

U.S. Department of Labor
Occupational Safety and Health Administration
Houston North Area Office
507 N. Sam Houston Pkwy. E., Suite 400
Houston, TX 77060-4007
Phone: (281)591-2438 FAX: (281)998-7457



Citation and Notification of Penalty

To:
Arkema Inc
and its successors
2231 Haden Rd
Houston, TX 77015

Inspection Number: 316217835
Inspection Date(s): 01/11/2012-07/10/2012
Issuance Date: 07/10/2012

Inspection Site:
2231 Haden Rd
Houston, TX 77015

The violation(s) described in this Citation and Notification of Penalty is (are) alleged to have occurred on or about the day(s) the inspection was made unless otherwise indicated within the description given below.

This Citation and Notification of Penalty (this Citation) describes violations of the Occupational Safety and Health Act of 1970. The penalty(ies) listed herein is (are) based on these violations. You must abate the violations referred to in this Citation by the dates listed and pay the penalties proposed, unless within 15 working days (excluding weekends and Federal holidays) from your receipt of this Citation and Notification of Penalty you mail a notice of contest to the U.S. Department of Labor Area Office at the address shown above. Please refer to the enclosed booklet (OSHA 3000) which outlines your rights and responsibilities and which should be read in conjunction with this form. Issuance of this Citation does not constitute a finding that a violation of the Act has occurred unless there is a failure to contest as provided for in the Act or, if contested, unless this Citation is affirmed by the Review Commission or a court.

Posting - The law requires that a copy of this Citation and Notification of Penalty be posted immediately in a prominent place at or near the location of the violation(s) cited herein, or, if it is not practicable because of the nature of the employer's operations, where it will be readily observable by all affected employees. This Citation must remain posted until the violation(s) cited herein has (have) been abated, or for 3 working days (excluding weekends and Federal holidays), whichever is longer.

Informal Conference - An informal conference is not required. However, if you wish to have such a conference you may request one with the Area Director during the 15 working day contest period. During such an informal conference you may present any evidence or views which you believe would support an adjustment to the citation(s) and/or penalty(ies).

If you are considering a request for an informal conference to discuss any issues related to this Citation and Notification of Penalty, you must take care to schedule it early enough to allow time to contest after the informal conference, should you decide to do so. Please keep in mind that a written letter of intent to contest must be

submitted to the Area Director within 15 working days of your receipt of this Citation. The running of this contest period is not interrupted by an informal conference.

If you decide to request an informal conference, please complete, remove and post the page 5 Notice to Employees next to this Citation and Notification of Penalty as soon as the time, date, and place of the informal conference have been determined. Be sure to bring to the conference any and all supporting documentation of existing conditions as well as any abatement steps taken thus far. If conditions warrant, we can enter into an informal settlement agreement which amicably resolves this matter without litigation or contest.

Right to Contest - You have the right to contest this Citation and Notification of Penalty. You may contest all citation items or only individual items. You may also contest proposed penalties and/or abatement dates without contesting the underlying violations. Unless you inform the Area Director in writing that you intend to contest the citation(s) and/or proposed penalty(ies) within 15 working days after receipt, the citation(s) and the proposed penalty(ies) will become a final order of the Occupational Safety and Health Review Commission and may not be reviewed by any court or agency.

Penalty Payment - Penalties are due within 15 working days of receipt of this notification unless contested. (See the enclosed booklet and the additional information provided related to the Debt Collection Act of 1982.) Make your check or money order payable to "DOL-OSHA". Please indicate the Inspection Number on the remittance.

OSHA does not agree to any restrictions or conditions or endorsements put on any check or money order for less than the full amount due, and will cash the check or money order as if these restrictions, conditions, or endorsements do not exist.

Notification of Corrective Action - For each violation which you do not contest, you are required by 29 CFR 1903.19 to submit an Abatement Certification to the Area Director of the OSHA office issuing the citation and identified above. The certification must be sent by you within 10 calendar days of the abatement date indicated on the citation. For **Willful** and **Repeat** violations, documents (examples: photos, copies of receipts, training records, etc.) demonstrating that abatement is complete must accompany the certification. Where the citation is classified as **Serious** and the citations states that abatement documentation is required, documents such as those described above are required to be submitted along with the abatement certificate. If the citation indicates that the violation was corrected during the inspection, no abatement certification is required for that item.

All abatement verification documents must contain the following information: 1) Your name and address; 2) the inspection number (found on the front page); 3) the citation and citation item number(s) to which the submission relates; 4) a statement that the information is accurate; 5) the signature of the employer or employer's authorized representative; 6) the date the hazard was corrected; 7) a brief statement of how the hazard was corrected; and 8) a statement that affected employees and their representatives have been informed of the abatement.

The law also requires a copy of all abatement verification documents, required by 29 CFR 1903.19 to be sent to OSHA, also be posted at the location where the violation appeared and the corrective action took place.

Employer Discrimination Unlawful - The law prohibits discrimination by an employer against an employee for filing a complaint or for exercising any rights under this Act. An employee who believes that he/she has been discriminated against may file a complaint no later than 30 days after the discrimination occurred with the U.S. Department of Labor Area Office at the address shown above.

Employer Rights and Responsibilities - The enclosed booklet (OSHA 3000) outlines additional employer rights and responsibilities and should be read in conjunction with this notification.

Notice to Employees - The law gives an employee or his/her representative the opportunity to object to any abatement date set for a violation if he/she believes the date to be unreasonable. The contest must be mailed to the U.S. Department of Labor Area Office at the address shown above and postmarked within 15 working days (excluding weekends and Federal holidays) of the receipt by the employer of this Citation and Notification of Penalty.

Inspection Activity Data - You should be aware that OSHA publishes information on its inspection and citation activity on the Internet under the provisions of the Electronic Freedom of Information Act. The information related to these alleged violations will be posted when our system indicates that you have received this citation. You are encouraged to review the information concerning your establishment at WWW.OSHA.GOV. If you have any dispute with the accuracy of the information displayed, please contact this office.

ABATEMENT CERTIFICATION

David A. Doucet, Area Director
U.S. Department of Labor - OSHA
Houston North Area Office
507 N. Sam Houston Pkwy. E., Suite 400
Houston, TX 77060-4007
Phone: (281)591-2438

Arkema Inc
2231 Haden Rd
Houston, TX 77015

The hazard referenced in Inspection Number _____ for the violation identified as
Citation _____ and Item _____ was corrected on _____
by _____

The hazard referenced in Inspection Number _____ for the violation identified as
Citation _____ and Item _____ was corrected on _____
by _____

The hazard referenced in Inspection Number _____ for the violation identified as
Citation _____ and Item _____ was corrected on _____
by _____

The hazard referenced in Inspection Number _____ for the violation identified as
Citation _____ and Item _____ was corrected on _____
by _____

The hazard referenced in Inspection Number _____ for the violation identified as
Citation _____ and Item _____ was corrected on _____
by _____

I attest that the information contained in this document is accurate and that the affected employees and their representatives have been informed of the abatement activities described in this certification.

Signature

Typed or Printed Name



NOTICE TO EMPLOYEES OF INFORMAL CONFERENCE

An informal conference has been scheduled with OSHA to discuss the citation(s) issued on 07/10/2012. The conference will be held at the OSHA office located at Houston North Area Office, 507 N. Sam Houston Pkwy. E., Suite 400, Houston, TX, 77060-4007 on _____ at _____. Employees and/or representatives of employees have a right to attend an informal conference.



Citation and Notification of Penalty

Company Name: Arkema Inc
Inspection Site: 2231 Haden Rd, Houston, TX 77015

Citation 1 Item 1 Type of Violation: **Serious**

29 CFR 1910.119(d)(3)(i)(D): Process safety information pertaining to the equipment in the process did not include the relief system design and design basis:

The employer does not ensure that the information pertaining to the relief system included back pressure calculations and verifications; design calculations for the worst case scenario; and included pressure drop calculations. The following violations of this were observed on or about January 14, 2012 where these conditions exposed employees working in process unit 180 to an explosion and fire hazard.

- a. For PSV 501/503 located on T-8074 CS2 Storage Tank in process unit 180, the 1997 S&B Engineering Pressure Safety Valve Study did not have a field-verification of the back pressure for the relief sizing calculations.
- b. For PSV 0493/0495 located on T-8073 CS2 Storage Tank in process unit 180, the 1997 S&B Engineering Pressure Safety Valve Study did not have a field-verification of the back pressure for the relief sizing calculations.
- c. For PSV 509/511 located on T-8075 CS2 Storage Tank in process unit 180, the 1997 S&B Engineering Pressure Safety Valve Study did not have a field-verification of the back pressure for the relief sizing calculations.

The employer does not ensure that the information pertaining to the process Relief System Design calculations included the worst case relief scenario.

- d. For the 1994 Process Review of the Existing Flare Header Study in process unit 180 from Jacobs Engineering Group, the calculations for the worst case relief scenario was not included.

The employer does not ensure that the information pertaining to the process included pressure drop calculations for the Relief System.

- e. For PSV 0501/0503 located on T-8074 CS2 Storage Tank in process unit 180, the S&B Engineering 1997 Pressure Safety Valve study did not include the calculations for the built-up backpressure.
- f. For PSV 0493/0495 located on T-8073 CS2 Storage Tank in process unit 180, the 1997 Pressure Safety Valve study did not include the calculations for the built-up backpressure.
- g. For PSV 509/511 located on T-8075 CS2 Storage Tank in process unit 180, the 1997 Pressure Safety Valve Study did not include the calculations for the built-up backpressure.

See pages 1 through 5 of this Citation and Notification of Penalty for information on employer and employee rights and responsibilities.



Citation and Notification of Penalty

Company Name: Arkema Inc
Inspection Site: 2231 Haden Rd, Houston, TX 77015

Pursuant to 29 C.F.R. 1903.19 within (10) calendar days of the abatement date the employer must submit documentation showing that it is in compliance with the standard, including describing the steps that it is taking to ensure that process safety information pertaining to the equipment in the process included the relief system design and design basis to protect employees from fire and explosion hazards.

Date By Which Violation Must be Abated: 08/12/2012
Proposed Penalty: \$ 7000.00

Citation 1 Item 2 Type of Violation: **Serious**

29 CFR 1910.119(d)(3)(i)(H): the employer did not compile all PSI related to specific safety systems;

The employer does not ensure that process safety information such as loop drawings, functional test records, recommended PM schedules, and set-points are compiled for Unit 180 interlock/alarms designated as safeguards such as but not limited to:

- a. The Flare Dump Valve consisting of PSHH 0174 and PV 0174 is shown to be a safe guard in the 2007 PHA.
- b. The hydrogen sulfide compressor motor amp alarms consisting of II 0308 and II 0339 is shown to be a safe guard in the 2007 PHA.

These violation instances were observed on or about January 12, 2012 in Unit 180 where these conditions exposed employees to the hazards associated with uncontrolled hydrogen sulfide vapor releases into the atmosphere.

Pursuant to 29 C.F.R. 1903.19, within (10) calendar days of the abatement date the employer must submit documentation showing that it is in compliance with the standard, including the description of the steps that it is taking to ensure that specific process safety information is compiled for the Unit 180 safety interlocks/alarms designated as safeguards in the unit PHA.

Date By Which Violation Must be Abated: 08/12/2012
Proposed Penalty: \$ 5500.00

See pages I through 5 of this Citation and Notification of Penalty for information on employer and employee rights and responsibilities.



Citation and Notification of Penalty

Company Name: Arkema Inc
Inspection Site: 2231 Haden Rd, Houston, TX 77015

Citation 1 Item 3 Type of Violation: **Serious**

29 CFR 1910.119(d)(3)(ii): The employer did not document that the equipment in the process complied with recognized and generally accepted good engineering practices:

In Unit 180 the employer does not ensure that interlocks and/alarms in the process comply with Recognized and Generally Accepted Good Engineering Practices such as but not limited to ISA-84. The following violations of this were observed on or about January 11, 2012 where these conditions exposed employees working in process unit 180 to the hazards associated with uncontrolled hydrogen sulfide vapor releases.

- a. The high pressure shutdown of the hydrogen sulfide compressor consisting of PI 0322 and PI 0349 is shown as a safeguard in 2007 Unit 180 PHA.
- b. The 2007 Unit 180 PHA indicates that a high temperature hydrogen sulfide compressor shutdown consisting of TI 0307 and TI 0381 is shown as a safeguard in 2007 Unit 180 PHA.
- c. The Flare Dump Valve consisting of PSHH 0174 and PV 0174 is shown to be a safeguard in the 2007 Unit 180 PHA.
- d. The hydrogen sulfide compressor motor amp alarms consisting of II 0308 and II 0339 is shown to be a safe guard in the 2007 Unit 180 PHA.

In Unit 180 the employer does not ensure that Relief Device(s) in the process comply with Recognized and Generally Accepted Good Engineering Practices such as but not limited to ASME Boiler and Pressure Vessel Code (BPVC), Division I, Section VIII, UG-135(f) and discharge to a safe location. The following violations of this were observed on or about January 11, 2012 where these conditions exposed employees working in process unit 180 to the hazards associated with uncontrolled hydrogen sulfide vapor releases.

- e. The Carbon Disulfide (CS₂) storage tank T-8073 rupture disk PSE 0498.
- f. The Carbon Disulfide (CS₂) storage tank T-8074 rupture disk PSE 0506.
- g. The Carbon Disulfide (CS₂) storage tank T-8075 rupture disk PSE 0512.

See pages 1 through 5 of this Citation and Notification of Penalty for information on employer and employee rights and responsibilities.



Citation and Notification of Penalty

Company Name: Arkema Inc
Inspection Site: 2231 Haden Rd, Houston, TX 77015

In Unit 180 the employer does not ensure that Car Seals of intervening block valve(s) comply with Recognized and Generally Accepted Good Engineering Practices such as but not limited to ASME BPVC, Division 1, Section VIII, UG-135(d). The following violations of this were observed on or about January 11, 2012 where these conditions exposed employees working in process unit 180 to the hazards associated with uncontrolled hydrogen sulfide vapor releases.

- h. The three way valves on the inlet and outlet of PSV 0257 and/or PSV 0259 on west H2S compressor where linkage was missing.
- i. The three way valves on the inlet and outlet of PSV 0493 and/or PSV 0495 on the CS2 storage tank T-8073 where linkage was missing.

Pursuant to 29 C.F.R. 1903.19, within (10) calendar days of the abatement date the employer must submit documentation showing that it is in compliance with the standard, including the description of the steps that it has taken to ensure that equipment and instrumentation complies with recognized and generally accepted good engineering practices (RAGAGEP) such as but not limited to ISA-84 for instrumentation designated to perform safety functions, and ASME Boiler and Pressure Vessel Code (BPVC), Division 1, Section VIII, UG-135(f) regarding relief devices relieving to a safe location and ASME BPVC, Division 1, Section VIII, UG-135(d) regarding the use of intervening block valves for relief devices.

Date By Which Violation Must be Abated:
Proposed Penalty:

08/12/2012
\$ 7000.00



Citation and Notification of Penalty

Company Name: Arkema Inc
Inspection Site: 2231 Haden Rd, Houston, TX 77015

Citation 1 Item 4 Type of Violation: **Serious**

29 CFR 1910.119(e)(3)(iii): The process hazard analysis did not address the engineering and administrative controls applicable to the hazards and their interrelationship;

The employer does not ensure that the 2007 process hazard analysis (PHA) for the 180 Unit addresses the engineering and administrative controls applicable to the hazards and their interrelationships for controls such as but not limited to:

- a. The Flare Dump Valve consisting of PSHH 0174 and PV 0174 and designated as a safeguard in the 2007 Unit 180 PHA. The solenoid operated block valve PV 0174 had an upstream and downstream manual block valve that was not car sealed or locked open and were not in the car seal/lock program.
- b. The block valves to the interlock (PSHH 0174 and PV 0174) and high pressure alarm associated with PIC 0173 could be blocked in allowing the interlock and alarm to be inoperable. The inlet block valve(s) to the pressure switch (PSSH 0174) and PIT 0173 were not car sealed or locked in the open position and the block valves were not in the car seal/lock program.

These violation instances were observed on or about January 12, 2012 in Unit 180 where these conditions exposed employees to the hazards associated with uncontrolled hydrogen sulfide vapor and carbon disulfide liquids/vapor releases into the atmosphere and/or fire and explosions.

Pursuant to 29 C.F.R. 1903.19, within (10) calendar days of the abatement date the employer must submit documentation showing that it is in compliance with the standard, including the description of the steps that it has taken to ensure that the PHA addressed the engineering and administrative controls applicable to hazards and their interrelationship.

Date By Which Violation Must be Abated:
Proposed Penalty:

08/12/2012
\$ 7000.00



Citation and Notification of Penalty

Company Name: Arkema Inc
Inspection Site: 2231 Haden Rd, Houston, TX 77015

The following alleged violations have been grouped because they involve similar or related hazards that may increase the potential for injury resulting from an accident.

Citation 1 Item 5a Type of Violation: **Serious**

29 CFR 1910.119(e)(3)(iv): The process hazard analysis did not address the consequences of failure of engineering and administrative controls:

The employer does not ensure that the 2007 process hazard analysis (PHA) for the 180 Unit addresses the failure of an administrative control for but not limited to the following intervening block valves for relief devices:

- a. The valve on the outlet of the rupture disk on the CS2 push pot (V-8099)
- b. The three way valves on the inlet and outlet of PSV 0257 and/or PSV 0259 on west H2S compressor where linkage was missing
- c. The 12" valve in the flare line to the vertical flare pot
- d. The 12" valve in the flare line from the vertical flare pot
- e. The 6" valve in the main flare line west of the V-8071 (T-87) in the pipe rack.
- f. The three way valves on the inlet and outlet of PSV 0493 and/or PSV 0495 on the CS2 storage tank T-8073.

See pages 1 through 5 of this Citation and Notification of Penalty for information on employer and employee rights and responsibilities.

U.S. Department of Labor
Occupational Safety and Health Administration

Inspection Number: 316217835
Inspection Dates: 01/11/2012-07/10/2012
Issuance Date: 07/10/2012



Citation and Notification of Penalty

Company Name: Arkema Inc
Inspection Site: 2231 Haden Rd, Houston, TX 77015

These violation instances were observed on or about January 12, 2012 in Unit 180 where these conditions exposed employees to the hazards associated with uncontrolled hydrogen sulfide vapor and carbon disulfide liquids/vapor releases into the atmosphere and/or fire and explosions.

Pursuant to 29 C.F.R. 1903.19, within (10) calendar days of the abatement date the employer must submit documentation showing that it is in compliance with the standard, including the description of the steps that it has taken to ensure that the consequences of failure of administrative or engineering controls have been addressed.

Date By Which Violation Must be Abated: 08/12/2012
Proposed Penalty: \$ 7000.00

See pages 1 through 5 of this Citation and Notification of Penalty for information on employer and employee rights and responsibilities.



Citation and Notification of Penalty

Company Name: Arkema Inc
Inspection Site: 2231 Haden Rd, Houston, TX 77015

Citation 1 Item 5b Type of Violation: **Serious**

29 CFR 1910.119(f)(1): the employer did not develop or implement operating procedures for the administrative control of the use of intervening block valves for relief devices;

The employer does not ensure that standard operating procedures were written and implemented to administratively control the use of intervening block valve(s) on relief devices in the 180 unit such as but not limited to:

- a. The valve on the outlet of the rupture disk on the CS2 push pot (V-8099)
- b. The three way valves on the inlet and outlet of PSV 0257 and/or PSV 0259 on west H2S compressor where linkage was missing
- c. The 12" valve in the flare line to the vertical flare pot
- d. The 12" valve in the flare line from the vertical flare pot
- e. The 6" valve in the main flare line west of the V-8071 (T-87) in the pipe rack.
- f. The three way valves on the inlet and outlet of PSV 0493 and/or PSV 0495 on the CS2 storage tank T-8073.

These violation instances were observed on or about January 12, 2012 in Unit 180 where these conditions exposed employees to the hazards associated with uncontrolled hydrogen sulfide and carbon disulfide liquids/vapor releases into the atmosphere and/or fire and explosions.

Pursuant to 29 C.F.R. 1903.19, within (10) calendar days of the abatement date the employer must submit documentation showing that it is in compliance with the standard, including the description of the steps that it has taken to ensure that the failure of administrative or engineering controls have addressed as per ASME Boiler and Pressure Vessel Code, Division 1 (BPVC), Section VIII, UG-135(d) and Appendix M.

Date By Which Violation Must be Abated:

08/12/2012



Citation and Notification of Penalty

Company Name: Arkema Inc
Inspection Site: 2231 Haden Rd, Houston, TX 77015

Citation 1 Item 6 Type of Violation: **Serious**

29 CFR 1910.119(e)(5): the employer did not establish a system to assure that the process hazard analysis team's recommendations are resolved in a timely manner and that the resolution is documented:

The employer does not ensure a system is established to assure that the process hazard analysis team's recommendations are resolved in a timely manner and documented in, but not limited to, the following:

1994 PHA recommendation resolutions to such as but not limited to:

- a) Finding No. 272 CS2 storage tank goes to atmosphere.
- b) No. 309 Consider installing a pressure gauge on T8022/23 to register vacuum and pressure and provide a gauge with a smaller pressure range.
- c) No. 108 Consider determining if VC8030 and first stage suction snubber on C8034/35 is rated for full vacuum.
- d) No. 115 Consider Thermal relief on cooling water side of EC8035/36
- e) No. 116a Consider modifying operating procedures to ensure spare cooler EC8035/36 is blocked in only on process inlet side.

1999 PHA recommendations resolutions to such as but not limited to:

- f) No. 31 Ensuring ditch gate is working properly and an adequate water level is maintained in the ditch to prevent CS2 fire.
- g) No. 23 Consider re-engineering the sulfur knock out tower to prevent carryover of sulfur to H2S compressors to prevent over amping.
- h) No. 19 consider evaluating the reliability of the sulfur tower reboiler push pot level guage system.
- i) No. 20 Consider evaluating logic integrity and conduct a function test for both sulfur burner management systems.

2002 PHA recommendations resolutions such as but not limited to:

- j) Action Item 45004 Consider enhancing fire monitor coverage, water curtain, etc to help mitigate SO2 release from the Sulfur & Methane Heater stack from a tube leak or rupture fire.
- k) Action Item 45005: Consider a remote operated valve at Sulfur and Methane heater quench drum outlet to allow for quick, remote isolation.

See pages 1 through 5 of this Citation and Notification of Penalty for information on employer and employee rights and responsibilities.



Citation and Notification of Penalty

Company Name: Arkema Inc
Inspection Site: 2231 Haden Rd, Houston, TX 77015

- l) Action Item 45032: Consider adding a control valve to the recirculation line to Sulfur Feed Tank (V8077/78) to reduce the potential for high flow from the Recycle Sulfur Tank Pumps (PV-8021/8022).
- m) Action Item 45034: Consider installing a remote actuation of ditch gate to the control room as a safeguard in a loss of containment situation from 180 Unit process vessels to control the flow of liquids through the plant.

2007 PHA PHA recommendations resolutions such as but not limited to:

- n) No. 36.1 Review equipment specification to determine if the Sulfur Feed Pumps are capable of exceeding piping design pressure if deadheaded.
- o) No. 38.1 consider listing specific vent and drain valves opened for clearing equipment for maintenance in the Lockout/tagout documentation, ensuring that these valves are confirmed closed prior to startup
- p) No. 95.1 Perform a heat balance to determine how much excess capacity exists on the Quench Drum Condenser, and determine if would be able to handle the maximum output of a single Sulfur pump.
- q) No. 104.1 Consider the implementation of a hose replacement system which would call for periodic testing and replacement of production hoses as they become dated.

These violation instances were observed on or about January 12, 2012 in Unit 180 where these conditions exposed employees to the hazards associated with uncontrolled hydrogen sulfide vapor releases into the atmosphere.

Pursuant to 29 C.F.R. 1903.19, within (10) calendar days of the abatement date the employer must submit documentation showing that it is in compliance with the standard, to ensure that the PHA recommendations and findings were resolved or completed in a timely manner. The documentation will include the date, name of responsible person, a description, and the resolution of the findings and recommendations.

Date By Which Violation Must be Abated:
Proposed Penalty:

08/12/2012
\$ 7000.00

See pages 1 through 5 of this Citation and Notification of Penalty for information on employer and employee rights and responsibilities.



Citation and Notification of Penalty

Company Name: Arkema Inc
Inspection Site: 2231 Haden Rd, Houston, TX 77015

Citation 1 Item 7 Type of Violation: **Serious**

29 CFR 1910.119(e)(7): The employer did not retain process hazards analysis, updates, or revalidations for each covered process, as well as the documented resolution of recommendations described in 29 CFR 1910.119(e)(5) for the life of the process:

The employer does not ensure that recommendations and descriptions of recommendations are retained for the life of the process for, but not limited to the following 180 unit Process Hazard Analysis (PHA):

1999 PHA such as but not limited to:

- a) No. 31 Ensuring ditch gate is working properly and an adequate water level is maintained in the ditch to prevent CS₂ fire
- b) No. 48 Consider determining a way to prevent carryover of sulfur to H₂S compressors to prevent over amping

These violation instances were observed on or about January 12, 2012 in Unit 180 where these conditions exposed employees to the hazards associated with uncontrolled hydrogen sulfide vapor releases into the atmosphere and a Carbon disulfide fire.

Pursuant to 29 C.F.R. 1903.19, within (10) calendar days of the abatement date the employer must submit documentation showing that it is in compliance with the standard, to ensure that the PHA recommendations and findings were resolved or completed in a timely manner. The documentation will include the date, name of responsible person, a description, and the resolution of the findings and recommendations.

Date By Which Violation Must be Abated:
Proposed Penalty:

08/12/2012
\$ 7000.00



Citation and Notification of Penalty

Company Name: Arkema Inc
Inspection Site: 2231 Haden Rd, Houston, TX 77015

Citation 1 Item 8 Type of Violation: **Serious**

29 CFR 1910.119(f)(1)(iv): the employer did not list in its operating procedures, the specific safety systems and their functions;

The employer does not ensure that specific safety systems identified as safeguards in the 2007 Unit 180 PHA are listed and addressed in the Unit 180 Standard Operating Procedures (SOP) for such interlocks/alarms as but not limited to:

- a. The Flare Dump Valve consisting of PSHH 0174 and PV 0174.
- b. The hydrogen sulfide compressor pressure shutdown consisting of PI 0322 and PI 0349
- c. The hydrogen sulfide compressor temperature shutdown consisting of TI 0307 and TI 0381
- d. The hydrogen sulfide compressor motor amp alarms consisting of II 0308 and II 0339.

These violation instances were observed on or about January 12, 2012 in Unit 180 where these conditions exposed employees to the hazards associated with uncontrolled hydrogen sulfide vapor releases into the atmosphere.

Pursuant to 29 C.F.R. 1903.19, within (10) calendar days of the abatement date the employer must submit documentation showing that it is in compliance with the standard, including that the standard operating procedures (SOP) for Unit 180 include a list of safety systems and their functions such as those designated as safeguards in the unit 180 PHA.

Date By Which Violation Must be Abated:
Proposed Penalty:

08/12/2012
\$ 7000.00



Citation and Notification of Penalty

Company Name: Arkema Inc
Inspection Site: 2231 Haden Rd, Houston, TX 77015

Citation 1 Item 9 Type of Violation: **Serious**

29 CFR 1910.119(j)(2): The employer did not establish and implement written procedures to maintain the on-going mechanical integrity of process equipment:

The employer does not ensure that procedures are written and implemented to ensure the mechanical integrity of process equipment in the 180 Unit such as but not limited to:

Use of intervening block valve(s) used on relief devices;

- a. The valve on the outlet of the rupture disk on the CS2 push pot (V-8099)
- b. The three way valves on the inlet and outlet of PSV 0257 and/or PSV 0259 on west H2S compressor where linkage was missing
- c. The 12" valve in the flare line to the vertical flare pot
- d. The 12" valve in the flare line from the vertical flare pot
- e. The 6" valve in the main flare line west of the V-8071 (T-87) in the pipe rack.
- f. The three way valves on the inlet and outlet of PSV 0493 and/or PSV 0495 on the CS2 storage tank T-8073.

Inspection and testing of protective instruments as per Arkema MI program Section VII.

- g. The Flare Dump Valve consisting of PSHH 0174 and PV 0174 is designated to be a safeguard in the 2007 Unit 180 PHA.
- h. The hydrogen sulfide compressor motor amp alarms consisting of II 0308 and II 0339 is designated to be a safe guard in the 2007 Unit 180 PHA.

Ruptured Discs leaking by identified during audits.

- i. PSE-0104 and PSE-0106 were leaking by and identified on rupture disc audits since February 2011.
- j. PSE-0246 and PSE-0248 were leaking by and identified on rupture disc audits since February 2011.

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Company Name: Arkema Inc
Inspection Site: 2231 Haden Rd, Houston, TX 77015

These violation instances were observed on or about January 12, 2012 in Unit 180 where these conditions exposed employees to the hazards associated with uncontrolled hydrogen sulfide and carbon disulfide liquids/vapor releases into the atmosphere and/or fire and explosions.

Pursuant to 29 C.F.R. 1903.19, within (10) calendar days of the abatement date the employer must submit documentation showing that it is in compliance with the standard, including the description of the steps that it has taken to ensure that the failure of administrative or engineering controls have addressed as per ASME Boiler and Pressure Vessel Code, Division 1 (BPVC), Section VIII, UG-135(d), Appendix M and ANSI/ISA 84.00.001 as per Arkema MI Program Section XVI, Subsection E. Also, employer must submit documentation showing a program will be written and implemented to address ruptured discs leaking by.

Date By Which Violation Must be Abated: 08/12/2012
Proposed Penalty: \$ 7000.00



Citation and Notification of Penalty

Company Name: Arkema Inc
Inspection Site: 2231 Haden Rd, Houston, TX 77015

Citation 1 Item 10 Type of Violation: **Serious**

29 CFR 1910.119(j)(4)(iv): The documentation of the inspection or test that had been performed on process equipment to maintain its mechanical integrity did not identify the date of the inspection or test, a description of the inspection or test, and the results of the inspection or test:

The employer does not ensure that the documentation of the inspection and testing of the following interlocks in the Unit 180 is performed for such equipment as, but not limited to:

- a. This violation was observed on or about January 12, 2012 in the Unit 180 where employees were exposed to the hazards associated with uncontrolled hydrogen sulfide vapor releases into the atmosphere when the date, description, and results of the inspection or test of the hydrogen sulfide compressor pressure shutdown consisting of PI 0322 and PI 0349 were not documented.
- b. This violation was observed on or about January 12, 2012 in the Unit 180 where employees were exposed to the hazards associated with uncontrolled hydrogen sulfide vapor releases into the atmosphere when the date, description, and results of the inspection or test of the hydrogen sulfide compressor temperature shutdown consisting of TI 0307 and TI 0381 were not documented.

Pursuant to 29 C.F.R. 1903.19, within (10) calendar days of the abatement date the employer must submit documentation showing that it is in compliance with the standard, including the description of the steps that it is taking to ensure that the inspection or test that had been performed on process equipment is documented and maintained to ensure the mechanical integrity of the equipment.

Date By Which Violation Must be Abated: 08/12/2012
Proposed Penalty: \$ 5500.00



Citation and Notification of Penalty

Company Name: Arkema Inc
Inspection Site: 2231 Haden Rd, Houston, TX 77015

Citation 1 Item 11 Type of Violation: **Serious**

29 CFR 1910.119(j)(5): The employer did not correct deficiencies in equipment that were outside acceptable limits (as defined by process information in 29 CFR 1910.119(d) before further use or in a safe and timely manner:

The employer does not ensure rupture discs upstream from pressure relief valves in the 180 Unit are replaced for such items but not limited to.

- a. Rupture Discs PSE-0104 and PSE-0106 on the C2S Product tower, D-8060 were ruptured and leaking by affecting the integrity of the relief device it was designed to protect from CS2.
- b. Rupture Discs PSE-0246 and PSE-0248 on the H2S Tower, D-8040 were ruptured and and leaking by affecting the integrity of the relief device it was designed to protect from H2S.

This violation was observed on or about January 12, 2012 in the 180 unit where this condition exposed employees to an inhalation and explosion hazard.

Pursuant to 29 C.F.R. 1903.19 within (10) calendar days of the abatement date the employer must submit documentation showing that it is in compliance with the standard, to ensure that the deficient rupture discs are corrected in a safe and timely manner.

Date By Which Violation Must be Abated:

08/12/2012

Proposed Penalty:

\$ 7000.00



Citation and Notification of Penalty

Company Name: Arkema Inc
Inspection Site: 2231 Haden Rd, Houston, TX 77015

Citation 1 Item 12 Type of Violation: **Serious**

29 CFR 1910.119(o)(4): The employer did not determine and document an appropriate response to each of the findings of the compliance audit required by 29 CFR 1910.119(o)(1), and document that the deficiencies had been corrected:

The employer does not document that deficiencies found in the 2008 compliance audits have been corrected. This includes, but is not limited to the following audit deficiencies:

- a) 2008 Corporate Compliance Audit PHA 1 recommendation to expedite the completion of the final report for PHA revalidations that include, but are not limited to 180 Unit.
- b) 2008 Corporate Compliance Audit PHA 2 recommendation to enter recommendations from the 2007 PHA revalidations for process that include, but are not limited to Process 180.
- c) 2008 Corporate Compliance Audit MI 2 recommendation to document the MI procedures for Emergency Shutdown Devices and process critical controls in the plant written MI program, to include a listing of included ESDs and controls, and the methodology employed in determining the included items, include but are not limited to Process 180.

These violation instances were observed on or about January 12, 2012 in Unit 180 where these conditions exposed employees to the hazards associated with uncontrolled hydrogen sulfide vapor releases into the atmosphere.

Pursuant to 29 C.F.R. 1903.19, within (10) calendar days of the abatement date the employer must submit documentation showing that it is in compliance with the standard, including the description of the steps that it is taking to ensure that the documentation of the compliance audit findings have been corrected. The documentation will include the date, a description, and report a detailed report of resolution.

Date By Which Violation Must be Abated:
Proposed Penalty:

08/12/2012
\$ 7000.00



Citation and Notification of Penalty

Company Name: Arkema Inc
Inspection Site: 2231 Haden Rd, Houston, TX 77015

Citation 2 Item 1 Type of Violation: **Repeat**

29 CFR 1910.119(f)(3): The operating procedures were not reviewed as often as necessary to assure that they reflect current operating practice, including changes that result from changes in process chemicals, technology, and equipment, or changes to facilities:

The employer does not ensure that operating procedures are reviewed as often as necessary to assure that they reflect current operating practice exposing employees to injury.

- a) This violation was observed on or about January 12, 2012 in Unit 180 where operating procedures such as, but not limited to start-up and shutdown procedures were not revised and reflected current operating practice exposed employees to the hazards associated with uncontrolled hydrogen sulfide vapor release.
- b) This violation was observed on or about January 12, 2012 in Unit 197 where operating procedures such as, but not limited to start-up and normal operation procedures were not revised and reflected current operating practice exposed employees to the hazards associated with uncontrolled hydrogen sulfide vapor release.

Arkema, Inc. was previously cited for a violation of this occupational safety and health standard or its equivalent 29 CFR 1910.119(f)(3), which was contained in OSHA inspection number 314414517, citation number 1, item number 1 and was affirmed as a final order on January 13, 2011, with respect to a workplace located at 2231 Haden Road, Houston, TX 77015.

Pursuant to 29 C.F.R. 1903.19, within (10) calendar days of the abatement date the employer must submit documentation showing that it is in compliance with the standard, the documentation will include the date, procedure updates or revisions to include current operating practice, and annual certification.

Date By Which Violation Must be Abated: 08/12/2012
Proposed Penalty: \$ 35000.00

See pages 1 through 5 of this Citation and Notification of Penalty for information on employer and employee rights and responsibilities.

See pages 1 through 5 of this Citation and Notification of Penalty for information on employer and employee rights and responsibilities.



Citation and Notification of Penalty

Company Name: Arkema Inc
Inspection Site: 2231 Haden Rd, Houston, TX 77015

Citation 3 Item 1 Type of Violation: Other

29 CFR 1910.119(f)(4): The employer did not develop and implement safe work practices for employees and contractor employees to provide for the control of hazards during operations such as lockout/tagout; confined space entry; opening process equipment or piping; and control over entrance into a facility by maintenance, contractor, laboratory, or other support personnel:

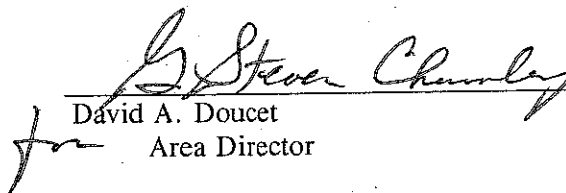
The employer does not develop safe work practices to control the entrance into covered processes that include, but is not limited to 180 Unit.

- a) Contractors were given a plant wide permit to perform work such as but not limited to fire extinguisher checks and were only required to sign in or out once, at the main control room.
- b) "Other support personnel" such as but not limited to operations manager, production superintendent, and process engineer were not required to sign into the unit.

These violation instances were observed on or about January 12, 2012 in Unit 180 where these conditions exposed employees to the hazards associated with uncontrolled hydrogen sulfide vapor releases into the atmosphere.

Pursuant to 29 C.F.R. 1903.19, within (10) calendar days of the abatement date the employer must submit documentation showing that it is in compliance with the standard, including the description of the steps that it is taking to ensure that there is control access by contractor and "other support personnel" into covered units despite of the type of activities undertaken. The documentation will include the date, a description, and safe work practices put in place to control access into covered units. This condition exposed employees to fire and explosion hazards.

Date By Which Violation Must be Abated: 08/12/2012
Proposed Penalty: \$ 1100.00


David A. Doucet
Area Director

See pages 1 through 5 of this Citation and Notification of Penalty for information on employer and employee rights and responsibilities.

U.S. Department of Labor
Occupational Safety and Health Administration

Inspection Number: 316217835
Inspection Dates: 01/11/2012 - 07/10/2012
Issuance Date: 07/10/2012



Citation and Notification of Penalty

Company Name: Arkema Inc
Inspection Site: 2231 Haden Rd, Houston, TX 77015

See pages 1 through 5 of this Citation and Notification of Penalty for information on employer and employee rights and responsibilities.

U.S. Department of Labor
Occupational Safety and Health Administration
Houston North Area Office
507 N. Sam Houston Pkwy. E., Suite 400
Houston, TX 77060-4007
Phone: (281)591-2438 FAX: (281)998-7457



INVOICE/ DEBT COLLECTION NOTICE

Company Name: Arkema Inc
Inspection Site: 2231 Haden Rd, Houston, TX 77015
Issuance Date: 07/10/2012

Summary of Penalties for Inspection Number 316217835

Citation 1, Serious	= \$	81000.00
Citation 2, Repeat	= \$	35000.00
Citation 3, Other	= \$	1100.00
TOTAL PROPOSED PENALTIES	= \$	117100.00

To avoid additional charges, please remit payment promptly to this Area Office for the total amount of the uncontested penalties summarized above or the amounts agreed to in an Informal Settlement Agreement following an Informal Conference. Make your check or money order payable to: "DOL-OSHA". Please indicate OSHA's Inspection Number (indicated above) on the remittance.

OSHA does not agree to any restrictions or conditions put on any check or money order for less than the full amount due and will cash the check or money order as if these restrictions or conditions do not exist.

If a personal check is issued, it will be converted into an electronic fund transfer (EFT). This means that our bank will copy your check and use the account information on it to electronically debit your account for the amount of the check. The debit from your account will then usually occur within 24 hours and be shown on your regular account statement. You will not receive your original check back. The bank will destroy your original check, but will keep a copy of it. If the EFT cannot be completed because of insufficient funds or closed account, the bank will attempt to make the transfer up to 2 times.


Pursuant to the Debt Collection Act of 1982 (Public Law 97-365) and regulations of the U.S. Department of Labor (29 CFR Part 20), the Occupational Safety and Health Administration is required to assess interest, delinquent charges, and administrative costs for the collection of delinquent penalty debts for violations of the Occupational Safety and Health Act.

Interest. Interest charges will be assessed at an annual rate determined by the Secretary of the Treasury on all penalty debt amounts not paid within one month (30 calendar days) of the date on which the debt amount becomes due and payable (penalty due date). The current interest rate is four percent (4%). Interest will accrue from the

date on which the penalty amounts (as proposed or adjusted) become a final order of the Occupational Safety and Health Review Commission (that is, 15 working days from your receipt of the Citation and Notification of Penalty), unless you file a notice of contest. Interest charges will be waived if the full amount owed is paid within 30 calendar days of the final order.

Delinquent Charges. A debt is considered delinquent if it has not been paid within one month (30 calendar days) of the penalty due date or if a satisfactory payment arrangement has not been made. If the debt remains delinquent for more than 90 calendar days, a delinquent charge of six percent (6%) per annum will be assessed accruing from the date that the debt became delinquent.

Administrative Costs. Agencies of the Department of Labor are required to assess additional charges for the recovery of delinquent debts. These additional charges are administrative costs incurred by the Agency in its attempt to collect an unpaid debt. Administrative costs will be assessed for second and subsequent demand letters sent in an attempt to collect the unpaid debt. Costs will not be assessed for first demand letters and payment default letters.



David A. Doucet
Area Director

7/10/2012

Date