

AIChE



The Global
Home of
Chemical Engineers

2015

Student Design Competition

If there are any questions about the design problem, Student Chapter Advisors and Design Assignment Instructors are directed to contact:

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Ralph E. Martin Department of Chemical
Engineering
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Development
University of Arkansas
rbeitle@uark.edu

Please read the rules **before, **during** and **after** preparing and submitting the solution to AIChE.**

NOTE: THE PAGE LIMIT FOR THE REPORT IS 125 NUMBERED PAGES!

AIChE 2015 Student Design Competition

“Alternate Technology for Sour Water Stripping”

DEADLINE FOR ELECTRONIC SUBMISSION TO AIChE IS MIDNIGHT, Friday, June 12, 2015.

December 2014

Dear Chemical Engineering Department Heads and Student Chapter Advisors,

I am pleased to send you the 2015 AIChE Student Design Competition statement. Please forward it to those faculty teaching design courses. I've included this year's challenge below:

“Alternate Technology for Sour Water Stripping”

As always, the names of the sponsoring organization and the authors are being withheld to ensure confidentiality. Both will be announced after the deadline- Friday, June 12, 2015.

An entry form is required for each participant – it's attached to this email. Please submit one form for each participant, along with the completed solution.

We welcome participation by individuals and teams of up to three students. Please indicate the names of all team members on each entry form, and be advised that each team member is required to submit a separate entry form.

AIChE Student Membership is Required - Because the Student Design Competition is a benefit of AIChE student membership, entrants must be AIChE active student members. Any non-member submissions will not be considered. Students can join at <http://www.aiche.org/students/>.

Final submission of solutions to AIChE must be in electronic format (PDF and MS-Word). The main text must be 125 pages or less, and an additional 100 page or less is allowed for supplementary material only. The final submission to AIChE must consist of 2 electronic files.

Student Chapter Advisors are asked to select the best solution or solutions, not to exceed two from each category (individual and team).

□ All submissions must be submitted in an electronic format no later than Friday, June 12, 2015. Please use the directions below and maintain a copy for your files.

- Complete this online form if it's a team submission:
<https://chenected.wufoo.com/forms/2015-student-design-competition-team/>
- Complete this online form if it's an individual submission:
<https://chenected.wufoo.com/forms/2015-student-design-competition-individual/>

Please take time to review the rules, found on the following pages. It is important that all solutions strictly adhere to the Final Report Format.

If I can be of assistance, please contact me via email at studentchapters@aiiche.org. Questions relating to the substance of the design problem should be directed to: Dr. Bob Beitle, University of Arkansas, at rbeitle@uark.edu.

Thank you for your support of this important student competition.

Sincerely,

Allison Cargile

Allison Cargile
AIChE Student Programs
(646) 495-1364
allic@aiiche.org

2015 AIChE Annual Student Design Competition

Contest Rules

Solutions will be graded on (a) substantial correctness of results and soundness of conclusions, (b) ingenuity and logic employed, (c) accuracy of computations, and (d) form of presentation.

Accuracy of computations is intended to mean primarily freedom from mistakes; extreme precision is not necessary.

It is to be assumed that the statement of the problem contains all the pertinent data except for those available in handbooks and literature references. The use of textbooks, handbooks, journal articles, and lecture notes is permitted.

Students may use any available commercial or library computer programs in preparing their solutions. Students are warned, however, that physical property data built into such programs may differ from data given in the problem statement. In such cases, as with data from literature sources, values given in the problem statement are most applicable. Students using commercial or library computer programs or other solution aids should so state in their reports and include proper references and documentation. Judging, however, will be based on the overall suitability of the solutions, not on skills in manipulating computer programs.

Departments, including advisors, faculty, or any other instructor, cannot provide technical aid specifically directed at the solution of the national student design competition.

The 2015 Student Design Competition is designed to be solved either by an individual chemical engineering student working entirely alone, or a group of no more than three students working together. Solutions will be judged in two categories: individual and team. There are, however, other academically sound approaches to using the problem, and it is expected that some Advisors will use the problem as classroom material. The following confidentiality rules therefore apply:

1. For individual students or teams whose solutions may be considered for the contest: The problem may not be discussed with anyone (students, faculty, or others, in or out of class) before or during the period allowed for solutions. Discussion with faculty and students at that college or university is permitted only after complete final reports have been submitted to the Chapter Advisor.

2. For students whose solutions are not intended for the contest: Discussion with faculty and with other students at that college or university who are not participating in the contest is permitted.

3. For all students: The problem may not be discussed with students or faculty from other colleges and universities, or with individuals in the same institution who are still working on the problem for the contest, until after June 12, 2015. This is particularly important in cases where neighboring institutions may be using different schedules.

Submission of a solution for the competition implies strict adherence to the following conditions: (Failure to comply will result in solutions being returned to the appropriate Faculty Advisor for revision. Revised submissions must meet the original deadline.)

ELIGIBILITY

ONLY AIChE STUDENT MEMBERS MAY SUBMIT A SOLUTION. Non-member entries will not be considered. To become a Student member, you can join online at: <http://www.aiche.org/students/>.

Entries must be submitted either by individuals or by teams of no more than three students. Each team member must meet all eligibility requirements.

Each Faculty Advisor should select the best solution or solutions, not to exceed two from each category (individual and team), from his or her chapter and submit them per the instructions below.

TIMELINE FOR COMPLETING THE SOLUTION

A period of no more than thirty (30) days is allowed for completion of the solution. This period may be selected at the discretion of the individual advisor, but in order to be eligible for an award, a solution must be submitted electronically by no later than midnight on Friday, June 12, 2015.

The finished report should be submitted to the faculty advisor within the 30-day period.

REPORT FORMAT

The body of the report must be suitable for reproduction, that is, computer-generated and in a printable format. Tables, supporting calculations and other appendix material may be handwritten.

The solution itself must bear no reference to the students' names and institution by which it might be identified. Please expunge all such references to the degree possible.

Final submission of solutions to AIChE must be in electronic format (PDF and MS-Word). The main text must be 125 pages or less, and an additional 100 page or less is allowed for supplementary material only. The final submission to AIChE must consist of 2 electronic files.

SUBMITTING THE SOLUTION TO AIChE

There should not be any variation in form or content between the solution submitted to the Faculty Advisor and that sent to AIChE. The Student Chapter Advisor, or Faculty Advisor, sponsoring the student(s), is asked to maintain the original manuscript(s).

Advisors: once you have identified the entries you will submit, follow these steps:

1. Have each student fill out and sign the 2015 Entry Doc.
2. Scan the Entry Doc for each student.
3. Complete this online form if it's a team submission:
<https://chenected.wufoo.com/forms/2015-student-design-competition-team/>
4. Complete this online form if it's an individual submission:
<https://chenected.wufoo.com/forms/2015-student-design-competition-individual/>

DEADLINE: Midnight on Friday, June 12, 2015.

“Alternate Technology for Sour Water Stripping”

**DEADLINE FOR ELECTRONIC SUBMISSION TO AIChE IS MIDNIGHT,
Friday, June 12, 2015.**

Sour water is produced in many petrochemical operations as a consequence of refining. It contains significant amounts of ammonium and sulfur compounds, in concentrations exceeding thresholds of tolerance for water treatment and reuse. In other words, sour water typically cannot be directly discharged to waste treatment, and it cannot be reused in other parts of the refinery unless treated.

Your task is to develop a strategy for sour water treatment that is potentially considered unconventional. Traditional technologies used to treat sour water involve some measure of air stripping. When air comes in contact with sour water, some of the ammonia and sulfur compounds will transfer to the air. This air is discharged, assuming the exhaust to atmosphere is within permissible limits for the establishment. Should the permissible discharge be exceeded, fines will be incurred. Therefore, your task is to develop, and design an alternative to air stripping of sour water. Management at your facility wishes to consider the use of natural gas as a substitute for air. Specifically, you are to develop a process for treating:

- 20-50 GPM sour water, containing 300-3000 ppm NH_3 , 5 ppm H_2S and trace amounts of propane.

Note that there is a range of flow and composition, which will be addressed in a sensitivity analysis for any design that is submitted. It is assumed the natural gas stream containing the ammonia and sulfur compounds will be burned in some capacity. You will strip these components from the water, which

- can have at maximum of 20 ppm NH_3 .

Two options for the water, once the water is under 20 ppm NH_3 , are direct discharge as waste or further cleanup for steam generation. A final design should consider these two options and choose accordingly.

Your 2015 NDSC submission must present the following:

- information that will allow management a basic understanding of sour water treatment
- a description of a process using natural gas for sour water stripping, complete with a cost analysis of capital and operating expenses
- a description of a conventional design for traditional air stripping, which also requires an analysis of capital and operating expenses
- a description of the water treatment option to produce bfw, complete with capital and operating expense

Calculating the return on investment for this project also is a bit unconventional. Note that your economic analysis must consider the penalty associated with violating an air permit, the tradeoff between natural gas as a treatment option vs. selling the fuel, and a decision to treat the water.

UNIFORM PENALTY POLICY



**ARKANSAS DEPARTMENT OF
ENVIRONMENTAL QUALITY**

**5301 NORTH SHORE DRIVE
NORTH LITTLE ROCK, AR 72118**

MARCH 1, 2012

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Preface

This Uniform Penalty Policy provides a rational, objective and consistent method for determining the appropriate amount of administrative civil penalties the Arkansas Department of Environmental Quality (Department) will propose in formal enforcement actions brought before the Arkansas Pollution Control and Ecology Commission (Commission). APC&EC Regulation No. 7, Section 9 details 10 factors that are to be considered in determining the civil penalty amounts to be assessed. In addition, Regulation 7, Section 9 allows the Department to “develop and utilize formulas for the calculation of penalties for specific offenses, in an effort to uniformly assign penalty amounts where practicable.” This Uniform Penalty Policy is intended to comply with the requirements of Regulation 7 for calculating civil penalties proposed in Notices of Violation (NOV).

These procedures will be periodically reviewed to determine their effectiveness and whether refinements are needed.

1.0 Introduction

Formal administrative enforcement actions of the Department generally result from an inspection performed at a facility or site, or the review of permits, submitted reports or other knowledge gained by the Department related to a violation of a permit, regulation or statute. Generally, the Department will seek formal enforcement for serious or unresolved violations of permits, regulations and statutes. Each Division within the Department has individual inspection and enforcement procedures and this document is not intended to address when a formal enforcement action is to be initiated, but rather how documented violations are evaluated for the purpose of determining civil penalties to be proposed in NOVs. Due to several statutory and regulatory differences, each Division must review the penalties proposed to ensure the amounts conform to the rule or statute governing the alleged violation.

This policy is not intended, nor is it to be construed, to limit the Department's authority to enter into Consent Administrative Orders, which assess voluntary civil penalties. Although it is the practice of the Department to utilize this policy in determining the amount of voluntary civil penalties within Consent Administrative Orders, this policy is not intended to govern penalty assessments in any formal enforcement actions other than NOVs.

This Uniform Penalty Policy for the assessment of civil penalties in an NOV is a guideline only. The Department may vary from this Policy if circumstances warrant.

2.0 Penalty Calculations

A penalty amount should be calculated for each independent and substantially distinguishable violation alleged in an NOV. Each penalty calculation shall be determined by utilizing the penalty worksheet contained in Appendix A. The following procedures detail the process for determining a base penalty, penalty adjustments and final penalties proposed to be assessed in an NOV.

2.1 Base Penalty

The Base Penalty for each Civil Penalty Calculation will be based on APC&EC Regulation No.7, Section 9(a), which requires the Department to consider when calculating a civil penalty: “The seriousness of the noncompliance and its effect upon the environment, including the degree of potential or actual risk or harm to the public health caused by the violation.” This determination will be in the form of a “Major,” “Moderate” or “Minor” rating. The standard for each rating is as follows:

“Major”- The violation has resulted in a documented effect on the environment or has the potential to result in significant harm to public health.

“Moderate”- The violation could result in a direct effect on the environment or result in moderate harm to public health.

“Minor”- The violation has an indirect effect on the environment and has a minimal potential to cause harm to public health.

The selection above will result in the selection of a Base Penalty Amount as follows:

Major	\$4,000
Moderate	\$1,000
Minor	\$250

A brief description of the violation and the documented or potential effects on the environment or public health utilized in selecting the base penalty rating should be entered in the box marked “Justification for

Base Penalty” on the worksheet.

2.2 Adjustments to Base Penalty

After establishing a base penalty amount, the factors detailed in APC&EC Regulation No. 7, Section 9(b) through (j) will be considered to make penalty adjustments, as necessary. Each potential adjustment selected corresponds to an adjustment rating which is multiplied against the base penalty amount (as determined above) and then added to or subtracted from the base penalty to get the total adjusted penalty. A brief description as to how the selected adjustment was determined must be entered in the box marked “Justification for Adjustment” on the worksheet for factor (b) through factor (j) ratings.

Avoidability

Regulation No. 7, Section 9(b) requires that in calculating a civil penalty the Department must consider: “Whether the cause of the noncompliance was an unavoidable accident.” In considering this factor, the Department will review available information to determine if the violation was an unavoidable accident. In determining that the violation was an unavoidable accident, the Department will consider if a conscientious effort was made by the violator and all reasonable and prudent measures were taken to prevent the violation. This demonstration will generally include documentation of the efforts taken to prevent the violation. If the Department determines that the violation was a result of an unavoidable accident after instituting reasonable and prudent measures, then an amount equal to 20% of the base penalty amount will be deducted from the overall penalty.

Should the Department determine that the violation could have been avoided if the violator had

instituted reasonable and prudent measures, then an amount equal to 20% of the base penalty will be added to the overall penalty. The actions which should have been taken to avoid the violation should be indicated on the penalty calculation worksheet.

If it is unknown, or if there is not enough information available to determine if the violation resulted from an unavoidable accident, then there will be no adjustment to the penalty based on this factor.

Cooperation

Regulation No. 7, Section 9(c) requires that in calculating a civil penalty the Department must consider: “The violator’s cooperativeness and expeditious efforts to correct the violation.” Violators who cooperate with the Department to expeditiously complete all actions to correct violations will be given consideration for a reduction in the overall civil penalty. It is understood that in some cases significant work to fully remediate the effects of a violation may still be required. If the Department determines that the violator corrected the violation in an expeditious manner, then an amount equal to 20% of the base penalty will be deducted from the overall penalty. The Penalty Calculation Worksheet should indicate the actions taken to correct the violation in an expeditious manner.

If it is unknown by the Department at the time the civil penalty is calculated whether the violator has completed the actions to correct the violation or if the violator has only completed some of the actions to correct the violation, then there will be no adjustment to the penalty based on this factor.

Delayed Corrective Action

Regulation No. 7, Section 9(j) requires that in calculating a civil penalty the Department must consider:

“Whether the violator has delayed corrective action.” If the Department determines that the violator has delayed implementing a significant amount of the needed corrective actions related to a violation or is not proceeding with corrective action in an expeditious manner, then an amount equal to 20% of the base penalty will be added to the overall penalty. The Penalty Calculation Worksheet should indicate the corrective actions needed and those actions that the violator delayed implementing.

If it is unknown by the Department at the time the civil penalty is calculated whether the violator delayed implementing corrective action related to a violation or if the violator has completed only some of the actions needed to correct the violation, then there will be no adjustment to the penalty based on this factor.

Management History

Regulation No. 7, Section 9(d) requires that in calculating a civil penalty the Department must consider: “The history of a violator in taking all reasonable steps or procedures necessary or appropriate to correct any noncompliance.” Should the Department determine that despite the violation, the violator expended all reasonable efforts to comply with the requirement in question, an amount equal to 20% of the base penalty will be subtracted from the overall penalty. If the Department determines that the violator substantially disregarded the requirements in question or the violator failed to adequately respond previously to an inspection report, informal enforcement letter or formal enforcement action from the Department related to the violation, an amount equal to 20% of the base penalty will be added to the overall penalty. If the Department determines that the violation was a result of an oversight by the violator, there will be no adjustment to the penalty based on this factor. The Penalty Calculation Worksheet should include a brief description as to how the selected adjustment was determined.

Violator's History

Regulation No. 7, Section 9(e) requires that in calculating a civil penalty the Department must consider: "The violator's history of previous documented violations regardless of whether or not any administrative, civil, or criminal proceeding was commenced therefore." If the violator has been inspected by the Department during the three years prior to the date that the Department identified and notified the violator of the violation subject to this penalty assessment and during that same time period the violator has had no Consent Administrative Orders entered, final orders issued or other formal enforcement actions with any ADEQ Division which confirm or allege a violation, then an amount equal to 20% of the base penalty will be subtracted from the overall penalty.

If no inspections of the facility by the Department have been performed and no formal enforcement actions completed which document or allege a violation within three years prior to the date the Department identified and notified the violator of the violation subject to this penalty assessment, then no penalty adjustment will be made based on this factor. If within the three years prior to the date the Department identified and notified the violator of the violation subject to this penalty assessment, the violator has agreed to a Consent Administrative Order alleging/documenting a violation or the Department has obtained a final order against the violator for a violation of any environmental law, regulation or permit, then an amount equal to 20% of the base penalty will be added to the overall penalty.

Consent Administrative Orders in which the violator neither admitted nor denied an alleged violation will be considered in determining any potential increases or reductions to the base penalty. The Penalty

Calculation Worksheet should include a brief description as to how the selected adjustment was determined.

Intent

Regulation No. 7, Section 9(f) requires that in calculating a civil penalty the Department must consider: “Whether the cause of the violation was an intentional act or omission on the part of the violator.” If the Department determines that the violation was the result of an intentional act or intentional omission of the violator, then an amount equal to 20% of the base penalty will be added to the overall penalty. The Department will consider an act intentional when the Department has knowledge that the violator was aware of the requirements and purposely ignored those requirements or took deliberate steps which resulted in the violation. If the Department determines that the violation was not an intentional act or intentional omission of the violator, then there will be no adjustment to the penalty based on this factor. The Penalty Calculation Worksheet should include a brief description as to how the selected adjustment was determined.

Economic Benefit/Pecuniary Gain

Regulation No. 7, Section 9(g) requires that in calculating a civil penalty the Department must consider: “Whether the noncompliance has resulted in economic benefit or pecuniary gain to the violator, including but not limited to cost avoidance.” If the Department determines that the violator received an economic benefit or pecuniary gain, including potential cost avoidance due to the violation, then an amount equal to 20% of the base penalty will be added to the overall penalty. If the Department determines that the violator did not receive an economic benefit or pecuniary gain from the violation, then no penalty adjustment will be made based on this factor. The Penalty Calculation Worksheet

should include a brief description as to how the selected adjustment was determined.

Arkansas Code Annotated § 8-4-103(e) and other applicable statutes establish the authority of the Department to seek any pecuniary gain resulting from violations as an alternative to the limits on civil penalties. Procedures for calculating economic benefit/pecuniary gain as an alternative to the limits on civil penalties are included in Section 5.0 of this document.

Unusual or Extraordinary Enforcement Costs

Regulation No. 7, Section 9(h) requires that in calculating a civil penalty the Department must consider: “Whether the pursuit and the execution of the enforcement action has resulted in unusual or extraordinary costs to the Department or the public.” If the Department determines that the pursuit and execution of the enforcement action has resulted in unusual or extraordinary costs to the Department or the public, then an amount equal to 20% of the base penalty will be added to the overall penalty. Details of the unusual/extraordinary costs should be documented and included with the penalty calculation worksheet. If the Department determines that the pursuit and execution of the enforcement action has not resulted in unusual or extraordinary costs to the Department or the public, then no adjustment to the penalty will be made based on this factor. The Penalty Calculation Worksheet should include a brief description as to how the selected adjustment was determined.

Government Contribution

Regulation No. 7, Section 9(I) requires that in calculating a civil penalty the Department must consider: “Whether any part of the noncompliance is attributable to the action or inaction of the state government.” It is the policy of the Department that if it is determined that the action or inaction of the

state government is a substantial contributor to the duration, degree or occurrence of the violation, then no civil penalty will be assessed for the violation. If it is determined that the state government has had a non-substantial or moderate impact on the duration or degree of the violation, but no impact on the occurrence of the violation, then an amount equal to 20% of the base penalty will be subtracted from the overall penalty. If state government action or inaction had no adverse impact on the duration, degree or occurrence of the violation or if the violator is the state government entity that had an impact on the duration, degree or occurrence of the violation, then no adjustment to the penalty will be made based on this factor. The Penalty Calculation Worksheet should include a brief description as to how the selected adjustment was determined.

3.0 Continuing and Multi-Occurrence Violations

Arkansas Code Annotated § 8-4-103(b) and other applicable statutes establish that each day of a continuing violation may be deemed a separate violation for purposes of penalty assessment. Where a violation can be demonstrated to have occurred on multiple days, the penalty calculation may be completed once and the total assessed penalty will be the overall penalty, after adjustments, multiplied by the number of days the violation occurred. However, the Department may elect to not seek a per day penalty or may seek a continuing penalty based on a time period greater than per day (i.e. per month or per year).

4.0 Violations of the Hazardous Waste Management Act

Arkansas Code Annotated § 8-7-204(b)(4) and APC&EC Regulation 7 establish the maximum civil penalties that may be assessed for a violation of the Arkansas Hazardous Waste Management Act. This

amount is not to exceed twenty five thousand dollars (\$25,000) per violation. This amount is 2.5 times higher than the statutory maximum penalty amounts for most other environmental statutes and programs. The final civil penalty assessment for each violation of the Hazardous Waste Management Act or the permits issued or regulations adopted pursuant to the Hazardous Waste Management Act will be multiplied by 2.5 in accordance with the higher statutory maximum.

5.0 Seeking Economic Benefit/Pecuniary Gain Instead of Civil Penalty

It is the policy of the Arkansas Department of Environmental Quality to evaluate the economic benefit or pecuniary gain derived from noncompliance when penalties are calculated. Arkansas Code Annotated § 8-4-103(e) and other applicable statutes establish the authority of the Department to seek any pecuniary gain resulting from a violation as an alternative to the limits on civil penalties. Recovering the pecuniary gain is fundamental to the success of the compliance monitoring and enforcement program and ensures that economic incentives for noncompliance are eliminated. If, after a civil penalty is paid, violators still profit from the violation of the law, then the incentive to comply in the future is eliminated.

Any significant economic benefit component should be calculated for each violation and when the amount exceeds the adjusted civil penalty, the economic benefit should be collected in place of the civil penalty calculated under this Policy. Economic benefit can result from a violator delaying or avoiding compliance costs, or when the violator achieves a competitive advantage through its noncompliance.

For certain requirements of the Regulations and Statutes, the economic benefit derived from

noncompliance may be de minimis (e.g., failure to submit a report on time). In the interest of simplifying and expediting an enforcement action, the Department may forego the calculation of the economic benefit component for a violation where it appears that the economic benefit is likely to be significantly less than the amount of the adjusted final penalty for that violation. Any decision not to seek an economic benefit penalty and the rationale for such a decision should be documented with the Penalty Worksheet.

APPENDIX A

PENALTY CALCULATION WORKSHEET

ADEQ Civil Penalty Calculation Worksheet (March 2012)

Assessed Penalty
\$9,600.00

Facility Name: _____
 Inspection Date: _____
 Violation No. _____
 Violation Description: _____

BASE PENALTY

Seriousness of Noncompliance and its effect on the Environment including Potential for Harm APC&EC Regulation No. 7 Section 9 (a)	Major \$4,000	The violation has resulted in a documented effect on the environment or has the potential to result in significant harm to public health.
	Moderate \$1,000	The violation could result in a direct effect on the environment or result in moderate harm to public health.
	Minor \$250	The violation has an indirect effect on the environment and has a minimal potential to cause harm to public health.
Major	Justification for Base Penalty	
Base Penalty \$4,000		

PENALTY ADJUSTMENTS

Avoidability APC&EC Regulation No. 7 Section 9 (b)	-0.20	The violation was the result of an unavoidable accident. All reasonable and prudent measures had been taken in the operation of the facility to prevent it from occurring. Documentation of efforts to prevent must be demonstrated.
	0.00	It is unknown or there is not enough information to determine whether the violation was an unavoidable accident
	0.20	The violation could have been avoided if the violator had instituted reasonable and prudent measures
Adjustment Selected 0.20	Justification for Adjustment	
Value of Adjustment \$800.00		

Cooperation APC&EC Regulation No. 7 Section 9 (c)	-0.20	The violator has cooperated with the Department and expeditiously completed all actions to correct the violation. Documentation of correction must be demonstrated.
	0.00	It is unknown whether the violator has completed the actions to correct the violation or the violator has only completed some of the actions to correct the violation.
Justification for Adjustment		
Adjustment Selected <input type="text" value="0.00"/>		
Value of Adjustment <input type="text" value="\$0.00"/>		

Delayed Corrective Action APC&EC Regulation No. 7 Section 9 (j)	0.00	It is unknown whether the violator has completed the actions to correct the violation or the violator has only completed some of the actions to correct the violation.
	0.20	The violator has not completed a significant amount of necessary actions to correct the violation.
Justification for Adjustment		
Adjustment Selected <input type="text" value="0.20"/>		
Value of Adjustment <input type="text" value="\$800.00"/>		

Management History APC&EC Regulation No. 7 Section 9 (d)	-0.20	The violator has expended all reasonable efforts to comply with the requirement in question.
	0.00	The violation is the result of an oversight by the violator.
	0.20	The violation is a substantial disregard for the requirement in question or the violator failed to adequately respond previously to an inspection report, informal enforcement letter or formal enforcement action, pertaining to the requirement.
Justification for Adjustment		
Adjustment Selected <input type="text" value="0.20"/>		
Value of the Adjustment <input type="text" value="\$800.00"/>		

Facility Name:

Inspection Date:

Violation #:

Violator's History APC&EC Regulation No. 7 Section 9 (e)	-0.20	The violator has been inspected during the last three years by ADEQ but has had no CAOs entered, final orders issued, or other formal enforcement actions with any ADEQ Division during the last three years.
	0.00	There have been no inspections of this facility in the last three years or formal enforcement actions completed resulting in findings of violation, therefore the violator has an unknown violation history.
	0.20	Within the last three years, the violator has agreed to a CAO or ADEQ has obtained a final order against the violator for the violation of any environmental laws, regulations, or permits.
Adjustment Selected <input type="text" value="0.20"/> Value of Adjustment <input type="text" value="\$800.00"/>	Justification for Adjustment	

Intent APC&EC Regulation No. 7 Section 9 (f)	0.00	The violation was not the result of an intentional act or intentional omission of the violator.
	0.20	The violation was the result of an intentional act or intentional omission of the violator.
Adjustment Selected <input type="text" value="0.20"/> Value of Adjustment <input type="text" value="\$800.00"/>	Justification for Adjustment	

Economic Benefit/ Pecuniary Gain APC&EC Regulation No. 7 Section 9 (g)	0.00	The violation did not result in a known economic benefit/pecuniary gain to the violator.
	0.20	The violation did result in an economic benefit/pecuniary gain to the violator regardless of the amount of benefit/gain received. The amount obtained should be determined and recorded or a determination reached that the gain was de minimis. In the event the economic benefit/pecuniary gain can be documented to be greater than the total penalty amount calculated for the violation and supported by sufficient evidence, the amount of economic gain will be assessed as an alternative per Ark. Code Ann. Section 8-4-103(e).
Adjustment Selected <input type="text" value="0.20"/> Value of Adjustment <input type="text" value="\$800.00"/> Amount of Benefit/Gain* <input type="text"/>	Justification for Adjustment	
* If no known Economic Benefit/Gain was obtained then enter \$0.00. If the amount is De minimis then leave blank.		

Facility Name:

Inspection Date:

Violation #:

Unusual/ Extraordinary Enforcement Cost APC&EC Regulation No. 7 Section 9 (h)	0.00	The pursuit and execution of the enforcement action has not resulted in unusual or extraordinary costs to the Department or the public.
	0.20	The pursuit and execution of the enforcement action has resulted in unusual or extraordinary costs to the Department or the public. <i>Documentation of unusual/extraordinary costs must be demonstrated.</i>
Justification for Adjustment		
Adjustment Selected <input type="text" value="0.20"/>		
Value of Adjustment <input type="text" value="\$800.00"/>		

Government Contribution APC&EC Regulation No. 7 Section 9 (l)	0.00	Government action or inaction had no adverse impact on the duration, degree, or occurrence of the violation.
	-0.20	Government action or inaction had a non-substantial or moderate impact on the duration or degree of the violation but no impact on the occurrence of the violation.
		<i>If government action or inaction substantially contributed to the duration, degree or the occurrence of the violation then no penalty will be assessed.</i>
Justification for Adjustment		
Adjustment Selected <input type="text" value="0.00"/>		
Value of Adjustment <input type="text" value="\$0.00"/>		

Subtotal of Adjusted Penalty:	\$9,600.00
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Multi-Day/Occurrence Calculation:	N/A	DAYS OR OCCURRENCES	=	\$0.00
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Economic Benefit/Pecuniary Gain:	De minimis
Total:	\$0.00

Is this a Violation of the Hazardous Waste Management Act?	No
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Calculator's Initials: _____

Date: _____

Reviewer's Initials: _____

Date: _____

Facility Name:

Inspection Date:

Violation #: