaluated the contractor's performance in fulfilling the obligations required in .119(h)(3)? FIELD NOTE REFERENCE(S): OBTAIN SAFETY PROGRAM INFORMATION FROM THE "DEPUE".	.119(h) (2)(v)	YES
5. Based on interviews with a representative number of contractor employees, are they being instructed in the known potential fire, explosion, or toxic release hazards related to their work and the processes in which they are involved? FIELD NOTE REFERENCE(S):	.119(h) (3)(ii)	YES

6. Based on interviews with a representative number of contractor employees, have they been instructed in the applicable provisions of the emergency action plan? (Ask them to explain the plan and evacuation procedures.) FIELD NOTE REFERENCES:	.119(h) (3)(ii)	YES
7. Based on interviews with a representative number of contractor employees, has the contract employer assured that they follow the safety rules of the facility? (Ask how safe work practices, entry restrictions for the facility, and use of required PPE are enforced.) FIELD NOTE REFERENCES:	.119(h) (3)(iv)	YES

For additional information on Contractors, see Appendix D, reference 16.

1910.119 (i): PRE-STARTUP SAFETY REVIEW

I. PROGRAM SUMMARY

The intent of this paragraph is to make sure that, for new facilities and for modified facilities when the modification necessitates a change to process safety information, certain important considerations are addressed before any highly hazardous chemicals are introduced into the process. Minimum requirements include that the pre-startup safety review confirm the following: construction and equipment is in accordance with design specifications; safety, operating, maintenance, and emergency procedures are in place and adequate; for new facilities, a PHA has been performed and recommendations resolved or implemented; modified facilities meet the requirements of paragraph (1), management of change; and training of each employee involved in the process has been completed.

II. QUALITY CRITERIA REFERENCES

- A. 1910.119(i): Pre-startup Safety Review
- B. 1910.119(l): Management of Change

III. VERIFICATION OF PROGRAM ELEMENTS

	Criteria Reference	Met Y/N
A. Records Review 1. Has a pre-startup safety review been performed for all new facilities and for modified facilities when the modification is significant enough to require a change in process safety information? FIELD NOTE REFERENCE(S):	.119(i) (1)	YES
2. Do pre-startup safety reviews confirm that prior to the introduction of highly hazardous chemicals to a process: • Construction and equipment is in accordance with design specifications? FIELD NOTE REFERENCE(S):	.119(i) (2)	NO
• Safety, operating, maintenance, and emergency procedures are in place and adequate? FIELD NOTE REFERENCE(S):		NO YES

2. (Continued) Do pre-startup safety reviews confirm that prior to the introduction of highly hazardous chemicals to a process: • For new facilities, a PHA has been performed and recommendations resolved or implemented before startup? FIELD NOTE REFERENCE(S): • Modified facilities meet requirements of paragraph (1)? FIELD NOTE REFERENCE(S): • Training of each employee involved in operating the process has been completed? FIELD NOTE REFERENCE(S):	.119(i) (2)	YES YES YES
On-site Conditions 1. Do observations of new or modified facilities indicate that prior to the introduction of highly hazardous chemicals: • Construction and equipment is in accordance with design specifications? • Safety, operating, maintenance, and emergency procedures are in place and adequate? FIELD NOTE REFERENCE(S):	.119(i) (2)	D.N.O.
C. Interviews [See NOTE, p. A-2.] 1. Based on interviews with a representative sample of operators, maintenance employees, and engineers, can it be confirmed that the construction and equipment are in accordance with design specifications prior to introducing highly hazardous chemicals to a process? FIELD NOTE REFERENCE(S):	.119(i) 2(i)	YES
2. Based on interviews with a representative sample of operators, maintenance employees, and engineers, are safety, operating, maintenance, and emergency procedures in place prior to introduction of highly hazardous chemicals into a process? Are these procedures adequate? FIELD NOTE REFERENCE(S):	.119(i) 2(ii)	YES

*COULD BE
CHECKLIST OR
WHAT IF*

3. Based on interviews with a representative sample of operators, maintenance employees, and engineers, is a <u>PHA</u> performed and are recommendations resolved prior to a startup that introduces highly hazardous chemicals into a new process? FIELD NOTE REFERENCES:	.119(i) 2(iii)	YES
4. Based on interviews with a representative sample of operators, maintenance employees, and engineers, do modified facilities meet requirements of paragraph (1), Management of Change prior to introducing a highly hazardous chemical? FIELD NOTE REFERENCES:	.119(i) 2(iii)	YES
5. Based on interviews with a representative sample of operators, is training completed for each employee involved in operating the process prior to the introduction of a highly hazardous chemical? FIELD NOTE REFERENCES:	.119(i) 2(iv)	YES

1910.119 (j): MECHANICAL INTEGRITY

I. PROGRAM SUMMARY

The intent of this paragraph is to assure that equipment used to process, store, or handle highly hazardous chemical is designed, constructed, installed, and maintained to minimize the risk of releases of such chemicals. This requires that a mechanical integrity program be in place to assure the continued integrity of process equipment. The elements of a mechanical integrity program include the identification and categorization of equipment and instrumentation, development of written maintenance procedures, training for process maintenance activities, inspection and testing, correction of deficiencies in equipment that are outside acceptable limits defined by the process safety information, and development of a quality assurance program.

II. QUALITY CRITERIA REFERENCES

A. .119(j): Mechanical Integrity

III. VERIFICATION OF PROGRAM ELEMENTS

Criteria
Reference

Met
Y/N

A. Records Review

1. Does the written mechanical integrity program include?
 - Pressure vessels and storage tanks
 - Piping systems and components such as valves
 - Relief and vent systems and devices
 - Emergency shutdown systems
 - Controls (including monitoring devices and sensors, alarms and interlocks)
 - Pumps

FIELD NOTE REFERENCE(S): THIS IS PARTIALLY ACHIEVED, INFORMATION IS AVAILABLE BUT DIFFICULT TO RETRIEVE -

.119(j)
(1)

See
note

2. Are there written procedures to maintain the on-going integrity of process equipment? Does the documentation indicate the procedures have been implemented?

FIELD NOTE REFERENCE(S): NEED TO PREPARE POLICY FOR HEAVY (GREEN)

.119(j)
(2)

NO

3. Has training been provided to each employee involved in maintaining the on-going integrity of process equipment in the following: • An overview of the process and its hazards? • Procedures applicable to the employee's job tasks to assure that the employee can perform the job tasks in a safe manner? (Review certification documents for employees doing non-destructive tests, welding on pressure vessels, etc., where these certifications are required.) FIELD NOTE REFERENCE(S):	.119(j) (3)	YES
4. Are inspections and tests performed on each item of process equipment included in the program? FIELD NOTE REFERENCE(S):	.119(j) (4)(i)	YES
5. Do inspection and testing procedures follow good engineering practices? FIELD NOTE REFERENCE(S):	.119(j) (4)(ii)	YES
6. Are inspection and test frequencies consistent with the manufacturer's recommendation and good engineering practice? Are inspections and tests performed more frequently if determined necessary by operating experience? FIELD NOTE REFERENCE(S):	.119(j) (4) (iii)	YES
7. Is there documentation of each inspection and test that has been performed including all of the following: • Date of the inspection or test? • Name of person performing the procedure? (UMAS) • Serial number or other identifier of equipment on which procedure was performed? • Description of inspection or test performed? • Results of inspection or test? FIELD NOTE REFERENCE(S):	.119(j) (4)(iv)	YES

8. Are deficiencies in equipment that are outside limits (as defined in process safety information) corrected before further use or in a safe and timely manner when necessary means are taken to assure safe operation? FIELD NOTE REFERENCE(S):	.119(j) (5)	YES
9. In the construction of new plants and equipment, does the employer assure that equipment as it is fabricated is suitable for the process for which it will be used? FIELD NOTE REFERENCE(S): VERIFIED PRIOR TO INSTALLATION PER ROB CALDER	.119(j) (6)(i)	YES
10. Have appropriate checks and inspections been made to assure equipment is installed properly and consistent with design specifications and manufacturer's instructions? (Include contractor supplied equipment.) FIELD NOTE REFERENCE(S):	.119(j) (6)(ii)	YES
11. Does the employer assure that maintenance materials, spare parts, and equipment are suitable for the process application for which they are used? (Include contractor supplied equipment.) FIELD NOTE REFERENCE(S):	.119(j) (6) (iii)	YES
B. On-site Conditions		
1. Do observations of a representative sample of process equipment indicate deficiencies outside acceptable limits? (Compare process safety information criteria with the conditions of the equipment found in the process.) FIELD NOTE REFERENCE(S):	.119(j) (5)	NO
2. If new plants or equipment are being constructed, do observations indicate that the equipment as it is fabricated is suitable for the process application? FIELD NOTE REFERENCE(S): DID NOT OBSERVE (D.N.O.)	.119(j) (6)(i)	N/A

3. Do observations of a representative sample of maintenance materials, spare parts, and equipment indicate that they are suitable for the process application for which they will be used? FIELD NOTE REFERENCE(S): AT TIME OF ASSESSMENT, BFG MANAGES THIS PART OF CEDON'S BUSINESS	.119(j) (6) (iii)	YES
C. Interviews Engineers (if any; or other qualified persons capable of providing the information requested; see NOTE, p. A-2): 1. Based on interviews with a representative number of engineers, have procedures to maintain the on-going integrity of the process equipment been implemented for: • Pressure vessels and storage tanks? • Piping systems and components such as valves? • Relief and vent systems and devices? • Emergency shutdown systems? • Controls (including monitoring devices and sensors, alarms and interlocks)? • Pumps? (Ask about the possibility of safety critical equipment being inadvertently rendered inoperative. For example, a relief device might be isolated by closing an upstream valve.) FIELD NOTE REFERENCE(S): WILL ACTIVATE WITH WRITTEN PROCEDURE.	.119(j) (2)	QNO.
2. Based on interviews with a representative number of engineers, do the inspection and testing procedures follow recognized and generally accepted good engineering practice? Has prior operating experience indicated a need for a more frequent test and inspection schedule than has been implemented? FIELD NOTE REFERENCE(S):	.119(j) (4)	YES
3. Based on interviews with a representative number of engineers, are equipment deficiencies corrected before use when they are outside the acceptable limits? If not, are the deficiencies corrected in a timely manner and are necessary means taken to assure safe operation? FIELD NOTE REFERENCE(S):	.119(j) (5)	YES

4. Based on interviews with a representative number of engineers, has the employer assured that, for new plants and equipment, the equipment as it is fabricated is suitable for the process application? Are appropriate checks and inspections made to assure equipment is installed properly and consistent with design specifications and manufacturer's instructions? Are maintenance materials, spare parts, and equipment suitable for the process application for which they will be used? (Ask about contractor supplied items.) FIELD NOTE REFERENCE(S):	.119(j) (6)	Q.U.O
Maintenance: 5. Based on interviews with a representative number of maintenance employees, have the written procedures for maintaining the on-going integrity of process equipment been implemented? FIELD NOTE REFERENCE(S):	.119(j) (2)	DNO.
6. Based on interviews with a representative number of employees involved in maintaining the on-going integrity of the process, have they been trained to assure they can perform their tasks in a safe manner? Did the training include an overview of the process, its hazards, and procedures applicable to the job? (Determine if certification, specialized training, or unique qualifications are required.) FIELD NOTE REFERENCE(S):	.119(j) (3)	Yes
7. Based on interviews with a representative number of maintenance employees, do test and inspection procedures follow recognized and generally accepted good engineering practices? Is the frequency of inspections and tests consistent with applicable manufacturer's recommendations and good engineering practices? Are more frequent inspections and tests necessary due as indicated by prior operating experience? FIELD NOTE REFERENCE(S):	.119(j) (4)	Yes

8. Based on interviews with a representative number of maintenance employees, are equipment deficiencies that are outside acceptable limits corrected before further use? If not, are corrections made in a timely manner and are necessary means taken to assure operation? FIELD NOTE REFERENCES: REACTOR WATER JACKET IN BLDG 731	.119(j) (5)	Yes
9. Based on interviews with a representative number of maintenance employees, are maintenance materials, spare parts and equipment suitable for the process application for which they are intended? (Ask about availability and use of substitutes.) FIELD NOTE REFERENCES:	.119(j) (6)	Yes

For additional information on Mechanical Integrity, see Appendix D, references: 9.; 18.; 19.; 20.; 21.; 22.; 23.; 27.; 28.; 29.; and 34.

1910.119 (k): HOT WORK PERMIT

I. PROGRAM SUMMARY

The intent of this paragraph is to require employers to control, in a consistent manner, nonroutine work conducted in process areas. Specifically, this subparagraph is concerned with the permitting of hot work operations associated with welding and cutting in process areas.

Minimum requirements include: that the employer issue a hot work permit for hot work operations conducted on or near a covered process and that hot work permits shall document compliance with the fire prevention and protection requirements of 29 CFR 1910.252(a).

II. QUALITY CRITERIA REFERENCES

- A. 1910.119(k): Hot Work Permit
- B. 1910.252(a): Fire Prevention and Protection

III. VERIFICATION OF PROGRAM ELEMENTS

	Criteria Reference	Met Y/N
A. Records Review 1. Have hot work permits been issued for all hot work operations conducted on or near a process covered by this standard? FIELD NOTE REFERENCE(S):	.119(k) (1)	yes
2. Do the hot work permits indicate the date(s) authorized for hot work performed? FIELD NOTE REFERENCE(S):	.119(k) (2)	yes
3. Do the hot work permits describe the object on which the hot work is to be performed? FIELD NOTE REFERENCE(S):	.119(k) (2)	yes

4. Have the hot work permits been kept on file until the hot work operations were complete? FIELD NOTE REFERENCE(S):	.119(k) (2)	Yes
5. Have the hot work permits identified openings, cracks and holes where sparks may drop to combustible materials below? FIELD NOTE REFERENCE(S):	.252(a) (2)(i)	Yes
6. Have the hot work permits described the fire extinguishers required to handle any emergencies? FIELD NOTE REFERENCE(S):	.252(a) (2)(ii)	Yes
7. Have the hot work permits assigned fire watchers whenever welding is performed in locations where other than a minor fire might develop? FIELD NOTE REFERENCE(S):	.252(a) (2) (iii)	Yes
8. Are the hot work permits being authorized, preferably in writing, by the "individual" responsible for all welding and cutting operations? Is authorization preceded by site inspection and designation of appropriate precautions? FIELD NOTE REFERENCE(S):	.252(a) (2)(iv) & .252(a) (2) (xiii) (A)	Yes
9. Have the hot work permits described precautions associated with combustible materials on floors or floors, walls, partitions, ceilings or roofs of combustible construction? FIELD NOTE REFERENCE(S):	.252(a) (2)(v) & .252(a) (2)(ix)	Yes
10. Has hot work permitting been successful in prohibiting welding in unauthorized areas, in sprinklered buildings while such protection is impaired, in the presence of explosive atmospheres, and in storage areas for large quantities of readily ignitable materials? FIELD NOTE REFERENCE(S):	.252(a) (2)(vi)	Yes

11. Have the hot work permits required relocation of combustibles where practicable and covering with flameproofed covers where not practicable? FIELD NOTE REFERENCE(S):	.252(a) (2) (vii)	yes
12. Have hot work permits identified for shutdown any ducts or conveyors systems that may convey sparks to distant combustibles? FIELD NOTE REFERENCE(S):	.252(a) (2) (viii)	yes
13. Have hot work permits required precautions whenever welding on components (e.g., steel members, pipes, etc.) that could transmit heat by radiation or conduction to unobserved combustibles? FIELD NOTE REFERENCE(S):	.252(a) (2)(x) & .252(a) (2) (xii)	yes
14. Have hot work permits identified hazards associated with welding on walls, partitions, ceilings or roofs with combustible coverings or welding on walls or panels of sandwich-type construction? FIELD NOTE REFERENCE(S):	.252(a) (2)(xi)	yes
15. Has management established areas and procedures for safe welding and cutting based on fire potential? FIELD NOTE REFERENCE(S):	.252(a) (2) (xiii)	yes
16. Has management designated the "individual" responsible for authorizing cutting and welding operations in process areas? FIELD NOTE REFERENCE(S):	.252(a) (2) (xiii) (B)	yes
17. Has management ensured that welders, cutters and supervisors are trained in the safe operation of their equipment? FIELD NOTE REFERENCE(S):	.252(a) (2) (xiii) (C)	yes

18. Has management advised outside contractors working on their site about all hot work permitting programs? FIELD NOTE REFERENCE(S):	.252(a) (2) (xiii) (D)	YES
19. Has the Supervisor determined if combustibles are being protected from ignition prior to welding by moving them, shielding them, or scheduling welding around their production? FIELD NOTE REFERENCE(S):	.252(a) (2) (xiv) (A)(B) & (C)	YES
20. Has the Supervisor, prior to welding, secured authorization from the responsible "individual" designated by management? FIELD NOTE REFERENCE(S):	.252(a) (2) (xiv) (D)	YES
B. On-Site Conditions		
1. Conduct checks of <u>current</u> welding and cutting operations to ensure compliance with the requirements of 1910.119(k) and 1910.252(a). The twenty items listed above in "Records Review" may serve as an audit checklist. A <u>management representative</u>, the "<u>individual</u>" responsible for welding operations and the <u>supervisor</u> should all be invited to participate in this on-site check. FIELD NOTE REFERENCE(S): WATER JACKET ON REACTION -- BLDG 731	.119(k) & .252(a)	YES
C. Interviews - Employees and Contractors		
1. Based on interviews with a representative number of maintenance and contractor employees, has the Supervisor visited welding work operations to verify that: • Welders have approval for safe go ahead prior to welding? • Fire protection and extinguishing equipment is properly located at the work site? • Fire watches are functional, where required? FIELD NOTE REFERENCE(S):	.252(a) (2) (xiv) (E), (F) & (G)	D.N.O

2. Based on interviews with a representative number of maintenance and contractor employees, have hot work permits been issued for all hot work operations conducted on or near a process covered by this standard? FIELD NOTE REFERENCE(S):	.119(k) (1)	YES
3. Based on interviews with a representative number of maintenance and contractor employees, have the hot work permits been kept on file until the hot work operations were complete? FIELD NOTE REFERENCE(S):	.119(k) (2)	YES
4. Based on interviews with a representative number of maintenance and contractor employees, have the hot work permits identified openings, cracks and holes where sparks may drop to combustible materials below? FIELD NOTE REFERENCE(S):	.252(a) (2)(i)	YES
5. Based on interviews with a representative number of maintenance and contractor employees, have the hot work permits assigned fire watchers whenever welding is performed in locations where other than a minor fire might develop? FIELD NOTE REFERENCE(S):	.252(a) (2) (iii)	YES
6. Based on interviews with a representative number of maintenance and contractor employees, are the hot work permits being authorized, preferably in writing, by the "individual" responsible for all welding and cutting operations? Is authorization preceded by site inspection and designation of appropriate precautions? FIELD NOTE REFERENCE(S):	.252(a) (2)(iv) & .252(a) (2) (xiii) (A)	YES
7. Based on interviews with a representative number of maintenance and contractor employees, have the hot work permits described precautions associated with combustible materials on floors or floors, walls, partitions, ceilings or roofs of combustible construction? FIELD NOTE REFERENCE(S):	.252(a) (2)(v) & .252(a) (2)(ix)	YES

8. Based on interviews with a representative number of maintenance and contractor employees, has hot work permitting been successful in prohibiting welding in: • Unauthorized areas? • Sprinklered buildings while such protection is impaired? • The presence of explosive atmospheres? • Storage areas for large quantities of readily ignitable materials? FIELD NOTE REFERENCE(S):	.252(a) (2)(vi)	Yes
9. Based on interviews with a representative number of maintenance and contractor employees, have the hot work permits required relocation of combustibles where practicable and covering with flameproofed covers where not practicable? FIELD NOTE REFERENCE(S):	.252(a) (2) (vii)	Yes
10. Based on interviews with a representative number of maintenance and contractor employees, have hot work permits identified for shutdown any ducts or conveyors systems that may convey sparks to distant combustibles? FIELD NOTE REFERENCE(S):	.252(a) (2) (viii)	Yes
11. Based on interviews with a representative number of maintenance and contractor employees, have hot work permits required precautions whenever welding on components (e.g., steel members, pipes, etc.) that could transmit heat by radiation or conduction to unobserved combustibles? FIELD NOTE REFERENCE(S):	.252(a) (2)(x) & .252(a) (2) (xii)	Yes
12. Based on interviews with a representative number of maintenance and contractor employees, have hot work permits identified hazards associated with welding on walls, partitions, ceilings or roofs with combustible coverings or welding on walls or panels of sandwich-type construction? FIELD NOTE REFERENCE(S):	.252(a) (2)(xi)	Yes

13. Based on interviews with a representative number of maintenance and contractor employees, has management established areas and procedures for safe welding and cutting based on fire potential? FIELD NOTE REFERENCE(S): DIFFERENT AREAS OF THE PLANT HAVE PERMIT CATEGORIES.	.252(a) (2) (xiii)	YES
14. Based on interviews with a representative number of maintenance and contractor employees, has management designated the "individual" responsible for authorizing cutting and welding operations in process areas? FIELD NOTE REFERENCE(S):	.252(a) (2) (xiii) (B)	YES
15. Based on interviews with a representative number of maintenance and contractor employees, has management ensured that welders, cutters and supervisors are trained in the safe operation of their equipment? FIELD NOTE REFERENCE(S):	.252(a) (2) (xiii) (C)	YES
16. Based on interviews with contractors and contractor employees, has management advised outside contractors working on the site about all hot work permitting programs? FIELD NOTE REFERENCE(S):	.252(a) (2) (xiii) (D)	YES
17. Based on interviews with a representative number of maintenance and contractor employees, has the Supervisor determined if combustibles are being protected from ignition prior to welding by moving them, shielding them, or scheduling welding around their production. FIELD NOTE REFERENCE(S):	.252(a) (2) (xiv) (A) (B) & (C)	YES

1910.119 (I): MANAGEMENT OF CHANGE

I. PROGRAM SUMMARY

The intent of this paragraph is to require management of all modifications to equipment, procedures, raw materials and processing conditions other than "replacement in kind" by identifying and reviewing them prior to implementation of the change. Minimum requirements for management of change include: establishing written procedures to manage change; addressing the technical basis, impact on safety and health, modification to operating procedures, necessary time period, and authorizations required; informing and training employees affected; and updating process safety information and operating procedures or practices.

II. QUALITY CRITERIA REFERENCES

A. 1910.119 (I): Management of Change

III. VERIFICATION OF PROGRAM ELEMENTS

A. Records Review

1. Are there written procedures for managing changes (except for "replacements in kind") to process chemicals, technology, equipment, and procedures and changes to facilities that affect a covered process?

(Review procedures that address responsibilities, steps for assessing risks and approving changes, requirements for reviewing designs for temporary and permanent changes, steps needed to verify that modifications have been made as designed, variance procedures, time limit authorizations for temporary changes, and steps required to return the process to status quo after temporary changes.)

FIELD NOTE REFERENCE: DEVELOP HENRY (GEON) M.O.C. Policy - Presently ADDRESSING M.O.C'n but using BFG Policy.

.119(1)
(1)

NO
see
note

2. Do the procedures assure that the technical basis for the proposed change is addressed prior to any change?

FIELD NOTE REFERENCE:

.119(1)
(2)(i)

see
note
above

3. Do the procedures assure that the impact of the change on safety and health is addressed prior to any change? FIELD NOTE REFERENCE(S):	.119(1) (2)(ii)	See note plate A-46
4. Do the procedures assure that modifications to operating procedures is addressed prior to any change? FIELD NOTE REFERENCE(S):	.119(1) (2) (iii)	
5. Do the procedures assure that the necessary time period for the change is addressed prior to any change? FIELD NOTE REFERENCE(S):	.119(1) (2)(iv)	
6. Do the procedures assure that the authorization requirements for the proposed change are addressed prior to any change? FIELD NOTE REFERENCE(S):	.119(1) (2)(v)	
7. Are employees involved in operating a process, and maintenance and contract employees whose job tasks will be affected by change informed of, and trained in, the change prior to start-up of process or affected part of process? FIELD NOTE REFERENCE(S):	.119(1) (3)	
8. Is the process safety information required by paragraph (d) updated if changed? FIELD NOTE REFERENCE(S):	.119(1) (4)	
9. Are the operating procedures or practices required by paragraph (f) updated if changed? FIELD NOTE REFERENCE(S):	.119(1) (5)	

B. On-site Conditions 1. Do observations of new or recently modified process chemicals, technology, equipment, or procedures (except "replacement in kind") indicate that the Management of Change procedures have been implemented? (Determine if records are available to support the procedures for new or revised processes found in the facility.) FIELD NOTE REFERENCE(S):	.119(1) (1)	DN.O.
C. Interviews Operators, Maintenance, and Contractor Employees: 1. Based on interviews with operators, maintenance employees and contractor employees, are procedures implemented to manage changes to existing process chemicals, technology, equipment, facilities, and procedures? FIELD NOTE REFERENCE(S):	.119(1) (1)	YES (USING BFC)
2. Based on interviews with operators, maintenance employees and contractor employees, is training in process changes provided to employees whose job tasks will be affected by the changes prior to start-up? FIELD NOTE REFERENCE(S):	.119(1) (3)	YES

For additional information on Management of Change, see Appendix D, reference 9., Chapter 7.

1910.119 (m): INCIDENT INVESTIGATIONS

I. PROGRAM SUMMARY

The employer is required to investigate each incident which resulted in, or could reasonably have resulted in a catastrophic release of highly hazardous chemical in the workplace. An investigation shall be initiated no later than 48 hours following the incident. An investigation team shall be established and a report prepared which includes: 1) Date of incident 2) Date investigation began 3) Description of incident 4) Factors that contributed to the incident 5) Recommendations from the investigation. The employer is required to establish a system to promptly address the incident report findings and recommendations, documenting all resolutions and corrective actions. Incident reports shall be reviewed with all affected personnel whose job tasks are relevant to the investigation and retained for five years.

II. QUALITY CRITERIA REFERENCES

A. 1910.119(m): Incident Investigations

III. VERIFICATION OF PROGRAM ELEMENTS

	Criteria Reference	Met Y/N
A. Records Review		
1. Has each incident been investigated which resulted in, or could reasonably have resulted in a catastrophic release of highly hazardous chemicals in the workplace? FIELD NOTE REFERENCE(S):	.119(m) (1)	YES
2. Have incident investigations been initiated as promptly as possible, but not later than 48 hours following the incident? FIELD NOTE REFERENCE(S):	.119(m) (2)	YES

3. Have incident investigation teams been established? Do the teams contain at least one person knowledgeable in the process involved in the incident, and other members with appropriate knowledge and experience to thoroughly investigate and analyze the incident? Has a contractor employee been included in the team if the incident involved work of the contractor? FIELD NOTE REFERENCE(S):	.119(m) (3)	Yes
4. Have incident investigation reports been prepared at the conclusion of the investigation which include at minimum: • Date of the incident? • Date the inspection began? • A description of the incident? • The factors that contributed to the incident? • Any recommendations resulting from the investigation? FIELD NOTE REFERENCE(S):	.119(m) (4)	Yes
5. Has a system been established to promptly address and resolve the incident investigation report findings and recommendations? FIELD NOTE REFERENCE(S): NARRATIVE REPORT FOLLOW-UP / SEMI-ANNUAL AUDIT BY SAFETY.	.119(m) (5)	Yes
6. Have resolutions and corrective actions from the incident investigation reports been documented? FIELD NOTE REFERENCE(S):	.119(m) (5)	Yes
7. Have incident investigation reports been reviewed with all affected personnel whose job tasks are relevant to the incident findings including contract employees, where applicable? FIELD NOTE REFERENCE(S):	.119(m) (6)	Yes
8. Are incident investigation reports retained for five years? FIELD NOTE REFERENCE(S):	.119(m) (7)	Yes

B. On-site Conditions 1. Do observations of a representative sample of process components involved in incident investigations <u>indicate</u> that recommendations have been resolved? (Compare the corrective actions outlined in the investigation documentation with the actual equipment, procedures, material use, etc.) FIELD NOTE REFERENCE(S):	.119(m) (5)	YES
C. Interviews 1. Based on interviews with a representative number of operators, maintenance employees and contractor employees, have all incidents that resulted in or could reasonably have resulted in a catastrophic release of highly hazardous chemicals in the workplace, been investigated? FIELD NOTE REFERENCE(S):	.119(m) (1)	YES
2. Based on interviews with a representative number of the members of past investigation teams, do the teams contain at least one person knowledgeable in the process involved in the incident, and other persons with appropriate knowledge and experience to thoroughly investigate and analyze the incident? Was a contractor employee included in the team if the incident involved work of the contractor? FIELD NOTE REFERENCE(S):	.119(m) (3)	YES
3. Based on interviews with a representative number of employees whose job tasks are relevant to the past incident investigation findings, have the investigation reports been reviewed with the affected personnel? FIELD NOTE REFERENCE(S):	.119(m) (6)	YES

For additional information on Incident Investigations, see Appendix D, references 9. and 24.

1910.119 (n): EMERGENCY PLANNING AND RESPONSE

I. PROGRAM SUMMARY

The intent of this paragraph is to require the employer to address what actions employees are to take when there is an unwanted release of highly hazardous chemicals. The employer must establish and implement an emergency action plan in accordance with the provisions of 29 CFR 1910.38(a) and include procedures for handling small releases. Certain provisions of the hazardous waste and emergency response standard, 29 CFR 1910.120(a), (p), and (q), may also apply.

[NOTE: 1910.120(a) addresses scope, application, and definitions for the entire standard. 1910.120(p) addresses treatment, storage, and disposal (TSD) facilities under the Resource Conservation and Recovery Act (RCRA). 1910.120(q) addresses requirements for facilities that are not RCRA TSD's, where there is the potential for an emergency incident involving hazardous substances. Cleanup operations--including corrective actions and post-emergency response cleanup--are covered by 1910.120(b) through (o). For further guidance, refer to the forthcoming directive on 29 CFR 1910.120.]

II. QUALITY CRITERIA REFERENCES

- | | | | |
|----|-----------------------|----|------------|
| A. | 1910.119(n) | D. | 1910.165 |
| B. | 1910.38(a) | E. | 1910.1200 |
| C. | 1910.120(a), (p), (q) | F. | 1910.36(b) |

III. VERIFICATION OF PROGRAM ELEMENTS

Criteria Reference	Met Y/N
-----------------------	------------

A. Records Review 1. Has an emergency action plan been established and implemented for the entire plant in accordance with the requirements of 1910.38? Does the plan address the following: • Escape procedures and routes? • Procedures for post-evacuation employee accounting? • Preferred means to report emergencies? • Duties and procedures of employees who: • Remain to operate critical equipment? • Perform rescue and medical duties? • The names for persons or locations to contact for more action plan information? • Employee alarm systems? FIELD NOTE REFERENCE(S):	.119(n) or .38(a) (2)	Yes
2. Is the plan written if the facility has more than ten employees? FIELD NOTE REFERENCE(S):	.38(a) (1)	Yes
3. Is there sufficient number of persons designated and trained to assist in the safe and orderly emergency evacuation of employees? FIELD NOTE REFERENCE(S):	.38(a) (5)(i)	Yes
4. Is the plan reviewed with each employee covered by the plan: initially when the plan is developed; and whenever the employees' responsibilities or designated action under the plan change; and whenever the plan is changed? FIELD NOTE REFERENCE(S):	.38(a) (5)(ii)	Yes
5. Does the emergency action plan cover procedures for handling small releases? FIELD NOTE REFERENCE(S):	.119(n)	Yes

6. Is an alarm system established and implemented which complies with 1910.165? Are the alarms: - • Distinctive for each purpose of the alarm? • Capable of being perceived above ambient noise and light levels by all employees in the affected portions of the workplace? • Distinctive and recognizable as a signal to evacuate the work area or perform actions designated under the plan? • Maintained in operating condition? • Tested appropriately and restored to normal operating condition as soon as possible after test? • Non-supervised systems tested not less than every two months? • Supervised systems tested at least annually? • Serviced, maintained, and tested by appropriately trained persons? • Unobstructed, conspicuous and readily accessible, if they are manual alarm systems? FIELD NOTE REFERENCES:	.165 (b-e)	Yes
7. Does the written emergency response plan meet the requirements of 1910.120 (a), (p), and (q), if appropriate? (See the NOTE at I., Program Summary. Clean-up operations required by a governmental body are addressed in .120(a); treatment, storage, and disposal (TSD) facilities under the Resource Conservation and Recovery Act are addressed in .120(p); and .120(q) addresses requirements for emergency response no matter where they occur, except that it does not cover employees engaged in operations at TSD facilities or hazardous waste sites.) FIELD NOTE REFERENCES:	.120(a) .120(p) .120(q)	N/A Yes Yes

8. If employees are engaged in emergency response (except clean-up operations), does the plan address the following: • Coordination with outside parties? — • Personnel roles, lines of authority, training, and communication? • Emergency recognition and prevention? • Safe distances and places of refuge? • Site security and control? • Evacuation routes and procedures? • Decontamination? • Emergency medical treatment and first aid? • Emergency alerting and response procedures? • Critique of response and followup? • PPE and emergency equipment? FIELD NOTE REFERENCE(S): 24-Hour TECHNICIAN LEVEL FOR CORE CLEAN GROUP. (21- TOTAL)	.120(q)	Yes
B. On-site Conditions 1. Do observations of a representative sample of alarm systems indicate that they comply with the requirements in .165(b-e)? Are the alarms: • Distinctive for each purpose of the alarm? • Capable of being perceived above ambient noise and light levels by all employees in the affected portions of the workplace? • Distinctive and recognizable as a signal to evacuate the work area or perform actions designated under the plan? • Maintained in operating condition? • Tested appropriately and restored to normal operating condition as soon as possible after test? (Be present for an alarm test if possible or review video if available.) • Tested no greater than every two months? • Serviced, maintained, and tested by appropriately trained persons? • Unobstructed, conspicuous and readily accessible, if they are manual alarm systems? FIELD NOTE REFERENCE(S):	.165 (b-e)	Yes
2. Do observations of the evacuation routes indicate that they are not blocked, locked, or barricaded? FIELD NOTE REFERENCE(S):	.36(b) (4)	Yes

3. Do observations of the evacuation routes indicate that there are readily visible signs for evacuation routes leading to safe locations? FIELD NOTE REFERENCE(S): MAPS ARE IN PROCEDURE BOOKS - NEED TO PROVIDE THROUGHOUT PLANT SO PEOPLE KNOW ROUTES / INFORMATION	.36(b) (5)	No
4. Do observations of a representative sample of the evacuation route signs during dark conditions indicate that they are adequately illuminated? FIELD NOTE REFERENCE(S):	.36(b) (6)	YES
C. Interviews		
1. Based on interviews with employees who have been identified as likely to discover releases or assigned other emergency response duties, are they provided training? Is the training based on the duties they are expected to perform? FIELD NOTE REFERENCE(S):	.120(q) (6)	YES
2. Based on interviews with employees who are likely to discover hazardous substance releases, can they demonstrate competency in the provisions listed in the first responder awareness level: • Understanding what hazardous substances are, and the risks associated with them in an incident? • Understanding potential outcomes associated with an emergency when hazardous substances are present? • Ability to recognize the presence of hazardous substances in an emergency? • Ability to identify the hazardous substances, if possible? • Understanding the role of the first responder awareness individual in the employer's emergency response plan, including site security and control and the U.S. Dept. of Transportation's Emergency Response Guidebook? • Ability to realize the need for additional resources, and make appropriate notifications to the communication center? FIELD NOTE REFERENCE(S):	.120(q) (6)(i)	YES

8. If employees are engaged in emergency response (except clean-up operations), does the plan address the following: • Coordination with outside parties? — • Personnel roles, lines of authority, training, and communication? • Emergency recognition and prevention? • Safe distances and places of refuge? • Site security and control? • Evacuation routes and procedures? • Decontamination? • Emergency medical treatment and first aid? • Emergency alerting and response procedures? • Critique of response and followup? • PPE and emergency equipment? FIELD NOTE REFERENCE(S): 24-Hour TECHNICIAN LEVEL FOR CORE GEN GROUP. (21 - TOTAL)	.120(q)	Yes
B. On-site Conditions 1. Do observations of a representative sample of alarm systems indicate that they comply with the requirements in .165(b-e)? Are the alarms: • Distinctive for each purpose of the alarm? • Capable of being perceived above ambient noise and light levels by all employees in the affected portions of the workplace? • Distinctive and recognizable as a signal to evacuate the work area or perform actions designated under the plan? • Maintained in operating condition? • Tested appropriately and restored to normal operating condition as soon as possible after test? (Be present for an alarm test if possible or review video if available.) • Tested no greater than every two months? • Serviced, maintained, and tested by appropriately trained persons? • Unobstructed, conspicuous and readily accessible, if they are manual alarm systems? FIELD NOTE REFERENCE(S):	.165 (b-e)	Yes
2. Do observations of the evacuation routes indicate that they are not blocked, locked, or barricaded? FIELD NOTE REFERENCE(S):	.36(b) (4)	Yes

3. Do observations of the evacuation routes indicate that there are readily visible signs for evacuation routes leading to safe locations? FIELD NOTE REFERENCES: MAPS ARE IN PROCEDURE BOOKS - NEED TO PROVIDE THROUGHOUT PLANT SO PEOPLE KNOW ROUTES/INFORMATION	.36(b) (5)	NO
4. Do observations of a representative sample of the evacuation route signs during dark conditions indicate that they are adequately illuminated? FIELD NOTE REFERENCES:	.36(b) (6)	YES
C. Interviews		
1. Based on interviews with employees who have been identified as likely to discover releases or assigned other emergency response duties, are they provided training? Is the training based on the duties they are expected to perform? FIELD NOTE REFERENCES:	.120(q) (6)	YES
2. Based on interviews with employees who are likely to discover hazardous substance releases, can they demonstrate competency in the provisions listed in the first responder awareness level: • Understanding what hazardous substances are, and the risks associated with them in an incident? • Understanding potential outcomes associated with an emergency when hazardous substances are present? • Ability to recognize the presence of hazardous substances in an emergency? • Ability to identify the hazardous substances, if possible? • Understanding the role of the first responder awareness individual in the employer's emergency response plan, including site security and control and the U.S. Dept. of Transportation's Emergency Response Guidebook? • Ability to realize the need for additional resources, and make appropriate notifications to the communication center? FIELD NOTE REFERENCES:	.120(q) (6)(i)	YES

3. Based on interviews with employees who will take defensive action in containing and controlling a release as part of the response, can they demonstrate the competencies for a first responder operations level: • Knowledge of the basic hazard and risk assessment techniques? • Knowledge of how to select and use proper PPE provided to them? • Understanding of basic hazardous materials terms? • Knowledge of how to perform basic containment, confinement, and control operations within the capability of their unit? • Knowledge of how to implement basic decontamination procedures? • Knowledge of relevant standard operating procedures and termination procedures for a response? FIELD NOTE REFERENCE(S):	.120(q) (6)(ii)	Yes
4. Based on interviews with employees who will take offensive action in containing and controlling a release as part of the response, can they demonstrate the competencies for a hazardous materials (HAZMAT) technician: • Knowledge of how to implement the employer's emergency response plan? • Knowledge of the classification, identification, and verification of known and unknown materials using field survey instruments and equipment? • Ability to function within an assigned role in the Incident Command System? • Knowledge of how to select and use proper specialized chemical PPE provided to them? • Understanding of hazard and risk assessment techniques? • Ability to perform advanced control, containment, and/or confinement operations within the capability of their unit? • Understanding of how to implement decontamination procedures? • Understanding of termination procedures? • Understanding of basic chemical and toxicological terminology and behavior? FIELD NOTE REFERENCE(S):	.120(q) (6) (iii)	Yes
5. Based on interviews with a representative number of operator and maintenance employees, do they know the emergency action plan to protect themselves in an emergency? FIELD NOTE REFERENCE(S):	.38(a)	Yes

1910.119 (o): COMPLIANCE AUDITS

I. PROGRAM SUMMARY

The intent of this paragraph is to require employers to self-evaluate the effectiveness of their PSM program by identifying deficiencies and assuring corrective actions. Minimum requirements include: audits at least every three years; maintenance of audit reports for at least the last two audits; audits conducted by at least one person knowledgeable in the process; documentation of an appropriate response to each finding; documentation that the deficiencies found have been corrected.

II. QUALITY CRITERIA REFERENCES

- A. 1910.119(o): Compliance Audits
- B. 1910.119(c): Employee Participation

III. VERIFICATION OF PROGRAM ELEMENTS

	Criteria Reference	Met Y/N
A. Records Review 1. Has the employer certified in writing that there has been an audit of compliance with PSM at least every three years? FIELD NOTE REFERENCE(S):	.119(o) (1)	Yes
2. Do the audit reports include an evaluation of all the required paragraphs of the PSM standard? FIELD NOTE REFERENCE(S):	.119(o) (1)	Yes
3. Was the compliance audit conducted by at least one person who was knowledgeable in the process? FIELD NOTE REFERENCE(S):	.119(o) (2)	Yes
4. Has a report of the findings been developed for each audit? FIELD NOTE REFERENCE(S):	.119(o) (3)	Yes

5. Has the employer promptly determined and documented an appropriate response to each of the findings? FIELD NOTE REFERENCE(S):	.119(o) (4)	YES
6. Does the employer document that deficiencies have been corrected? FIELD NOTE REFERENCE(S):	.119(o) (4)	YES
7. Has the employer retained the two most recent compliance audit reports? FIELD NOTE REFERENCE(S):	.119(o) (5)	YES
B. On-site Conditions No observations are required; on-site conditions will be cited under other paragraphs.	.119(o) (4)	YES
C. Interviews 1. Based on interviews with auditors, are they knowledgeable in processes? FIELD NOTE REFERENCE(S):	.119(o) (2)	YES
2. Based on interviews with a representative number of employees and their designated representatives, do they have access to compliance audit information? FIELD NOTE REFERENCE(S):	.119(c) (3)	YES

1910.119 (p): TRADE SECRETS

I. PROGRAM SUMMARY

The intent of this paragraph is to require employers to provide all information necessary to comply with the standard to personnel developing paragraphs (d), (e), (f), (n) and (o) without regard to possible trade secrets. In addition, employees and their designated representatives shall have access to trade secret information contained within documents required to be developed by the standard.

II. QUALITY CRITERIA REFERENCES

- A. 1910.119(p): Trade Secrets
 B. 1910.1200: Hazard Communication

III. VERIFICATION OF PROGRAM ELEMENTS

	Criteria Reference	Met Y/N
A. Records Review 1. Has all information necessary been provided to those persons responsible for compiling the process safety information (paragraph d), those assisting in development of the PHA (paragraph e), those responsible for developing the operating procedures (paragraph f), and those involved in incident investigations (paragraph m) and emergency planning and response (paragraph n), and compliance audits (paragraph o) been without regard to possible trade secret status of such information? FIELD NOTE REFERENCE(S):	.119(p) (1)	YES
2. Do employees and their designated representatives have access to trade secret information contained in the PHA and to other documents required to be developed by the standard, subject to the provisions set forth in 1910.1200(i)(1) through (i)(12)? FIELD NOTE REFERENCE(S):	.119(p) (3)	YES
B. On-site Conditions Not applicable.		

C. Interviews Employees involved in specific duties: 1. Based on interviews with a representative number of employees involved in compiling the process safety information, developing PHA's, developing operating procedures, investigating incidents, planning and responding to emergencies, and auditing compliance, has all information necessary been provided to them without regard to possible trade secret status of such information? FIELD NOTE REFERENCE(S):	.119(p) (1)	Yes
Employees and Representatives: 2. Based on interviews with a representative number of employees and their designated representatives, do they have access to trade secret information contained within the PHA and other documents required to be developed by the standard? (Note that this access is subject to the provisions set forth in 1910.1200(1)(1).) FIELD NOTE REFERENCE(S):	.119(p) (3)	Yes