IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF TEXAS
HOUSTON DIVISION

ENVIRONMENT TEXAS CITIZEN LOBBY, INC. *and* SIERRA CLUB,	§	
Plaintiffs,	§	
v.	§	Civil Action No. H-10-4969
EXXONMOBIL CORPORATION, EXXONMOBIL CHEMICAL COMPANY, *and* EXXONMOBIL REFINING AND SUPPLY COMPANY,	§	
Defendants.	§	

REVISED FINDINGS OF FACT & CONCLUSIONS OF LAW[1]

On February 10, 2014, this Court commenced a non-jury trial in the above-entitled matter. During the course of the thirteen-day proceeding, the Court

[1] As explained further below, the Fifth Circuit vacated the Court's prior judgment as expressed in the initial Findings of Fact and Conclusions of Law. However, the Fifth Circuit upheld the Court's findings as to Count VII; the denial of a declaratory judgment, permanent injunction, and appointment of a special master; and the CAA penalty factor for compliance history and good faith efforts to comply. The Court's initial findings as to Counts V and VI, and the following penalty factors—the size of the business and payment by the violator of penalties previously assessed for the same violation—were unaddressed and undisturbed by the Circuit's opinion. Because the Court's prior judgment was vacated in whole and not in part, where the Court's prior findings were undisturbed or upheld by the Fifth Circuit, the Court reincorporates the prior findings into the Revised Findings of Fact and Conclusions of Law. Part II of the revised findings of fact and conclusion of law adopts the previous Part II in its entirety, as the Circuit did not hold the Court made any clearly erroneous factual finding.

received evidence and heard sworn testimony.[2] On December 17, 2014, having considered the evidence, testimony, and oral arguments presented during the trial, along with post-trial submissions[3] and the applicable law, the Court entered its initial findings of fact and conclusions of law pursuant to Federal Rule of Civil Procedure 52(a). The judgment was appealed. The Fifth Circuit vacated the Court's judgment and remanded the case for the determination of a new judgment as consistent with the Circuit's opinion. Accordingly, the Court issues the following revised findings of fact and conclusions of law, as consistent with the instructions on remand from the Fifth Circuit following the vacatur of the Court's initial judgment. Any finding of fact that should be construed as a conclusion of law is hereby adopted as such. Any conclusion of law that should be construed as a finding of fact is hereby adopted as such.

I. BACKGROUND

On December 13, 2010, Plaintiffs Environment Texas Citizen Lobby, Inc. ("Environment Texas") and Sierra Club ("Sierra Club") (collectively, "Plaintiffs") brought suit under the citizen suit provision of the federal Clean Air Act (the

[2] The parties submitted 1,148 exhibits that span thousands of pages, and 25 witnesses testified.

[3] The post-trial submissions considered by the Court include the plaintiffs' and the defendants' original proposed findings of fact and conclusions of law, which are 455 pages and 361 pages in length, respectively. On remand, the Court considered the revised proposed findings of fact and conclusions of law, and where relevant, the pre-appeal proposals (both the original and revised).

"CAA"), 42 U.S.C. § 7604, against Defendants ExxonMobil Corporation, ExxonMobil Chemical Company, and ExxonMobil Refining and Supply Company (collectively, "Exxon"). The case concerns Exxon's operation of a refinery, olefins plant, and chemical plant located in Baytown, Texas (the "Complex"), which is a suburb of Houston and within Harris County. Plaintiffs seek a declaratory judgment, penalties,[4] injunctive relief, and appointment of a special master for events at the Complex involving unauthorized air emissions or deviations from one of the Complex's air permits, during a period spanning from October 14, 2005, to September 3, 2013.

On December 17, 2014, the Court issued its initial findings of fact and conclusions of law.[5] Plaintiffs appealed the decision to the Fifth Circuit. On May 27, 2016, the Fifth Circuit issued an opinion vacating the Court's judgment and remanding for assessment of penalties based on the violations actionable as consistent with its opinion.[6] Specifically, the Circuit held: (1) as to Count I, the Court erred as a matter of law in treating the count as alleging violations of Maximum Allowable Emission Rate Table ("MAERT") limitations rather than

[4] Plaintiffs originally requested $1,023,845,000 in penalties, but they later reduced their request to $642,697,500 to account for overlapping violations alleged in the various counts of the complaint. On remand, Plaintiffs only seek $40,815,618 in penalties.

[5] *Findings of Fact & Conclusions of Law*, Document No. 225.

[6] *Env't Tex. Citizen Lobby, Inc. v. ExxonMobil Corp.*, 824 F.3d 507 (5th Cir. 2016).

special conditions 38 and 39; (2) as to Count II, the Court erred in requiring Plaintiffs to show repeated violations of the same numerical threshold per pollutant per emission point, rather than violations per pollutant per emission point, even if the numerical limitations varied due to amendment or renewal; (3) as to Counts III and IV, the Court erred in requiring corroboration for violations it explicitly found were uncontested; and (4) in assessing the penalty factors, the Court erred in failing to enter findings as to whether an economic benefit was received by delaying environmental improvement projects and abused its discretion in treating violations of shorter duration as offsetting longer duration violations and less serious violations as offsetting more serious violations.

On August 29, 2016, the Court ordered the parties to submit revised proposed findings of fact and conclusions of law consistent with scope of remand from the Fifth Circuit. The Court instructed the parties that it would not revisit any finding of fact or conclusion of law upheld in or left undisturbed by the Fifth Circuit's opinion. The parties submitted their proposals on October 31, 2016, and filed responses to the respective opposing party's proposal on November 21, 2016. Having considered the Fifth Circuit's opinion, the parties revised proposals and responses thereto, the Court revises its initial conclusions of law, as follows, on Counts I–IV; the economic benefit, duration, and seriousness penalty factors; enters conclusions of law in the first instance on the affirmative defenses asserted

in Exxon's revised proposal; and its judgment on the amount of penalties to be assessed.[7]

II. FINDINGS OF FACT

The following facts have been established by a preponderance of the evidence:

A. Exxon and the Complex

1. ExxonMobil Chemical Company and ExxonMobil Refining and Supply Company are wholly owned subsidiaries of ExxonMobil Corporation.[8] ExxonMobil Corporation is the largest publicly traded oil company in the world as measured by market evaluation.[9] In addition, it is one of the largest publicly traded companies in the world measured by both revenue and market capitalization.[10] Total after-tax profits of ExxonMobil Corporation were $41 billion in 2011 and $44 billion in 2012.[11]

---

[7] The Court deems abandoned any argument asserted in the initial proposed finding facts and conclusions of law that was not re-urged on remand in the revised proposals or the responses thereto.

[8] *Defendant ExxonMobil Corporation, ExxonMobil Chemical Company, and ExxonMobil Refining and Supply Company's Original Answer*, ¶¶ 12–13.

[9] *Trial Transcript* at 5-61:6–9.

[10] *Trial Transcript* at 5-60:5–21.

[11] *Trial Transcript* at 5-61:11–13.

2. Exxon owns and operates the Complex, which consists of a refinery, olefins plant, and chemical plant.[12] The Complex is one of the largest and most complex industrial sites in the United States.[13] Specifically, it is the largest petroleum and petrochemical complex in the United States.[14] It sits on approximately 3,400 acres, with a circumference of approximately 13.6 miles.[15] It has the capacity to process more than 550,000 barrels of crude oil per day and to produce about 13 billion pounds of petrochemical products each year.[16] These products range from jet fuel to plastic.[17] The Complex has a vast array of equipment, including roughly 10 thousand miles of pipe, 1 million valves, 2,500 pumps, 146 compressors, and 26 flares.[18] It employs over 5,000 people.[19]

---

[12] *Defendant ExxonMobil Corporation, ExxonMobil Chemical Company, and ExxonMobil Refining and Supply Company's Original Answer*, ¶¶ 11–13.

[13] *Trial Transcript* at 3-74:21–25, 4-171:21 to 4-172:6, 4-173:3–5.

[14] *Plaintiffs' Exhibit* 556 at 25.

[15] *Trial Transcript* at 3-71:14 to 3-72:6–9, 8-50:20–22.

[16] *Trial Transcript* at 3-77:5 to 3-80:1.

[17] *Trial Transcript* at 3-56:2–18, 3-60:16–18.

[18] *Trial Transcript* at 3-24:19–21, 3-25:4–5, 3-250:5–11, 7-238:23 to 7-239:10, 3-72:20 to 3-73:24.

[19] *Trial Transcript* at 3-75:15–18.

3. The Complex is located in Baytown, Texas, which is a suburb of Houston. The nearby area in which the Complex operates is populated with numerous other refineries, petrochemical plants, and industrial facilities.[20]

B. Title V Permits

4. The Complex is governed, in part, by operating permits issued by the Texas Commission on Environmental Quality (the "TCEQ") pursuant to Title V of the CAA.[21] The Title V permits incorporate—typically by reference—numerous regulatory requirements, such as United States Environmental Protection Agency ("EPA") air pollution regulations and State of Texas air pollution regulations, as well as other permits, such as New Source Review permits and Prevention of Significant Deterioration permits.[22] Taking all permit conditions together, the Complex is regulated by over 120,000 permit conditions related to air quality, each of which is tracked by the Complex for compliance purposes.[23]

---

[20] *Trial Transcript* at 11-33:19 to 11-39:16.

[21] *Trial Transcript* at 2-207:18 to 2-208:9, 2-212:1–3; *see* 30 TEX. ADMIN. CODE § 122.142(b).

[22] *Trial Transcript* at 1-245:9–17, 2-208:13 to 2-209:13.

[23] *Trial Transcript* at 3-81:9 to 3-82:1.

C. Reportable Events, Recordable Events, and Deviations

5. Exxon documents noncompliance and indications of noncompliance with its Title V permits in three ways.[24] First, the TCEQ requires Exxon to document and submit to the TCEQ—via a State of Texas Environmental Electronic Reporting System ("STEERS") report—information about "emissions events" that release greater than a certain threshold quantity of pollutants, called "reportable emissions events."[25] Second, the TCEQ requires Exxon to document information about "emissions events" that release less than the aforementioned threshold quantity of pollutants, called "recordable emissions events;" documentation of recordable emissions events are kept on-site at the Complex and are not submitted to the TCEQ via a STEERS report.[26] Third, the TCEQ requires Exxon to document and submit to the TCEQ information about Title V "deviations" in semi-annual Title V "deviation reports."[27] It is undisputed Exxon complied with the TCEQ's aforementioned reporting and recording requirements. Plaintiffs and

---

[24] *Trial Transcript* at 2-205:13 to 2-206:14, 2-216:3–20.

[25] 30 TEX. ADMIN. CODE §§ 101.1(88), 101.201; *Trial Transcript* at 2-232:13–20, 2-236:3–24, 12-164:11–23.

[26] 30 TEX. ADMIN. CODE §§ 101.1(71), 101.201(b); *Trial Transcript* at 2-232:21 to 2-233:16, 12-164:11–23. The terms "non-reportable emissions event" and "recordable emissions event" are interchangeable.

[27] 30 TEX. ADMIN. CODE §§ 122.10(6), 122.145(2); *Trial Transcript* at 2-217:4 to 2-218:19.

Exxon stipulated to the contents of Exxon's STEERS reports of reportable emissions events, records of recordable emissions events, and Title V deviation reports covering the time period at issue in this case, which is October 14, 2005, to September 3, 2013.[28] These stipulations are contained in Excel spreadsheets spanning hundreds of pages, admitted at trial as Plaintiffs' Exhibits 1A through 7E. Specifically, at issue are 241 reportable emissions events (the "Reportable Events"), 3,735 recordable emissions events (the "Recordable Events"), and 901 Title V deviations (the "Deviations") (collectively, the "Events and Deviations" or the "Events or Deviations").[29]

D. Investigation, Enforcement, and Corrective Actions

6. The TCEQ investigates each reportable emissions event.[30] Following an investigation, the TCEQ determines whether it will initiate enforcement based, in part, on whether the event was "excessive" and whether the applicable statutory affirmative defense criteria were met.[31] Similarly, the TCEQ reviews

---

[28] *Trial Transcript* at 1-246:3–15.

[29] *Plaintiffs' Exhibits* 1A–7E.

[30] *Defendants' Exhibit* 546 at 8, ¶ 24; *Trial Transcript* at 2-241:14–21, 2-244:10–18, 4-5:21–23, 8-85:11–16.

[31] 30 TEX. ADMIN. CODE § 101.222; *Defendants' Exhibit* 546 at 3–4, ¶ 10, 4–5, ¶ 12; *Trial Transcript* at 2-242:19–25, 12-160:2 to 12-162:8; *see Trial Transcript* at 12-161:10 to 12-162:8.

the records of recordable emissions events and takes enforcement action should it determine the records reflect an inappropriate trend.[32]

7. In addition to the TCEQ's investigation, for each of the Reportable Events, Exxon conducted an extensive internal investigation, evaluated the root cause of the event, and implemented corrective actions to try to prevent recurrence.[33] Similarly, for the Recordable Events and Deviations, Exxon analyzed the records for trends and ways to improve, identified root causes, and implemented corrective actions.[34] A root cause analysis requires consideration of a number of factors, including the type of equipment involved, the component of the equipment that may have failed, and human interaction with the equipment.[35] A root cause analysis is necessary—as a factual matter in this case—to determine whether the Events and Deviations resulted from a recurring pattern, and to determine whether improvements could have been made to prevent recurrence.[36] The number of events involving a certain type of equipment, a certain unit, or a

---

[32] *Defendants' Exhibit* 546 at 5–7, ¶¶ 13–18.

[33] *Trial Transcript* at 3-114:25 to 3-117:4, 4-26:4–16.

[34] *Trial Transcript* at 3-117:5–22, 10-39:24 to 10-40:8, 10-219:11 to 10-220:13.

[35] *Trial Transcript* at 10-231:15 to 10-232:14.

[36] *Defendants' Exhibit* 546 at 6, ¶¶ 16–17.

certain type of issue (such as leaks) does not alone mean that any of the Events or Deviations resulted from a recurring pattern or were preventable.[37]

8. After investigating, the TCEQ assessed $1,146,132 in penalties against Exxon for some of the Events and Deviations.[38] In addition, Harris County assessed $277,500 in penalties for some of the Events and Deviations.[39] Thus, in total, Exxon has paid $1,423,632 in monetary penalties for Events and Deviations at issue in this case.[40] Along with those penalties, the TCEQ required Exxon to take certain corrective actions or document the corrective actions already taken.[41]

9. Moreover, after investigating, the TCEQ elected not to pursue enforcement on 97 Reportable Events because the TCEQ determined the applicable affirmative defense criteria were met.[42] Such applicable affirmative defense criteria include finding that the unauthorized emissions could not have been prevented, were not part of a recurring pattern, and did not contribute to a

---

[37] *Defendants' Exhibit* 546 at 6, ¶ 17; *Trial Transcript* at 10-232:15 to 10-233:10, 10-234:25 to 10-277:15, 11-5:17 to 11-21:18.

[38] *Plaintiffs' Exhibit* 337.

[39] *Defendants' Exhibit* 502 at 1–10.

[40] Exxon claims it has paid $2,022,288 in penalties, while Plaintiffs claim Exxon has paid $1,423,632 in penalties. After thoroughly reviewing all of the evidence submitted to support each amount, the Court finds Plaintiffs' claim ($1,423,632) to be better supported by the evidence.

[41] *E.g., Defendants' Exhibits* 472 at 3–4, 475 at 2, 486 at 2, 488 at 2.

[42] *Defendants' Exhibits* 18–20; *Trial Transcript* at 3-202:14 to 3-206:3.

condition of air pollution.[43] Also, after investigating, the TCEQ elected to pursue enforcement but not impose penalties or require further action on 55 Reportable Events because Exxon either agreed to take certain corrective actions or had already taken corrective actions.[44] An example of one such Reportable Event occurred on August 30, 2006, at the Butadiene Unit due to operator error.[45] Exxon's root cause analysis determined the event occurred because a technician misunderstood a request via radio from a computer console operator and opened the wrong valve.[46] The incorrect action was corrected within 12 minutes, and Exxon used the event as an example to its employees to reinforce the importance of effectively communicating via radio and repeating field expectations before performing action.[47] Another example of one such Reportable Event occurred on April 11, 2007, at the BOP-X Expansion Flare when the methanator shut down resulting in flaring.[48] Exxon's root cause analysis determined the methanator shut down because of a high temperature swing in the furnace crossover temperature during the feed-in of steam shortly after the furnace completed a routine decoke

[43] 30 TEX. ADMIN. CODE § 101.222.

[44] *Defendants' Exhibits* 24–29; *Trial Transcript* at 3-200:9 to 3-202:13.

[45] *Defendants' Exhibits* 26, 26E.

[46] *Defendants' Exhibit* 26E.

[47] *Defendants' Exhibit* 26E.

[48] *Defendants' Exhibits* 26, 26I.

cycle.[49] That event was the first time in the 10 years the methanator had been in service that such an incident had occurred, which was 1 out of approximately 1,000 feed-ins.[50] To prevent similar events from occurring, Exxon increased the methanator trip point from 700 to 800 degrees and modified its operating procedures in three ways: operating windows for crossover temperatures, dimethyl sulphide injection prior to feed-in, and removal of 225 pounds of steam prior to feed-in.[51]

10. The distinction the TCEQ makes between reportable emissions events and recordable emissions events demonstrates the agency's belief that emissions from recordable emissions events are less serious and less potentially harmful to human health than emissions from reportable emissions events.[52] 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.[53] Further, 58% had total emissions of 20 pounds or less, 80% had total

---

[49] *Defendants' Exhibit* 26I.

[50] *Defendants' Exhibit* 26I.

[51] *Defendants' Exhibit* 26I.

[52] *Trial Transcript* at 12-164:11–23.

[53] *Defendants' Exhibit* 1007A at 1; *see Plaintiffs' Exhibits* 1B, 2B, 2D, 2F.

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.[54] For example, Exxon tracked, as a Recordable Event, smoke that emanated from a power receptacle due to an electrical issue when an extension cord was plugged in, which lasted such a short time that the duration was recorded as 0 hours and which emitted a total of 0.02 pounds of emissions.[55] As another example, Exxon tracked, as a Recordable Event, a fire in a cigarette butt can that lasted less than one minute and emitted a total of 0.02 pounds of emissions, the corrective action for which was to pour water in the cigarette butt can.[56]

11. Of the 901 Deviations, 45% involved no emissions whatsoever.[57] The Deviations not involving emissions typically relate to late reports or incomplete reports.[58] For example, Exxon recorded, as Deviations, failure to maintain a record of a drain inspection; late submission of a report of an engine's hours of operation; and failure to perform a quarterly engine test due to engine malfunction, the

---

[54] *Defendants' Exhibit* 1007A at 2; *see Plaintiffs' Exhibits* 1B, 2B, 2D, 2F.

[55] *Plaintiffs' Exhibit* 1B at row 800; *Trial Transcript* at 10-216:17 to 10-218:6, 12-234:3–12.

[56] *Plaintiffs' Exhibit* 2D at row 2432.

[57] *Trial Transcript* at 3-118:9–13, 10-204:11–13, 10-208:1–8.

[58] *Trial Transcript* at 10-208:9 to 10-209:17; *see Plaintiffs' Exhibits* 7A–E.

corrective action for which was testing the engine upon repair and startup.[59] Of the 493 Deviations that involved emissions, 78 involved emissions occurring in the normal course of operations, and thus those emissions are not at issue in this case.[60] The emissions from the remaining 415 Deviations are categorized as either a Reportable Event or Recordable Event depending on the amount of emissions, and thus those emissions are addressed in the Court's findings related to Reportable Events or Recordable Events.[61]

E. Agreed Enforcement Order

12. On February 22, 2012, Exxon and the TCEQ agreed on an enforcement order regarding the Complex (the "Agreed Order").[62] The Agreed Order, inter alia: (1) resolved enforcement for certain past reportable emissions events; (2) established stipulated penalties for future reportable emissions events, while precluding Exxon from asserting the applicable affirmative defense; (3) required specified emissions reductions; and (4) mandated implementation of 4

---

[59] *Plaintiffs' Exhibit* 7C at row 36, 142; *Trial Transcript* at 10-207:1–7.

[60] *Trial Transcript* at 10-209:18 to 10-210:1.

[61] *Trial Transcript* at 10-203:11 to 10-204:10, 10-210:7–12.

[62] *Defendants' Exhibit* 222.

environmental improvement projects.[63] The environmental improvement projects are as follows:

> a. Plant Automation Venture. Install computer applications to improve real-time monitoring, identification, diagnostics and online guidance/management of operations. The project is intended to provide early identification of potential events and/or instrumentation abnormalities, allowing proactive response.
>
> * * *
>
> b. Fuels North Flare System Monitoring/Minimization. . . . Additional instrumentation, including monitoring probes and on-line analyzers are intended to improve the identification and characterization of flaring events. The development of flare minimization practices . . . are intended to reduce loads on the flare system.
>
> * * *
>
> c. BOP/BOPX Recovery Unit Simulators. Develop, implement and use high-fidelity process training simulators . . . intended to improve operator training and competency, resulting in reduced frequency and severity of emissions events.
>
> * * *
>
> d. Enhanced Fugitive Emissions Monitoring. . . . The program will use infrared imaging technology to locate potential VOC and HRVOC leaks. . . .[64]

The Agreed Order states these projects "will reduce emissions at the Baytown Complex, including emissions from emissions events . . . ."[65] Indeed, the Agreed Order requires certain amounts of emissions reductions.[66] Exxon could not have

---

[63] *Defendants' Exhibit* 222 at ¶¶ I.13, III.3, III.4, III.10, III.12; *Trial Transcript* at 3-32:25 to 3-40:5, 12-205:15 to 12-207:8.

[64] *Defendants' Exhibit* 222 at ¶ III.12.

[65] *Defendants' Exhibit* 222 at ¶ III.12.

[66] *Defendants' Exhibit* 222 at ¶ III.10.

been required to undertake these projects under existing laws and regulations.[67] Implementation of these projects will cost approximately $20,000,000.[68] They must be implemented within 5 years of the date of the Agreed Order, and Exxon must submit semi-annual reports to the TCEQ that provide information on the progress of these projects.[69] In addition, Exxon must submit annual reports to the TCEQ that identify emissions reductions, including "an explanation of how recent air emissions performance continues the overall emissions reduction trends at the Baytown Complex," and provide information on activities undertaken to improve environmental performance.[70]

F. Efforts to Improve Environmental Performance and Compliance

13. The Complex has a governing philosophy that all employees work toward plant reliability and environmental compliance.[71] It has a Safety Security Health and Environmental ("SSHE") group comprised of approximately 75 employees, including approximately 30 dedicated to environmental compliance,

---

[67] *Defendants' Exhibit* 222 at ¶ III.12; *Trial Transcript* at 3-190:6–24, 12-177:12 to 12-178:6.

[68] *Trial Transcript* at 3-32:25 to 3-40:5.

[69] *Defendants' Exhibit* 222 at ¶¶ III.12, 13.

[70] *Defendants' Exhibit* 222 at ¶ III.14.

[71] *Trial Transcript* at 3-82:2 to 3:83:20, 3-273:20 to 3-274:20.

with an annual budget of $25 million in 2014.[72] Over the past several years Exxon has spent more than $1 billion on regulatory compliance and environmental improvement projects at the Complex.[73] Specifically, for the years at issue in this case, Exxon spent the following on maintenance and maintenance-related capital projects at the Complex: $464 million in 2005, $539 million in 2006, $519 million in 2007, $599 million in 2008, $642 million in 2009, $598 million in 2010, $583 million in 2011, $607 million in 2012, and $685 million in 2013.[74]

14. The Complex employs a wide variety of emissions-reduction equipment such as wet gas scrubbers, selective catalytic reduction, amine treating towers, flares, flare gas recovery systems, external floating roof tanks, sulfur recovery units, a regenerative thermal oxidizer, and more than one hundred low nitrogen oxide ("NO_x") burners; the Complex also employs emissions-detection equipment such as continuous emissions monitoring systems and forward-looking infrared cameras.[75] Approximately half of the flares at the Complex are connected to flare gas recovery compressors.[76] All of the flares have flow rate velocity

---

[72] *Trial Transcript* at 2-195:1–2, 2-203:8–12, 3-89:22 to 3-90:9, 12-214:19 to 12-215:5, 12-226:4–13.

[73] *Trial Transcript* at 12-239:22 to 12-240:6.

[74] *Defendants' Exhibit* 413.

[75] *Trial Transcript* at 10-47:5 to 10-78:19.

[76] *Trial Transcript* at 10-56:13–16.

meters and are monitored for vent gas heat content, and Exxon takes steps to ensure each flare operates in compliance with applicable regulatory requirements.[77] Exxon has also generated and implemented a flare minimization plan to reduce flaring at the Complex.[78] Further, Exxon's maintenance policies and procedures conform or exceed industry standards and codes.[79]

15. Both the TCEQ and the EPA recognize it is not possible to operate any facility—especially one as complex as the Complex—in a manner that eliminates all emissions events and deviations.[80] Despite good practices, at any industrial facility there will always be mechanical failure and human imperfection leading to noncompliance with Title V permit conditions.[81]

G. Improvement

16. In the Agreed Order, the TCEQ recognized the Complex's historical reductions in emissions when making the following finding of fact:

---

[77] *Trial Transcript* at 10-61:5–17.

[78] *Trial Transcript* at 12-231:16 to 12-232:1.

[79] *Trial Transcript* at 7-225:3–14, 11-274:25 to 11-275:7, 12-15:4 to 12-16:9, 12-20:15–20, 12-25:14–25, 12-26:16–23.

[80] *Defendants' Exhibit* 190 at 7–8, 14–15; *Defendants' Exhibit* 546 at 11, ¶¶ 32–34; *Trial Transcript* at 3-112:2–8.

[81] *Defendants' Exhibit* 190 at 7–8, 14–15; *Defendants' Exhibit* 546 at 11, ¶¶ 32–34; *Trial Transcript* at 3-112:2–8.

> The annual emissions inventory reports that ExxonMobil has submitted for the Baytown Complex under 30 TEX. ADMIN. CODE § 101.10 reflect a positive trend of reductions in actual emissions, including unauthorized emissions associated with emissions events and scheduled MSS activities, from Baytown Complex. From 2000 to 2010, ExxonMobil has reported a 60 percent reduction in aggregate emissions of VOC, HRVOC, CO, S02 and NO_x from the Baytown Complex. Over that same time period, reported emissions of VOC from the Baytown Complex have dropped by 44 percent, reported emissions of CO have dropped by 76, and reported emissions of NO_x have dropped by 63 percent.[82]

Likewise, evidence in this case shows the total amount of emissions at the Complex generally declined year-to-year over the years at issue in the case.[83] In addition, the annual amount of unauthorized emissions of criteria pollutants at the Complex decreased by 95% from 2006 to 2013.[84] Similarly, the annual number of Reportable Events that occurred at the Complex decreased by 81% percent from 2005 to 2013.[85] Flaring at the Complex has been reduced by 73% since 2000.[86]

---

[82] *Defendants' Exhibit* 22 at ¶ I.12.

[83] *Defendants' Exhibits* 1004, 1008.

[84] *Defendants' Exhibit* 1002. Under the CAA, the EPA establishes minimum air quality levels in the form of "national ambient air quality standards" for six pollutants (known as "criteria pollutants") to protect public health. 42 U.S.C. § 7409. The six criteria pollutants are sulfur dioxide, particulate matter, carbon monoxide, ozone, oxides of nitrogen/nitrogen dioxide, and lead. 40 C.F.R. §§ 50.4–17.

[85] *Defendants' Exhibit* 1000 at 1.

[86] *Defendants' Exhibit* 547 at 12:11–12.