3,804.09 pounds per hour; while the carbon monoxide limit for the Reportable Event starting on June 25, 2009, was $3,736.48$ pounds per hour. ${ }^{171}$ Therefore, although the spreadsheets corroborate carbon monoxide limits were repeatedly violated, the spreadsheets show different carbon monoxide limits were violated. Because Plaintiffs categorized different limits together, they have not met their burden to prove repetition of any of the same, specific limitations.
17. For all of these reasons, Plaintiffs have not met their burden to prove either repeated violation pre-complaint or violation both before and after the complaint of the same emission standard or limitation under Count I.

## b. Count II

18. Count II alleges Exxon violated hourly emission limits. Count II is similar to Count I, except Count II is divided by different permits. The Court will consider each permit in turn.
[^0]
## i. Refinery Flexible Permit 18287

19. Under Count II/Refinery Flexible Permit 18287, Plaintiffs allege "violations of general conditions 8 and 15 , special condition 1, and MAERT limits in permit 18287/PSD-TX-730M4 for emissions of" various air contaminants. ${ }^{172}$ The evidentiary support cited to is Plaintiffs' Exhibits 2A and 2B (stipulated spreadsheets), 589 and 590 (Plaintiffs' corresponding spreadsheets), and 10 (tallied table). As in Count I, violation of the aforementioned conditions is not corroborated by these spreadsheets. These spreadsheets reference permit 18287 , but the spreadsheets do not appear to reference any specific conditions of permit 18287. ${ }^{173}$ Thus, although the spreadsheets corroborate certain emissions were "not specifically authorized" or perhaps were not authorized by permit 18287 , the spreadsheets do not corroborate violation of the specific conditions enumerated under this Count. Further, Plaintiffs have not provided any other persuasive evidence that the emissions listed in the spreadsheets violate the Title V permit conditions enumerated under this Count.
20. Also as in Count I, Plaintiffs claim "each regulated air contaminant ... is counted separately for purposes of repeated violations," and

[^1]their tallied table is divided by air contaminant. ${ }^{174}$ For example, Plaintiffs claim opacity limits were violated 28 days pre-complaint and 7 days post-complaint and thus such violations are actionable. ${ }^{175}$ However, different releases of opacity counted by Plaintiffs as at least one day of violation have different limits listed on the spreadsheets. ${ }^{176}$ For example, the opacity limit for the Reportable Event starting on September 28, 2008, was $0 \%$; but the opacity limit for the Reportable Event starting on October 3, 2011, was $30 \% .^{177}$ Therefore, although the spreadsheets corroborate opacity limits were repeatedly violated, the spreadsheets show different opacity limits were violated. Because Plaintiffs categorized
${ }^{174}$ Plaintiffs' Exhibit 10 at 2-3.
${ }^{175}$ Plaintiffs' Exhibit 10 at 2.
${ }^{176}$ See Plaintiffs' Exhibits 2A-2B, 589-90.
${ }^{177}$ Compare Plaintiffs' Exhibits 2A at row 405, and 589 at row 405 ; with 2 A at row 697, and 589 at row 697. Plaintiffs counted each of these events as at least one day of violation.

As another example, Plaintiffs claim carbon monoxide limits were violated 677 days pre-complaint and 256 days post-complaint and thus such violations are actionable. Plaintiffs' Exhibit 10 at 2. However, the carbon monoxide limit for the Recordable Event starting on June 9, 2011, was 3,736.48 pounds per hour; but the carbon monoxide limit for the Recordable Event starting on June 29, 2011, was 0 pounds per hour. Compare Plaintiffs' Exhibits 2B at row 8712, and 590 at row 8714 ; with 2B at row 8817, and 590 at row 8819. Plaintiffs counted each of these events as at least one day of violation.
different limits together under this Count, they have not met their burden to prove repetition of any of the same, specific limitations under this Count. ${ }^{178}$
21. For these reasons, Plaintiffs have not met their burden to prove either repeated violation pre-complaint or violation both before and after the complaint of the same emission standard or limitation under Count II/Refinery Flexible Permit 18287.

## ii. Olefins Plant Flexible Permit 3452

22. Under Count II/Olefins Plant Flexible Permit 3452, Plaintiffs allege "violations of general conditions 8, special condition 1, and MAERT limits in permit 3452/PSD-TX-302M2 for emissions of" various air contaminants. ${ }^{179}$ The evidentiary support cited to is Plaintiffs' Exhibits 2C and 2D (stipulated spreadsheets), 591 and 592 (Plaintiffs' corresponding spreadsheets), and 10 (tallied table). As in the previous counts, violation of the aforementioned conditions is not corroborated by these spreadsheets. These spreadsheets reference permit 3452 , but the spreadsheets do not appear to reference any specific conditions of permit 3452. ${ }^{180}$ Repeated violation of permit 3452 does not suffice without showing

[^2]which conditions of permit 3452 were violated. Further, Plaintiffs have not provided any other persuasive evidence that the emissions listed in the spreadsheets violate the Title V permit conditions enumerated under this Count.
23. Also as in the previous counts, Plaintiffs claim "each regulated air contaminant ... is counted separately for purposes of repeated violations," and their tallied table is divided by air contaminant. ${ }^{181}$ For example, Plaintiffs claim $\mathrm{NO}_{\mathrm{x}}$ limits were violated 297 days pre-complaint and 59 days post-complaint and thus such violations are actionable. ${ }^{182}$ However, different releases of $\mathrm{NO}_{x}$ counted by Plaintiffs as at least one day of violation have different limits listed on the spreadsheets. ${ }^{183}$ For example, the $\mathrm{NO}_{\mathrm{x}}$ limit for the Reportable Event starting on July 28, 2006, was 10 pounds per hour; but the $\mathrm{NO}_{\mathrm{x}}$ limit for the Reportable Event starting on June 3, 2007, was 0 pounds per hour. ${ }^{184}$ Therefore, although the
${ }^{181}$ Plaintiffs' Exhibit 10 at 2-3.
${ }^{182}$ Plaintiffs' Exhibit 10 at 2.
${ }^{183}$ See Plaintiffs' Exhibits 2C-2D, 591-92.
${ }^{184}$ Compare Plaintiffs' Exhibits 2C at row 51, and 591 at row 51; with 2C at row 81, and 591 at row 81. Plaintiffs counted each of these events as at least one day of violation.

As another example, Plaintiffs claim carbon monoxide limits were violated 538 days pre-complaint and 260 days post-complaint and thus such violations are actionable. Plaintiffs' Exhibit 10 at 2. However, the carbon monoxide limit for the Recordable Event starting on October 31, 2005, was 6627.58 pounds per hour; but the carbon monoxide limit for the Recordable Event starting on January 6, 2006, was 0 pounds per hour. Compare Plaintiffs' Exhibits 2D at row 13, and 592 at row 13; with 2D at row 22, and 592 at row 22. Plaintiffs counted each of these events as at least one day of violation.
spreadsheets corroborate $\mathrm{NO}_{\mathrm{x}}$ limits were repeatedly violated, the spreadsheets show different $\mathrm{NO}_{\mathrm{x}}$ limits were violated. Because Plaintiffs categorized different limits together under this Count, they have not met their burden to prove repetition of any of the same, specific limitations under this Count. ${ }^{185}$
24. For these reasons, Plaintiffs have not met their burden to prove either repeated violation pre-complaint or violation both before and after the complaint of the same emission standard or limitation under Count II/Olefins Plant Flexible Permit 3452.

## iii. Chemical Plant Permits: 4600 (Flare Stack 23), 5259 (Furnaces), 20211 (Flare Stack 12, Butyl Units, Aromatics Units), 36476 (Flare 28, Syngas Fugitives), and No Permit Authorization

25. Under Count II/Chemical Plant Permits, Plaintiffs allege violations of different chemical plant permits for various emissions sources, as well as violations with no permit authorization. The evidentiary support cited to is Plaintiffs' Exhibits 2E and 2F (stipulated spreadsheets), 593 and 594 (Plaintiffs' corresponding spreadsheets), and 10 (tallied tables). As in the previous counts, Plaintiffs claim "each regulated air contaminant... is counted separately for purposes of repeated violations," and their tallied table is divided by air

185 The fact that the permit is a flexible permit does not change the Court's analysis because Plaintiffs must prove repeated violation of a specific condition or limitation of a Title $V$ permit, not repeated violation of a Title $V$ permit.
contaminant. ${ }^{186}$ Unlike in the previous counts, repeated violation of some of the same, specific hourly emission limitations is corroborated by the spreadsheets. The corroborated violations are the ones for which the spreadsheets contain the same emission limits for events in a category and contain other information identifying the specific limitation referenced by Plaintiffs. These corroborated violations are listed in the appendix of this Order. For example, under chemical plant permit 20211 (flare stack 12), Plaintiffs claim $\mathrm{NO}_{x}$ limits were violated 1 day pre-complaint and 2 days post-complaint and thus such violations are actionable. ${ }^{187}$ These 3 different releases of $\mathrm{NO}_{\mathrm{x}}$ each have the same limit listed on the spreadsheets: the $\mathrm{NO}_{\mathrm{x}}$ limit for the Reportable Events starting on August 10, 2010, March 24, 2011, and April 1, 2011, were each 13.15 pounds per hour. ${ }^{188}$ In addition, the spreadsheets corroborate the involvement of permit 20211 and the emission point flare stack 12 for all 3 Reportable Events. ${ }^{189}$ Because there are at least one corroborated violation of the 13.15 pounds per hour $\mathrm{NO}_{x}$ limit for flare stack 12 under permit 20211 both before and after the complaint was filed, those

[^3]$\mathrm{NO}_{\mathrm{x}}$ violations are actionable. For each similar corroborated violation in the various categories, there are either (1) at least two corroborated violations of the same, specific emissions limitation that occurred before the complaint was filed, or (2)(a) at least one corroborated violation of a specific emissions limitation both before and after the complaint was filed. Therefore, the corroborated violations are actionable. The uncorroborated Events and Deviations are the ones for which the spreadsheets do not contain the same emission limit for each event in a category or do not contain other information identifying the specific limitation referenced by Plaintiffs, and thus Plaintiffs have not met their burden to prove the uncorroborated Events and Deviations are actionable. ${ }^{190}$ Accordingly, Plaintiffs have met their burden to prove some-but not all-of the alleged hourly emission limitation violations under Count II/Chemical Plant Permits are actionable. ${ }^{191}$

[^4]
## c. Count III

26. Under Count III, Plaintiffs allege violations of the rule that limits plant-wide emissions of highly reactive volatile organic compounds to no more than 1,200 pounds per hour (the "HRVOC Rule"). ${ }^{192}$ The evidentiary support cited to is Plaintiffs' Exhibits 3 (stipulated spreadsheet), 595 (Plaintiffs' corresponding spreadsheet), and 11 (tallied table). Plaintiffs divided this count by plant for the purpose of proving repeated violations. ${ }^{193}$ Violation of this rule is corroborated by these spreadsheets for some of the Events and Deviations counted by Plaintiffs as at least one day of violation. The corroborated violations are the ones for which the spreadsheets contain explicit verbiage that the HRVOC rule was violated, and they are listed in the appendix of this Order. For example, for the Event or Deviation starting June 25, 2007, the spreadsheets report, "[e]xceeded . . . HRVOC hourly limit for 2 hours." ${ }^{194}$ For each plant, there are either (1) at least two corroborated violations of the HRVOC rule that occurred before the complaint was filed, or (2)(a) at least one corroborated violation of the HRVOC rule both before and after the complaint was filed. Therefore, the corroborated violations are actionable. The uncorroborated violations are the ones for which the spreadsheets

[^5]do not contain reference to violation of the HRVOC Rule, and Plaintiffs have not met their burden to prove the uncorroborated violations are actionable. ${ }^{195}$ Accordingly, Plaintiffs have met their burden to prove some-but not all-of the alleged violations of the HRVOC Rule under Count III are actionable. ${ }^{196}$

## d. Count IV

27. Under Count IV, Plaintiffs allege violations of the rule that prohibits visible emission from flares except for periods not to exceed five minutes in two consecutive hours (the "Smoking Flares Rule"). ${ }^{197}$ The evidentiary support cited to is Plaintiffs' Exhibits 4 (stipulated spreadsheet), 596 (Plaintiffs' corresponding spreadsheet), and 12 (tallied table). Plaintiffs divided this count by plant for the purpose of proving repeated violations. ${ }^{198}$ As in Count III, violation of this rule is corroborated by these spreadsheets for some of the Events and Deviations counted by Plaintiffs as at least one day of violation. The corroborated violations are the ones for which the spreadsheets contain an opacity percentage and opacity limit so that opacity exceedance can be verified; and a start time, end time, and duration so that exceedance of five minutes in two hours can be verified. The corroborated

[^6]violations are listed in the appendix of this Order. For example, the Event or Deviation starting December 10, 2005, lasted 2 hours and 41 minutes, with an opacity of $100 \%$ when the limit was $30 \%{ }^{199}$ For each plant, there are either (1) at least two corroborated violations of the Smoking Flare Rule that occurred before the complaint was filed, or (2)(a) at least one corroborated violation of the Smoking Flare Rule both before and after the complaint was filed. Therefore, the corroborated violations are actionable. The uncorroborated violations are the ones for which the spreadsheets do not contain an opacity percentage or opacity limit, and Plaintiffs have not met their burden to prove the uncorroborated violations are actionable. ${ }^{200}$ Accordingly, Plaintiffs have met their burden to prove some-but not all-of the alleged violations of the Smoking Flare Rule under Count IV are actionable. ${ }^{201}$

## e. Count V

28. Under Count V, Plaintiffs allege violations of the rule that requires flares to operate with a pilot flame present at all times (the "Pilot Flame Rule"). ${ }^{202}$ The evidentiary support cited to is Plaintiffs' Exhibits 5 (stipulated spreadsheet),
[^7]597 (Plaintiffs' corresponding spreadsheet), and 13 (tallied table). Plaintiffs divided this count by plant for the purpose of proving repeated violations. ${ }^{203}$ Violation of this rule is corroborated by these spreadsheets for all of the Events and Deviations counted by Plaintiffs as at least one day of violation. The violations are corroborated because the spreadsheets contain verbiage that pilot outages occurred under one of two "cause reported" columns. For example, for the Event or Deviation starting March 25, 2010, the spreadsheets report, "[h]igh winds extinguished flare pilots. ${ }^{204}$ For each plant, there are either (1) at least two corroborated violations of the Pilot Flame Rule that occurred before the complaint was filed, or (2)(a) at least one corroborated violation of the Pilot Flame Rule both before and after the complaint was filed. Therefore, Plaintiffs have met their burden to prove all of the alleged violations of the Flame Pilot Rule under Count V are actionable. ${ }^{205}$

## f. Count VI

29. Under Count VI, Plaintiffs allege fugitive emissions are actionable. Specifically, Plaintiffs contend violations of permits 18287, 3452, 20211, 28441, 36476, and 9571; general conditions 8 and 14/15; special condition 1; and MAERT
${ }^{203}$ Plaintiffs ' Exhibit 13.
${ }^{204}$ Plaintiffs' Exhibits 5 at row 17, 597 at row 17.
${ }^{205}$ All the violations listed in Plaintiffs' Exhibit 5 are actionable.
limits for emissions of various air contaminants. ${ }^{206}$ Exxon disputes that the events under Count VI constitute violations of an emissions standard or limitation. The evidentiary support cited to by Plaintiffs is Plaintiffs' Exhibits 6 (stipulated spreadsheet), 598 (Plaintiffs' corresponding spreadsheet), and 14 (tallied table). As in Count I and parts of Count II, violation of the aforementioned conditions cannot be corroborated by these spreadsheets. The spreadsheets reference the aforementioned permit numbers, such as 18287, in a column entitled "plant (refinery/olefins/chemical); ${ }^{207}$ however, listing a permit number associated with plant does not mean that permit was violated. Regardless, the spreadsheets do not appear to reference any specific conditions of the permits. ${ }^{208}$ The spreadsheets list emissions limits, but Plaintiffs claim all emissions limits should be considered zero under this Count, which conflicts with the limits listed on the spreadsheets. ${ }^{209}$ At most, the spreadsheets corroborate that fugitive emissions of various contaminants occurred; however, the spreadsheets do not corroborate violations of any specific standards or limits of a Title V permit. Further, Plaintiffs have not provided any

[^8]other persuasive evidence that the emissions listed in the spreadsheets violate the Title V permit conditions or limits referenced under this Count. For these reasons, Plaintiffs have not met their burden to prove either repeated violation precomplaint or violation both before and after the complaint of the same emission standard or limitation under Count VI. ${ }^{210}$

## g. Count VII

30. Under Count VII, Plaintiffs allege Exxon's Deviations are actionable. ${ }^{211}$ Exxon disputes that the Deviations under Count VII constitute violations of an emissions standard or limitation. The CAA citizen suit provision requires Exxon "to have violated... or to be in violation of ... an emission standard or limitation." 42 U.S.C. $\S 7604(a)(1)$. However, a deviation is defined as "[a]ny indication of noncompliance with a term or condition of the permit . . . ." 30 TEX. ADMIN. CODE $\S 122.10(6)$ (emphasis added). ${ }^{212}$ "A deviation is not always a violation. . . Included in the meaning of deviation [is] . . [a] situation where process or emissions control device parameter values indicate that an emission limitation or standard has not been met...." 40 C.F.R. §71.6(a)(3)(iii)(C)

[^9](emphasis added). Plaintiffs have not met their burden to show how, in light of these provisions, the Deviations at issue in this case are actual violations and not merely indications of noncompliance. Accordingly, Plaintiffs have not met their burden to prove any of the Deviations under Count VII are actionable.

## C. Declaratory Judgment

31. Plaintiffs request a "declaratory judgment that Exxon violated its Title V permits and thus the CAA., ${ }^{213}$ The Court declines to issue such declaratory judgment because the issue in a citizen suit is not solely whether the defendant violated the CAA. Indeed, it is undisputed Exxon violated some emission standards or limitations. Rather, the issue is whether any such violations are actionable under the CAA as a citizen suit. As such, the issue is whether there was repeated violation pre-complaint, violation both before and after the complaint, or a continuing likelihood of recurrence. ${ }^{214}$ The Court has already made these findings. ${ }^{215}$

## D. Penalties

32. Having found only a few-but not the vast majority-of the Events and Deviations are actionable under the CAA's citizen suit provision, the Court

[^10]need only address whether Exxon should be penalized for those actionable events. After reviewing the details of those actionable events, the Court finds Exxon should not be penalized for the actionable events. However, even if the Court had found every Event and Deviation in this case is actionable, the Court would still find Exxon should not be penalized. Therefore, the Court will now explain why Exxon should not be penalized even if every Event and Deviation is actionable.
33. "In determining the amount of any penalty to be assessed under" the CAA in a citizen suit, the Court "shall take into consideration (in addition to such other factors as justice may require)" the following penalty assessment factors:
the size of the business, the economic impact of the penalty on the business, the violator's full compliance history and good faith efforts to comply, the duration of the violation as established by any credible evidence ..., payment by the violator of penalties previously assessed for the same violation, the economic benefit of noncompliance, and the seriousness of the violation.

42 U.S.C. § 7413(e)(1).
34. The Court is not required to assess a penalty for violations. 42 U.S.C. § 7413(e)(2) ("A penalty may be assessed for each day of violation." (emphasis added)); Luminant Generation Co. v. EPA, 714 F.3d 841, 852 (5th Cir. 2013) ("[T]he penalty assessment criteria... are considered by the courts...in determining whether or not to assess a civil penalty for violations and, if so, the
amount." (emphasis added)); see also 42 U.S.C. § 7413(e)(1) ("In determining the amount of any penalty to be assessed . . . ." (emphasis added)); Envtl. Conservation Org. v. City of Dallas, 529 F.3d 519, 530 ("[E]ven in the event of a successful citizen suit, the district court is not bound to impose the maximum penalty afforded under the statute."). ${ }^{216}$ Rather, the amount of any penalty, the analysis of the factors, and the process of weighing the factors are "'highly discretionary' with the trial court." Sierra Club, Lone Star Chapter v. Cedar Point Oil Co., 73 F.3d 546, 576 (5th Cir. 1996) (quoting Tull v. United States, 481 U.S. 412, 427 (1987)); United States ex rel. Adm'r of EPA v. CITGO Petroleum Corp., 723 F.3d 547, 551 (5th Cir. 2013). Each of the penalty assessment factors are considered in turn.

## a. Size of the Business and Economic Impact of the Penalty on the Business

35. Plaintiffs contend the large size and profitability of Exxon weigh towards imposing a penalty. Specifically, Plaintiffs contend Exxon will only be impacted by a large penalty and has the ability to pay the alleged maximum penalty. Exxon does not dispute these contentions, and the Court agrees given the

[^11]facts found supra in paragraph II.1. Accordingly, both the size and economic impact factors weigh towards assessing a penalty.

## b. Violator's Full Compliance History and Good Faith Efforts to Comply

36. Quantitatively, the number of Events and Deviations at issue in this case is high: 241 Reportable Events, 3,735 Recordable Events, and 901 Title V Deviations. ${ }^{217}$ Thus, based on the total number of Events and Deviations alone, Exxon's compliance history appears to be arguably inadequate. However, the Complex is one of the largest and most complex industrial sites in the United States. ${ }^{218}$ Therefore, there are numerous opportunities for noncompliance, and the number of Events and Deviations alone is not the best evidence of compliance history. ${ }^{219}$ In other words, the number of Events and Deviations must be considered with respect to the size of the Complex. For example, in 2012 the refinery averaged one pin hole leak for every 167 linear miles of pipe. ${ }^{220}$
37. Moreover, the number of Events and Deviations does not alone mean Exxon did not make a good faith effort to comply. Despite good practices, it is not possible to operate any facility-especially one as complex as the Complex-in a

[^12]manner that eliminates all Events and Deviations. ${ }^{221}$ Based on the facts expounded supra in paragraphs II.12-14, the Court finds Exxon made substantial efforts to improve environmental performance and compliance, including implementing four environmental improvement projects to reduce emissions and employing a vast array of emissions-reduction and emissions-detection equipment. Likely due to Exxon's substantial efforts, the Complex achieved significant reduction in the number of Reportable Events, the amount of unauthorized emissions of criteria pollutants, and the total amount of emissions over the years at issue in this case. ${ }^{222}$ For reasons explained infra in paragraphs III.41-42, the Court is not persuaded by Keith Bowers's opinion that certain capital improvements or additional spending on maintenance would have prevented the Emissions and Deviations. In addition, the Court does not accept Plaintiffs' view that the number of events involving a certain type of equipment, a certain unit, or a certain type of issue is alone adequate to support a conclusion that any of the Events or Deviations were preventable. ${ }^{223}$ Rather, as expounded supra in paragraph II.7, a root cause analysis is necessary to

[^13]determine whether the Events and Deviations resulted from a recurring pattern and to determine whether improvements could have been made to prevent recurrence. Plaintiffs did not put forth any credible evidence that any of the Events or Deviations resulted from the same root cause. ${ }^{224}$ Therefore, there is no credible evidence that any of the Events or Deviations resulted from a recurring pattern or that improvements could have been made to prevent recurrence. For each of the Reportable Events, Exxon conducted an extensive internal investigation, evaluated the root cause of the event, and implemented appropriate corrective actions to try to prevent recurrence. ${ }^{225}$ Similarly, for the Recordable Events and Deviations, Exxon analyzed the records for trends and ways to improve, identified root causes, and implemented corrective actions. ${ }^{226}$ Additionally, Exxon's maintenance policies and procedures conform or exceed industry standards and codes. ${ }^{227}$ The

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225 Supra \9| II.7-9.
*26 Supra ๆ II.7.
227 Supra \ II.14.
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Court finds the opinion of Dr. Christopher S. Buehler, a chemical engineer, that the Complex ranks at or near the top of petrochemical facility "leaders in maintenance and operation practices" is persuasive and credible. ${ }^{228}$ Lastly, the Court finds the opinions of John Sadlier, the former Deputy Director of the Office of Compliance and Enforcement at the TCEQ who dealt with Exxon for 20 years while working at the TCEQ, persuasive and credible when he opined that he "always felt and continue[s] to feel today that Exxon had always made a concerted effort to comply[,] that their dealings with [the TCEQ] were straightforward frank discussions," that Exxon is "[a]bsolutely not" a "bad actor," and that he has no reason to not believe Exxon "will earnestly try to achieve the goals" in the Agreed Order of reducing emissions. ${ }^{229}$ After evaluating all the evidence, the Court finds the preponderance of the credible evidence shows Exxon made good faith efforts to comply with the CAA. ${ }^{230}$ Accordingly, Exxon's full compliance history and good faith efforts to comply weigh against assessing a penalty.
${ }^{228}$ Trial Transcript at 12-16:10-20.
${ }^{229}$ Defendants' Exhibit 546 at 14-15, $9 / 40-44$.
${ }^{230}$ In addition to the aforementioned issues, Plaintiffs contend Exxon's policy of always asserting the affirmative defense to penalties to the TCEQ is, in itself, bad faith. Based on the greater weight of the credible evidence, the Court disagrees such policy is in bad faith. Although Exxon initially asserts the affirmative defense when reporting an event to the TCEQ, the TCEQ, after investigation, determines whether the affirmative defense actually does apply.

## c. Duration of the Violation

38. Plaintiffs claim the duration of the violations warrants the total maximum penalty because-in total-the number of hours and days of violation are high. In so claiming, Plaintiffs made no effort to differentiate the duration of each of the different Events and Deviations. The total maximum penalty requested by Plaintiffs is the sum of the maximum penalty for each day of violation. ${ }^{231}$ Thus, Plaintiffs ask the Court to assess the maximum penalty allowed by law for each Event and Deviation, regardless of duration. Such an approach is inappropriate in this case because the duration of each of the Events and Deviations differs tremendously. ${ }^{232}$ For example, of the 3,735 Recordable Events, $43 \%$ were $1 / 2$ an hour or less in duration, $55 \%$ were 1 hour or less in duration, $62 \%$ were 2 hours or less in duration, $73 \%$ were 5 hours or less in duration, $82 \%$ were 12 hours or less in duration, and $89 \%$ were 24 hours or less in duration. ${ }^{233}$ Some of the Events and Deviations lasted less than a minute. ${ }^{234}$ Thus, Plaintiffs request the Court assess the maximum penalty for Events and Deviations that lasted less than a minute. Because of the tremendous variance in durations, with some being long

[^15]and some being short, the Court finds the duration factor weighs neither towards nor against assessing a penalty.

## d. Payment by the Violator of Penalties Previously Assessed for the Same Violation

39. Exxon has paid $\$ 1,423,632$ in monetary penalties for the Events and Deviations at issue in this case to either the TCEQ or Harris County. ${ }^{235}$ Plaintiffs accede this amount should be deducted from the total penalty determined by the Court, and the Court agrees. Accordingly, $\$ 1,423,632$ will be deducted from any penalty otherwise warranted.

## e. Economic Benefit of Noncompliance

40. Generally, economic benefit of noncompliance is the financial benefit obtained by "delaying capital expenditures and maintenance costs on pollutioncontrol equipment." CITGO Petroleum Corp., 723 F.3d at 552. "[T]here are two general approaches to calculate economic benefit: (1) the cost of capital, i.e., what it would cost the polluter to obtain the funds necessary to install the equipment necessary to correct the violation; and (2) the actual return on capital, i.e., what the polluter earned on the capital that it declined to divert for installation of the equipment." Id. (internal quotation marks omitted). A district court must make a reasonable estimate of economic benefit of noncompliance. Id. at 552-53.

[^16]41. Plaintiffs claim Exxon's economic benefit of noncompliance is $\$ 657$ million as of June 2014. This number is based on Bowers's opinion that the Events and Deviations would not have occurred if (1) if Exxon would have spent $\$ 90$ million more annually on maintenance and (2) if Exxon would have installed certain capital equipment (an additional sulfur unit costing $\$ 100$ million, an additional sour gas flare costing $\$ 10$ million, and two additional compressor stations costing $\$ 50$ million each). Plaintiffs offered the testimony of an economist, Jonathan Schefftz, who used Bowers's inputs as to maintenance and capital expenditure costs delayed to calculate present-day economic benefit using the weighted-average cost of capital. The Court finds Schefftz's method of calculating economic benefit to be reliable. However, Schefftz made it very clear that he had no opinion as to the reliability of the inputs given to him by Bowers. For reasons explained infra, the Court finds Bowers's inputs to be neither reliable, credible, nor persuasive. Therefore, Schefftz's economic benefit of noncompliance figure is equally unreliable.
42. Bowers is a retired refinery and chemical plant engineer. Bowers's opinions and the bases for his opinions were vague and undetailed. Of the $\$ 90$ million Bowers opined should have been spent on maintenance, Bowers opined half of the $\$ 90$ million needed to be spent to hire 900 new employees to "run[] around inspecting things" and "[j]ust do more" maintenance and "stuff that needs
to be done., ${ }^{236}$ He opined the remainder of the $\$ 90$ million needed to be spent on "material.," 237 He said his estimate was a "crude estimate," and he did not create a detailed budget of the type that he would have created when he was a project manager. ${ }^{238}$ Neither Bowers nor any other evidence credibly demonstrated that spending an additional $\$ 90$ million on maintenance would have prevented any of the Events or Deviations. Similarly, neither Bowers nor any other evidence credibly demonstrated that any of Bowers's suggested capital improvements would have prevented any of the Events or Deviations. Instead, the preponderance of the credible evidence shows Bowers's suggested capital improvements would not help reduce emissions. ${ }^{239}$ Moreover, Exxon has spent a substantial amount of money on maintenance, emissions-reduction and emissions-detection equipment, and capital improvement projects in an effort to reduce emissions and unauthorized emissions events. ${ }^{240}$ This includes four environmental improvement projects costing approximately $\$ 20$ million that Exxon was not required to undertake under law,
${ }^{236}$ Trial Transcript at 4-181:15 to 4-182:15.
${ }^{237}$ Trial Transcript at 4-182:4-7.
${ }^{238}$ Trial Transcript at 4-267:6-23.
${ }^{239}$ Trial Transcript at $10-56: 17$ to $10-57: 25,11-56: 22$ to 11-58:19, 12-26:24 to 1234:8.
${ }^{240}$ Supra 19 II.12-14.
and over $\$ 500$ million on maintenance and maintenance-related capital projects each year at issue. ${ }^{241}$
43. After carefully considering all of the evidence, the Court determines the most reasonable estimate of Exxon's economic benefit of noncompliance is $\$ 0$. Because Exxon received no economic benefit from not complying, this factor weighs against assessing a penalty.

## f. Seriousness

44. The CAA does not define "seriousness" in relation to the penalty assessment factors. See 42 U.S.C. $\S 7413(\mathrm{e})(1)$. Some circuit courts, not including the Fifth Circuit, have held that "a court may still impose a penalty if it finds there is a risk or potential risk of environmental harm" even if there is "a lack of evidence on the record linking [a defendant's] CAA violations to discrete damage to either the environment or the public." Pound v. Airosol Co., 498 F.3d 1089, 1099 (10th Cir. 2007) (citing Pub. Interest Research Grp. of N.J., Inc. v. Powell Duffryn Terminals Inc., 913 F.2d 64, 79 (3d Cir. 1990)). ${ }^{242}$
45. Plaintiffs have made no effort to differentiate the degree of seriousness for the different Events and Deviations. Rather, Plaintiffs ask the Court to assess the maximum penalty allowed by law for each Event and

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{ }^{241} \text { Supra } \uparrow \mathbb{1 9} \text { II.12-14. }
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${ }^{242}$ The Fifth Circuit has not opined on this issue.

Deviation, regardless of degree of seriousness. Such an approach is inappropriate in this case because each of the Events and Deviations differ tremendously. For example, some of the Recordable Events emitted as little as 0.02 pounds of emissions, while some of the Recordable Events emitted over 500 pounds of emissions. ${ }^{243}$
46. Generally, reportable emissions events are more serious and more potentially harmful to human health than recordable emissions events. ${ }^{244}$ Reportable emissions events release greater than a threshold quantity of pollutants, while recordable emissions events release less than the threshold quantity. ${ }^{245}$ At issue are 241 Reportable Events and 3,735 Recordable Events. ${ }^{246}$ Thus, generally, there are many more less-serious events at issue than more-serious events. As to the Recordable Events, when considering the amount of emissions as a factor in determining seriousness, the majority of Recordable Events were less serious because they emitted lower quantities of emissions, while a small, minority of Recordable Events were more serious because they emitted higher quantities of

[^17]emissions. ${ }^{247}$ One example of a less-serious Recordable Event involved very brief smoke that emanated from a power receptacle due to an electrical issue when an extension cord was plugged in. ${ }^{248}$ Another example involved a small, one-minute fire in a cigarette butt can. ${ }^{249}$ As to the 901 Deviations, $45 \%$ involved no emissions whatsoever and thus, when considering the amount of emissions as a factor, were not serious at all. ${ }^{250}$ Emissions from Deviations involving emissions are either not at issue in this case or addressed in the Court's findings related to Reportable Events or Recordable Events. ${ }^{251}$ Therefore, considering the amount of emissions as a factor, there are many more Events and Deviations that were not serious or less serious than were more serious.
47. Plaintiffs claim the Events and Deviations were serious because they adversely affected public health. To support this claim, Plaintiffs submitted
${ }^{247}$ See supra IT II. 10 (" $58 \%$ [of Recordable Events] had total emissions of 20 pounds or less, $80 \%$ had total emissions of 100 pounds or less, $87 \%$ had total emissions of 200 pounds or less, and $93 \%$ had total emissions of 500 pounds or less.").

One of Plaintiffs' experts, Ranajit Sahu, opined the actual quantities of emissions from Exxon's flares are often greater than the quantity Exxon reports to the TCEQ. The Court was not persuaded by this opinion and finds it is against the preponderance of the credible evidence.
${ }^{248}$ Supra 『II.10.
${ }^{249}$ Supra $\mathbb{1}$ II. 10.
${ }^{250}$ Supra || II. 11.
${ }^{251}$ Supra ${ }^{9}$ II. 11.
evidence of the potential health effects caused by the types of pollutants emitted during the Events and Deviations. For example, hydrogen sulfide, which smells like rotten eggs or feces, can cause sore throat, cough, fatigue, headaches, nausea, and poor memory at low concentrations. ${ }^{252}$ Factors affecting potential risk of harm from pollutants include duration of exposure and concentration of pollutants. ${ }^{253}$ As discussed supra, the Events and Deviations differ tremendously in terms of duration and amount. Plaintiffs' aforementioned evidence of the potential health effects caused by the types of pollutants emitted does not include credible evidence that any of the specific Events and Deviations were of a duration and concentration to-even potentially-adversely affect human health or the environment. ${ }^{254}$ Although Plaintiffs' evidence of potential health effects provides some support of a

[^18]potential risk of harm to human health, this evidence in this case is too tenuous and general to rise above mere speculation.
48. Plaintiffs also claim the Events and Deviations were serious because they created "nuisance-type impacts" to the community that interfered with daily life. ${ }^{255}$ Four Plaintiffs' members experienced impacts to their life while living or visiting near the Complex, including pungent odors, allergies, respiratory problems, disruptive noise from flaring, concerns for their health after seeing haze believed to be harmful, and fears of explosion after seeing flares. ${ }^{256}$ However, these impacts could have been caused by Exxon's authorized emissions or other companies' emissions, because certain emissions and flares are authorized by permit and the nearby area in which the Complex operates is populated with numerous other refineries, petrochemical plants, and industrial facilities. ${ }^{257}$ Indeed, unauthorized emissions were a very small percentage of total emissions at the Complex for each year at issue. ${ }^{258}$ Plaintiffs' members were only able to correlate some of the impacts, such as odor and noise, to five Events or Deviations
${ }^{255}$ Plaintiffs' Revised Proposed Findings of Facts and Conclusions of Law at 68, - 78.
${ }^{256}$ Supra 99 II.19-22.
${ }^{257}$ Supra $\|$ II.3; see supra $9 \mathbb{1}$ I.19, 21-22 (finding Plaintiffs' members understood some emissions and flaring is authorized by permit).
$$
{ }^{258} \text { Supra } \uparrow \text { II. } 17 .
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at issue in this case. ${ }^{259}$ Moreover, Plaintiffs' members' testimonies regarding impacts were controverted by persuasive testimony from three other residents of the community who have lived very close to the Complex for many years. ${ }^{260}$ These residents testified the Complex has not impacted their lives, including that they have had no health problems they attribute to the Complex and that they have not experienced any problems with flaring, odors, noises, or emissions coming from the Complex. ${ }^{261}$ For all these reasons, the proposition that the Events or Deviations were serious because they created nuisance-type impacts on the
${ }^{259}$ Supra T9 II.19-22 (Dominguez-0, Kingman-0, Cottar-3, and Sprayberry-2). The Court notes this lack of a correlation, except for five Events or Deviations, only to help explain why Plaintiffs' proposition that the Events or Deviations were serious because they created nuisance-type impacts on the surrounding community, or adversely affected public health, is largely unsubstantiated. In doing so, the Court does not hold such link is required for a finding that the Events and Deviations were serious under a penalty analysis.

In addition to Plaintiffs' members' testimonies, Plaintiffs claim in their post-trial submission that "[m]any times, Exxon personnel have noted on the complaint log that the date and time of a citizen complaint corresponds to the date and time of an emission event occurring at the Complex." Plaintiffs' Proposed Findings of Fact of Fact and Conclusions of Law, $\mathbb{4} 969$. The only support Plaintiffs cited to in their post-trial submission for this proposition are complaints logged on the complaint log on 2/18/2008; however, Plaintiffs did not cite evidence that an Event or Deviation occurred on that day. Id. TT 969-70. Plaintiffs did not specifically reference any other correlations besides the one on $2 / 18 / 2008$. See id. Therefore, Plaintiffs have not adequately shown any of the complaints on the complaint $\log$ correlated to any Events or Deviations in this case. Accordingly, the Court does not find the complaint log persuasive evidence that any of the Events or Deviations were serious.
${ }^{260}$ See supra $9 \mathbb{T}$ II.23-25.
${ }^{261}$ Supra $9 \mathbb{T}$ II.23-25.
surrounding community is not supported by the preponderance of the credible evidence. ${ }^{262}$
49. As to Deviations not involving emissions, those Deviations typically relate to late reports or incomplete reports. ${ }^{263}$ Plaintiffs claim those Deviations are serious because, according to Bowers, "the practice of not following those requirements indicates lax operations which will lead to bad things happening.,"264 The Court finds Bowers's testimony on this issue is too vague to support a finding that the Deviations not involving emissions are serious. In addition, Plaintiffs claim that because some flammable substances were released, there was a risk of fire and explosion. Similarly, this risk is too vague to support a finding that the Events and Deviations are serious.
50. For all of the aforementioned reasons, overall the greater weight of the credible evidence does not support a finding that the Events or Deviations were serious. Accordingly, the seriousness factor weighs against assessing a penalty.

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## g. Balancing the Factors

51. The maximum penalty for each day of violation is $\$ 32,500$ for violations occurring before January 13,2014 , and $\$ 37,500$ for violations occurring on January 13, 2009, and thereafter. 42 U.S.C. § 7413(e)(2); 40 C.F.R. § 19.4. Plaintiffs contend the total maximum penalty, after deducting for overlapping violations, is $\$ 642,697,500$. Plaintiffs ask the Court to assess Exxon this maximum penalty amount, less the $\$ 1,423,632$ Exxon has already been penalized for some of the Events and Deviations. Exxon contends it should not be assessed a penalty.
52. After carefully considering all of the penalty assessment factors discussed supra, the Court finds no amount of penalty is appropriate in this case even if all the Events and Deviations are actionable. ${ }^{265}$ Although some of the factors and evidence weigh towards assessing a penalty against Exxon, more factors and much more credible evidence weigh against assessing a penalty. Specifically, Exxon's large size and the minimal economic impact even a large amount of penalty would have on' Exxon weigh towards assessing a penalty; however, Exxon's compliance history and good faith efforts to comply, Exxon's previous payment of $\$ 1,423,632$ in penalties, the lack of any economic benefit of

[^20]noncompliance to Exxon, and the determination that the greater weight of the credible evidence does not support a finding that the Events and Deviations are serious all weigh much more heavily against assessing a penalty. ${ }^{266}$ An assessment of no amount of penalty is the only amount of penalty that is consistent with a balancing of all the factors and the totality of the credible evidence supporting the factors. ${ }^{267}$ Accordingly, Exxon is not assessed a penalty.

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## E. Injunctive Relief

53. "The party seeking a permanent injunction must meet a four-part test. It must establish (1) success on the merits; (2) that a failure to grant the injunction will result in irreparable injury; (3) that said injury outweighs any damage that the injunction will cause the opposing party; and (4) that the injunction will not disserve the public interest." VRC LLC v. City of Dallas, 460 F.3d 607, 611 (5th Cir. 2006). "Other Fifth Circuit authority recognizes that the inadequacy of monetary damages also is a factor in the analysis." Reservoir, Inc. v. Truesdell, No. 4:12-2756, 2013 WL 5574897, at *7 (S.D. Tex. Oct. 9, 2013) (Atlas, J.) (citing ITT Educ. Servs., Inc. v. Arce, 533 F.3d 342, 347 (5th Cir.2008)). "[A]n injunction is a drastic and extraordinary remedy, which should not be granted as a matter of course." Monsanto Co. v. Geertson Seed Farms, 561 U.S. 139, 165 (2010). It is within the court's discretion to grant or deny injunctive relief. Weinberger $v$. Romero-Barcelo, 456 U.S. 305, 320 (1982). Even if a plaintiff prevails in a citizen suit, the court does not have to award any injunctive relief. Envtl. Conservation Org. v. City of Dallas, 529 F.3d 519, 530 (5th Cir. 2008).
54. Plaintiffs request Exxon be enjoined for five years from violating the emission standards and limitations found by this Court to be actionable. The CAA provides that district courts have jurisdiction to enforce emission standards or
approach, or simply relying upon the factors to arrive at an appropriate amount, the Court's penalty finding is the same.
limitations. 42 U.S.C. § 7604(a). However, "[t]he grant of jurisdiction to ensure compliance with a statute hardly suggests an absolute duty to do so under any and all circumstances, and a federal judge sitting as chancellor is not mechanically obligated to grant an injunction for every violation of law." Weinberger, 456 U.S. at 313. "Denial of injunctive relief does not necessarily mean that the district court has concluded there is no prospect of future violations for civil penalties to deter." Friends of the Earth, Inc. v. Laidlaw Envtl. Servs. (TOC), Inc., 528 U.S. 167, 193 (2000). Rather, the court in a "citizen suit properly may conclude that an injunction would be an excessively intrusive remedy, because it could entail continuing superintendence of the permit holder's activities by a federal court-a process burdensome to court and permit holder alike." Id. In addition, an injunction ordering a party to obey the law allows for a possible contempt citation and threat of judicial punishment should the party disobey the law. See Schmidt v. Lessard, 414 U.S. 473 , 476 (1974). In determining whether to grant injunctive relief, the court may consider the "attitude and laudable efforts" of a defendant "in continuously trying to improve the level of emissions." See Ala. Air Pollution Control Comm'n v. Republic Steel Corp., 646 F.2d 210, 214 (5th Cir. Unit B 1981) (internal quotation marks omitted).
55. Enjoining Exxon from violating CAA standards and limitations would do nothing more than require Exxon to obey the law in the future. The Court finds
that such an injunction is unnecessary and that Plaintiffs have not established injury to the public outweighs damage to Exxon. Exxon-without an injunction ordering it to comply with the CAA-already faces threat of TCEQ enforcement actions, including penalties, and threat of citizen suits should it not comply with the CAA. The Court believes any additional benefit the public would gain from Exxon having the additional threat of judicial contempt and punishment for violation of a court order is minimal. Additionally, for reasons explained supra in paragraphs III.47-48, the greater weight of the credible evidence does not support a finding that the Events or Deviations were harmful to the public or the environment, and there is no evidence that any potential future emissions events or deviations will be more harmful to the public or the environment than past Events and Deviations allegedly were. To the contrary, the number of Reportable Events, the total amount of emissions, and the amount of unauthorized emissions of criteria pollutants have all decreased over the years at issue. ${ }^{268}$ This is likely due to Exxon's substantial efforts to improve environmental performance and compliance. ${ }^{269}$ Moreover, proving compliance with the CAA to this Court for five years would be unduly burdensome on Exxon. Likewise, ensuring Exxon's compliance with the CAA for five years would be unduly burdensome on this

Court. For these reasons, the Court finds Plaintiffs have not established denial of the requested injunction will cause injury to the public that outweighs damage the injunction would cause Exxon. Accordingly, Plaintiffs have not established the third requirement for injunctive relief, and injunctive relief is denied.

## F. Special Master

56. Plaintiffs request the Court appoint a special master to monitor compliance with the injunctive relief granted in this Order. Plaintiffs request the special master be paid for by Exxon; have full access to the Complex, its personnel, and records; and be able to retain services of professional and technical people as needed. Having found no injunctive relief is warranted, a special master to monitor compliance with injunctive relief is consequently not warranted.
57. Moreover, even if the Court had granted the requested injunctive relief, a special master would still not be warranted. Plaintiffs did not show by the preponderance of the credible evidence that a special master could do a better job at reducing emissions events and deviations than the Complex's existing workforce. In addition, a special master would be excessively intrusive to Exxon's operations. Accordingly, Plaintiffs' request that the Court appoint a special master is denied.

## G. Affirmative Defenses

58. Exxon contends the proclamations of the Texas governor, the related TCEQ directive, and a statutory "act of God" defense provide a legal bar to citizen suit liability for the Events and Deviations that occurred during Exxon's Hurricane Ike preparation and response efforts. In addition, Exxon contends the affirmative defense provided under title 30 , section 101.222 of the Texas Administrative Code is a defense to the assessment of penalties for some of the Reportable Events. Having found no penalties or other relief is warranted, the Court declines to address Exxon's affirmative defenses.

## IV. CONCLUSION

Based on the foregoing, the Court hereby
ORDERS that all of Plaintiffs Environment Texas Citizen Lobby, Inc. and Sierra Club's requests in this case, including their request for a declaratory judgment, penalties, injunctive relief, and appointment of a special master, are DENIED. Judgment for Defendants ExxonMobil Corporation, ExxonMobil Chemical Company, and ExxonMobil Refining and Supply Company is GRANTED.

The Court will issue a separate Final Judgment.

SIGNED at Houston, Texas, on this 17 day of December, 2014.



[^0]:    ${ }^{171}$ Compare Plaintiffs' Exhibits 1A at row 133, and 587 at row 133; with 1A at row 158 , and 587 at row 158 ; with 1 A at row 544 , and 587 at row 544 . Plaintiffs counted each of these events as at least one day of violation.

    As another example, Plaintiffs claim hydrogen sulfide limits were violated 1,068 days pre-complaint and 313 days post-complaint and thus such violations are actionable. Plaintiffs' Exhibit 9 at 2. However, the hydrogen sulfide limit for the Recordable Event starting on October 23, 2005, was 15.78 pounds per hour; but the hydrogen sulfide limit for the Recordable Event starting on November 3, 2006, was 0 pounds per hour. Compare Plaintiffs' Exhibits 1B at row 69, and 588 at row 69 ; with 1 B at row 154, and 588 at row 154. Plaintiffs counted each of these events as at least one day of violation.

[^1]:    ${ }^{172}$ Plaintiffs' Proposed Findings of Fact and Conclusions of Law at 124 (capitalization omitted); see also Plaintiffs' Exhibit 10 at 2.
    ${ }^{173}$ Plaintiffs' Exhibits 2A-2B, 589-90.

[^2]:    ${ }^{178}$ The fact that the permit is a flexible permit does not change the Court's analysis because Plaintiffs must prove repeated violation of a specific condition or limitation of a Title $V$ permit, not repeated violation of a Title $V$ permit.

    179 ' Plaintiffs' Proposed Findings of Fact and Conclusions of Law at 127 (capitalization omitted); see also Plaintiffs' Exhibit 10 at 3.
    ${ }^{180}$ Plaintiffs' Exhibits 2C-2D, 591-92.

[^3]:    ${ }^{186}$ Plaintiffs' Exhibit 10 at 2-6.
    ${ }^{187}$ Plaintiffs' Exhibit 10 at 4.
    ${ }^{188}$ Compare Plaintiffs' Exhibits 2E at row 181, and 593 at row 181; with 2E at row 189 , and 593 at row 189; with 2E at row 194, and 593 at row 194. Plaintiffs counted each of these events as at least one day of violation.
    ${ }^{189}$ Compare Plaintiffs' Exhibits 2E at row 181, and 593 at row 181; with 2E at row 189, and 593 at row 189; with 2 E at row 194, and 593 at row 194.

[^4]:    ${ }^{190}$ For example, under chemical plant permit 36476 (flare stack 28), Plaintiffs claim hydrogen cyanide limits were violated 3 days and thus such violations are actionable. Plaintiffs' Exhibit 10 at 5. However, the hydrogen cyanide limit for the Recordable Event starting on December 23, 2009, was 3.31 pounds per hour; but the hydrogen cyanide limit for the Recordable Event starting on September 1, 2012, was 0.10 pounds per hour, even though the spreadsheets corroborate that both events involved permit 36476 and flare stack 28. Compare Plaintiffs' Exhibits 2E at row 159, and 593 at row 159 ; with 2 E at row 205 , and 593 at row 205. Plaintiffs counted each of these events as at least one day of violation.
    ${ }^{191}$ The actionable violations are listed in the appendix to this Order.

[^5]:    ${ }^{192}$ Plaintiffs' Proposed Findings of Fact and Conclusions of Law at 100.
    ${ }^{193}$ Plaintiffs' Exhibit 11. Only violations at the olefins and chemical plant are listed; no violations at the refinery are listed.
    ${ }^{194}$ Plaintiffs' Exhibits 3 at row 5, 595 at row 5.

[^6]:    ${ }^{195}$ E.g., Plaintiffs' Exhibits 3 at row 4, 595 at row 4.
    ${ }^{196}$ The actionable violations are listed in the appendix to this Order.
    ${ }^{197}$ Plaintiffs' Proposed Findings of Fact and Conclusions of Law at 101.
    ${ }^{198}$ Plaintiffs' Exhibit 12.

[^7]:    ${ }^{199}$ Plaintiffs' Exhibits 4 at row 21, 596 at row 21.
    ${ }^{200}$ E.g., Plaintiffs' Exhibits 4 at row 6, 596 at row 6 . An opacity limit of $0 \%$ cannot be assumed because varying opacity limits are listed on the spreadsheets.
    ${ }^{201}$ The actionable violations are listed in the appendix to this Order.
    ${ }^{202}$ Plaintiffs' Proposed Findings of Fact and Conclusions of Law at 101.

[^8]:    ${ }^{206}$ Plaintiffs' Proposed Findings of Fact and Conclusions of Law at 102; Plaintiffs' Revised Proposed Findings of Fact and Conclusions of Law at 58-59; Plaintiffs' Exhibit 14 at 1.
    ${ }^{207}$ Plaintiffs' Exhibits 6 (capitalization omitted), 598 (capitalization omitted).
    ${ }^{208}$ See Plaintiffs' Exhibits 6, 598.
    ${ }^{209}$ Plaintiffs' Exhibit 598.

[^9]:    ${ }^{210}$ The Court notes that Plaintiffs recognize violations under Count VI overlap with violations under other counts.

    211 The evidentiary support cited to is Plaintiffs' Exhibits 7A-7E (stipulated spreadsheets), 599-603 (Plaintiffs' corresponding spreadsheets), and 15 (tallied tables).
    ${ }^{212}$ See also Trial Transcript at 10-203:3-13, 10-209:7-14 (discussing how deviations are indications of noncompliance with a permit condition).

[^10]:    213 Plaintiffs' Proposed Findings of Fact and Conclusions of Law at 405; Plaintiffs' Revised Proposed Findings of Fact and Conclusions of Law at 58.
    ${ }^{214}$ Supra $\uparrow \mathbb{T}$ III.9-12.
    ${ }^{215}$ Supra 9 |q| III.13-30.

[^11]:    ${ }^{216}$ Because the penalty provisions in the CAA are similar to the penalty provisions in the CWA, "CWA cases are instructive in analyzing [penalty] issues arising under the CAA." Pound v. Airosol Co., 498 F.3d 1089, 1094 n. 2 (10th Cir. 2007) (citing United States v. Anthony Dell'Aquilla, Enters. \& Subsidiaries, 150 F.3d 329, 338 n. 9 (3d Cir. 1998)).

[^12]:    ${ }^{217}$ See supra || II.5.
    ${ }^{218}$ Supra ๆ II.2.
    ${ }^{219}$ See Trial Transcript at 10-220:14 to 10-223:16.
    ${ }^{220}$ Trial Transcript at 10-221:24 to 10-222:10.

[^13]:    ${ }^{221}$ Supra II.15. The Court understands impossibility is not a defense to penalties, except as it might apply to the applicable affirmative defense criteria. The Court does not consider the fact that it is not possible to operate the Complex in a manner that eliminates all Events and Deviations as a reason to not impose penalties. Rather, the Court notes this fact only to explain that the number of Events and Deviations does not alone mean Exxon did not make a good faith effort to comply.

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    222 Supra | II.16.
    223 Supra | II.7.
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[^14]:    ${ }^{224}$ In particular, the Court finds Bowers's testimony regarding the Events and Deviations having "common causes" is neither credible nor persuasive. For example, the Events and Deviations that Bowers categorizes as having the same common cause of "power supply failures" include the following: moisture got into the connections of improperly installed lightening arresters, causing them to short out; a squirrel bypassed animal traps, causing some electrical equipment to short circuit; and a hawk dropped a snake on top of Substation One, causing an electrical power disruption. Defendants' Exhibits 1020C, 1020I-O; Trial Transcript at 10-244:17 to 10-253:17. Categorizing such varied events together does not prove the events had a common cause, resulted from a recurring pattern, or were preventable.

[^15]:    ${ }^{231}$ See 42 U.S.C. § 7413(e)(2); 40 C.F.R. § 19.4; Plaintiffs' Revised Proposed Findings of Fact and Conclusions of Law at 68-69.
    ${ }^{232}$ See Plaintiffs ' Exhibits 1A-7E.
    ${ }^{233}$ Supra ๆ II.10.
    ${ }^{234}$ Supra ${ }^{\text {© II. } 10 . ~}$

[^16]:    ${ }^{235}$ Supra ${ }^{\text {『 II. } 8 .}$

[^17]:    ${ }^{243}$ Supra ${ }^{\text {© II. } 10 .}$
    ${ }^{244}$ Supra 9 II. 10.
    ${ }^{245}$ See supra $\mathbb{I}$ II. 5.
    ${ }^{246}$ Supra $\mathbb{1}$ II. 5.

[^18]:    ${ }^{252}$ Plaintiffs' Exhibit 476 at $38-39$; Plaintiffs' Exhibit 540 at 1, 4, 10; Trial Transcript at 7-89:25 to 7-91:9, 9-161:24 to 9-162:8.
    ${ }^{253}$ See e.g., Plaintiffs' Exhibit 539 at 25, 27-29; Plaintiffs' Exhibit 476 at 50-51; Trial Transcript at 7-90:11-16, 7-91:10 to 7-92:9.
    ${ }^{254}$ Plaintiffs' claim Exxon's own air dispersion modeling and stationary air monitor data showed that, in some instances, the predicted off-site concentrations of pollutants exceeded safety thresholds, such as Effects Screening Levels, National Ambient Air Quality Standards, or other air comparison values. However, there is conflicting evidence on this point, including conflicting evidence on the import of any such exceedances. The Court finds the greater weight of the credible evidence does not support a finding that any of the Events and Deviations actually or potentially adversely affected human health or the environment (under a penalty analysis) based on air dispersion modeling or stationary air monitor data.

[^19]:    ${ }^{262}$ Although the impacts to Plaintiffs' members are traceable enough to the Complex to confer standing under standing law, this traceability is too tenuous to support a finding that the specific Events and Deviations caused impacts to Plaintiffs' members under a penalty analysis.
    ${ }^{263}$ Supra $\uparrow$ II. 11.
    ${ }^{264}$ Trial Transcript at 4-161:10-25.

[^20]:    ${ }^{265}$ Neither of the parties contend justice requires consideration of any other factors, and the Court finds none either.

[^21]:    ${ }^{266}$ As explained supra in $\|$ III. $39, \$ 1,423,632$ will be deducted from any penalty otherwise warranted. As explained supra in $\mathbb{\|}$ III.38, the duration of the violation factor weighs neither towards nor against assessing a penalty.
    ${ }^{267}$ The CAA does not prescribe a specific method for determining appropriate penalties. Some courts use the top-down approach, in which the court starts at the maximum penalty allowed by law and reduces downward as appropriate considering the factors as mitigating factors. CITGO Petroleum Corp., 723 F.3d at 552. Other courts employ the bottom-up approach, in which the court starts at the economic benefit of noncompliance and adjusts upward or downward as appropriate considering the factors. Id. Rejecting a requirement that a district court must employ either the top-down or bottom-up approach, some circuit courts have held the district court can "simply rely[ ] upon [the] factors to arrive at an appropriate amount" without starting at a specific amount because " $[t]$ he statute only requires that the [penalty] be consistent with a consideration of each of the factors." United States v. Anthony Dell'Aquilla, Enters. \& Subsidiaries, 150 F.3d 329, 339 (3d Cir. 1998); see Pound v. Airosol Co., 498 F.3d 1089, 1095 (10th Cir. 2007). "The [Fifth] [C]ircuit has never held that a particular approach must be followed" and has left such decision to the discretion of the district court. CITGO Petroleum Corp., 723 F.3d at 552, 554.

    As to the top-down approach, Plaintiffs contend the maximum penalty is $\$ 642,697,500$. Exxon contends Plaintiffs' calculation of the maximum penalty is incorrect because they incorrectly counted the number of days of violation pursuant to the law. In this particular case, the Court does not need to decide whether Plaintiffs' calculation of the total maximum penalty is legally correct because, even assuming it is correct and starting at $\$ 642,697,500$ under the top-down approach, the Court finds $\$ 642,697,500$ should be mitigated downward to $\$ 0$ based on the factors. As to the bottom-up approach, the economic benefit of noncompliance is $\$ 0$ for reasons explained supra in $\mathbb{T} T$ III. $40-43$. Starting at $\$ 0$, the Court finds $\$ 0$ should not be adjusted upward based on the factors. Therefore, whether taking a top-down approach, bottom-up

