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Exploring the History of Charging and Sentencing Patterns in U.S. Clean Air Act Criminal Prosecutions

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EXPLORING CHARGING AND SENTENCING PATTERNS IN U.S. CLEAN AIR ACT CRIMINAL PROSECUTIONS

ABSTRACT

The institutionalization of criminal investigation and prosecution of companies and individuals that violate federal clean air laws has been ongoing for almost four decades. Yet our empirical understanding of how defendants are criminally prosecuted and sanctioned under the U.S. Clean Air Act is mostly unknown. Our goal is to analyze historical charging and sentencing patterns in Clean Air Act criminal prosecutions and show the broader themes that emerge over time. Through content analysis of all 2,588 criminal prosecutions resulting from U.S. EPA criminal investigations, 1983-2019, we select all 377 prosecutions focusing on Clean Air Act violations. Findings suggest that prosecutions focus on six primary themes: asbestos related crimes, vehicle emissions fraud, false reporting, renewable fuel credit fraud, negligent operations, and trade in restricted refrigerants. Defendants were cumulatively sentenced to roughly $3.6 billion in fines, 16,000 months of probation, and 7,600 months of incarceration.

I. POLICING AND PROSECUTING ENVIRONMENTAL CRIMES

The systematic federalization of environmental law began to take hold in conjunction with the nation's first Earth Day on April 22, 1970. By July 9, 1970 the Environmental Protect Agency ("EPA") was established. A great deal of significant environmental legislation was passed soon after which laid the foundation for modern federal environmental law in the United States. These include: the National Environmental Policy Act ("NEPA"), the Clean Air Act ("CAA"), the Clean Water Act ("CWA"), the Federal Insecticide, Fungicide, and Rodenticide Act ("FIFRA"),

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the Endangered Species Act ("ESA"), the Safe Drinking Water Act ("SDWA"), the Resource Conservation and Recovery Act ("RCRA"), and the Toxic Substance Control Act ("TSCA"). [1]

The CAA gives the EPA regulatory enforcement authority over air emissions from stationary and mobile sources in the United States. One of the initial paths to begin enforcing this authority was to set National Ambient Air Quality Standards ("NAAQS") for six criteria pollutants including sulfur oxides (SO_X), atmospheric particulate matter (PM_{10} and $PM_{2.5}$), carbon monoxide (CO), ozone (O_3), nitrogen oxides (NO_x), and lead (Pb). Setting such standards began a process of regulating these harmful air emissions and requiring states to issue State Implementation Plans ("SIPs") to help achieve these standards.[2] The CAA was subsequently amended in 1977 and 1990 as NAAQS standards were not attained in many parts of the U.S. and these amendments gave the agency extended authority to require the maximum reduction in air emissions possible with Maximum Achievable Control Technology ("MACT") standards.[3]

The EPA has broad authority to regulate the permitting of emissions at a variety of stationary sources, which allows the agency to craft New Source Review ("NSR") and Prevention of Significant Deterioration ("PSD") standards requiring a variety of industrial entities to install pollution controls when they build or modify existing entities.[4] Common examples include power plants, fertilizer plants, glass manufacturing plants, cement manufacturing plants, and petroleum refineries. The agency also uses the CAA to develop emissions standards for a variety of vehicles and related parts. This authority is used to insure imported and domestic vehicles meet emissions standards and to regulate the formulation and standards for transportation fuel.[5] Emissions from ocean going vessels are able to be regulated through the CAA, as well as through related authority under The International Convention for the Prevention of Pollution from Ships ("MARPOL") and the Act to Prevent Pollution from Ships ("APPS").[6]

The EPA must engage in compliance monitoring to ensure regulated entities obey the law and investigations and enforcement actions are required when individuals and companies refuse to comply with regulations. By the late 1970s, the EPA and DOJ realized that enhanced enforcement tools were necessary to ensure compliance with federal environmental laws, such as the CAA. This need led to the creation of the EPA's Office of Environmental Enforcement in 1981—now the Office of Criminal Enforcement ("OCE") and the Department of Justice's ("DOJ")

1. *See* 42 U.S.C. §§ 4321–4370 (2018); 42 U.S.C. §§ 7401–7671 (2018); 33 U.S.C. §§ 1251–1288 (2018); 7 U.S.C. § 136 (2018); 16 U.S.C. §§ 1531–1544 (2018); 42 U.S.C. § 300 (2018); 42 U.S.C. §§ 6901–6992 (2018); 42 U.S.C. §§ 2601–2697 (2018).

2. *Cf.* 40 C.F.R. § 51 (2020).

3. *Summary of the Clean Air Act*, U.S. ENVTL. PROTECTION AGENCY (last updated Aug. 6, 2020), https://www.epa.gov/laws-regulations/summary-clean-air-act.

4. *New Source Review (NSR) Permitting*, U.S. ENVTL. PROTECTION AGENCY (last updated Feb. 8, 2019), https://www.epa.gov/nsr/prevention-significant-deterioration-basic-information.

5. *Regulations for Emissions from Vehicles and* Engines, U.S. ENVTL. PROTECTION AGENCY (last updated Dec. 18, 2020), https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-onroad-vehicles-and-engines.

6. *See Air Enforcement*, U.S. ENVTL. PROTECTION AGENCY (last updated Dec. 4, 2020), https://www.epa.gov/enforcement/air-enforcement.

Environmental Crimes Section ("ECS") in 1982.[7] With the development of these offices the EPA was able to begin institutionalizing a process for the consistent use of criminal enforcement tools to investigate and punish chronic and serious infractions of federal environmental statutes and related criminal acts.[8]

The development of criminal provisions in federal environmental can be traced to the Rivers and Harbors and Lacey Acts, which made it illegal to obstruct, alter, or discharge into the navigable waters of the United States and made illegal the unpermitted interstate trade in wildlife.[9] It was not until the Hazardous and Solid Waste Amendments to RCRA in 1984 that felony provisions were added to federal environmental statutes.[10] Prompted by an era where Congress emphasized sentencing reform and stiffer penalties for all manner of federal crimes, felony provisions were added to the CWA in 1987, the CAA in 1990, and today felony provisions are comment in major federal environmental statutes.[11]

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7. *See* Earl E. Devaney, *The Evolution of Environmental Crimes Enforcement at the United States Environmental Protection Agency*, 1 THIRD INTERNATIONAL CONFERENCE ON ENVIRONMENTAL ENFORCEMENT 457, 457 (1994), https://inece.org/assets/Publications/57a8be53a90ea_SpecialTopicTheEvolutionOfEnvironmentalCrimes_Full.pdf; *Creation of ECS*, U.S. DEPT. OF JUSTICE (last updated May 5, 2015), https://www.justice.gov/enrd/creation-ecs. *See generally* John F. Cooley*, Multi-Jurisdictional and Successive Prosecution of Environmental Crimes: The Case for a Consistent Approach*, 96 J. CRIM L. & CRIMINOLOGY, 435, 437 (2006).

8. *See History*, U.S. DEP'T OF JUST. ENVTL. AND NAT. RES. DIVISION (last updated June 19, 2019) https://www.justice.gov/enrd/history (describing the DOJ'S Environmental and Natural Resources Division (ENRD), which houses ECS, finds its historical roots in the founding of the Public Lands Division in 1909); *see also Historical Development of Environmental Criminal Law,* U.S. DEP'T OF JUST. ENVTL. CRIMES SECTION (last updated May 13, 2015), https://www.justice.gov/enrd/about-division/historical-development-environmental-criminal-law; JOHN PETER SUAREZ, MANAGEMENT REVIEW OF THE OFFICE OF CRIMINAL ENFORCEMENT, FORENSICS AND TRAINING 7 (discussing the culture of CID and its law enforcement orientation); *U.S. Environmental Protection Agency Criminal Enforcement Program: America's Environmental Crime Fighters*, U.S. ENVTL. PROTECTION AGENCY (last visited Apr. 12, 2021), https://www.epa.gov/sites/production/files/documents/oceftbrochure.pdf; *Environmental Crimes Section*, U.S. DEP'T OF JUST. ENVTL. CRIMES SECTION (last updated Jan. 21, 2021), https://www.justice.gov/enrd/environmental-crimes-section; *EPA CID Agent Count*, PUB. EMPLOYEES FOR ENVTL. RESPONSIBILITY (PEER) (last visited Apr. 12, 2021), https://www.peer.org/wp-content/uploads/2019/11/11_21_19-Federal_Pollution_EPA_CID_Agent_Count.pdf (CID currently employs some 145 criminal investigators, also known as special agents, to police environmental crimes throughout the United States. The Pollution Prosecution Act of 1990 (P.L. 101-593) created a statutory minimum at 200 investigative staff for EPA-CID. Meeting this threshold has not occurred for years. ECS employs about 43 staff attorneys and a dozen support staff to prosecute environmental crimes.).

9. 33 U.S.C. § 403 (1947); 16 U.S.C. § 3371 (2008); *see also* Neil J. Barker, *Sections 9 and 10 of the Rivers and Harbours Act of 1899: Potent Tool for Environmental Protection,* 6 ECOLOGY L. Q. 109, 109–15 (1976).

10. David T. Barton, *Corporate Officer Liability Under RCRA: Stringent but not Strict*, 1991 BYU L. Rev. 1547, 1548–50 (1991) (Prior to these amendments it was difficult to hold corporate officers accountable for hazardous waste violations and the changes opened up a series of avenues to help prosecute corporations and their officials for environmental crimes.); *see also* Richard J. Lazarus, *Assimilating Environmental Protection into Legal Rules and the Problem with Environmental Crime*, 27 LOY. L.A. L. REV. 867, 86770 (1994) (The question of how prosecutors would use their discretion within these expanded statutes caused a series of arguments back and forth regarding the legality and precedent of such action.).

11. Judson W. Starr, *Turbulent Times at Justice and EPA: The Origins of Environmental*

Seeking civil remedies such as civil administrative actions or civil judicial actions can be handled internally and result in a range of punishments including civil penalties, injunctive relief, settlements, or Administrative Orders of Consent ("AOCs"), required mitigation plans, restitution, or Supplemental Environmental Projects ("SEPs") that require the violator to perform specific action.[12] Due to the cost of criminal prosecution and nature of most violations, the EPA greatly emphasizes administrative penalties or civil remedies over criminal enforcement.[13] The agency tends to pursue criminal prosecution for a select set of more serious or chronic offenders.[14] Civil remedies attempt to bring a violator into compliance with the law, whereas criminal enforcement focuses on punishing and deterring environmental crimes.[15] Investigations tend to involve cooperation and collaboration among prosecutors, law enforcement officials, regulators, laboratories, and legislators.[16] The EPA must also rely on U.S. Attorneys or the Department of Justice to charge and prosecute offenders, which requires an additional level of cooperation.[17]

There is extensive research on how the EPA makes rules and regulations under the CAA and enforces them through civil action. However, there is limited understanding of how the agency uses its criminal enforcement tools to ensure

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Criminal Prosecutions and the Work that Remain, 59 GEO. WASH. L. REV. 900, 900–02 (1991) (Congress first complained that CID and ECS were not doing enough to prosecute criminals and then the narrative changes in the 1990s that they were overreaching. Federal environmental law enforcement was institutionalized in the 1980s, but the idea of holding corporations and other powerful entities responsible for environmental crimes and seeking significant punishments failed to become a consistent bipartisan issue in Congress.); *see also* Theodora Galactos *The United States Department of Justice Environmental Crimes Section: A Case Study of Inter- and Intrabranch Conflict over Congressional Oversight and the Exercise of Prosecutorial Discretion*, 64 FORDHAM L. REV. 587, 590 (1995).

12. *See Basic Information on Enforcement*, U.S. ENVTL. PROTECTION AGENCY (last updated Jan. 13, 2021), https://www.epa.gov/enforcement/basic-information-enforcement [hereinafter *Basic Information on Enforcement*].

13. *See* David M. Uhlmann, *Environmental Crime Comes of Age: The Evolution of Criminal Enforcement in the Environmental Regulatory Scheme*, 4 UTAH L. REV. 1223 (2009); *see also* Kathleen F. Brickey, *Charging Practices in Hazardous Waste Crime Prosecutions,* 62 OHIO ST. L. J. 1077 (2001); Evan J. Ringquist and Craig E. Emmert, *Judicial Policymaking in Published and Unpublished Decisions: The Case of Environmental Civil Litigation,* 52 POL. RES. Q. 7, 12-13 (1999).

14. *See* Kathleen F. Brickey, *Environmental Crime at the Crossroads: The Intersection of Environmental and Criminal Law Theory,* 71 TUL. L. REV. 487, 494–95 (1996); Melissa L. Jarrell & Joshua Ozymy, *Few and Far Between: Understanding the Role of the Victim in Federal Environmental Crime Cases*, 61 CRIME, L. & SOC. 563, 569 (2014); *see also* Michael M. O'Hear, *Sentencing the Green-Collar Offender: Punishment, Culpability, and Environmental Crime*, 95 J. OF CRIM. L. & CRIMINOLOGY 133 (2004).

15. *See Basic Information on Enforcement*, *supra* note 12; *see also* Michael J. Lynch, *The Sentencing/Punishment of Federal Environmental/Green Offenders, 2000-2013*, 38 DEVIANT BEHAVIOR 991, 991–95 (2017).

16. THEODORE M. HAMMETT & JOEL EPSTEIN, LOCAL PROSECUTION OF ENVIRONMENTAL CRIME (1993); *see also* Joel A. Mintz, *Treading Water: A Preliminary Assessment of EPA Enforcement During the Bush II Administration*, 34 ENVTL L. REP., 10912 (2004).

17. *See* Joel A. Mintz, *Some Thoughts on the Interdisciplinary Aspects of Environmental Enforcement,* 36 ENVTL L. REP., 10495 (2006) (for a discussion of the interdisciplinary nature of environmental law enforcement).

compliance with the CAA.[18] In this study, this gap of information is addressed by exploring charging and sentencing patterns in federal CAA prosecutions. By analyzing the EPA's prosecution case summaries from 1983-2019, the veritable history and chart the evolution of how the CAA has been legally interpreted and used as a tool to prosecute federal environmental crimes and enforce federal clean air statutes is explored.

II. DATA

Data was collected from the EPA *Summary of Criminal Prosecutions* database.[19] EPA databases, organized by fiscal year, were searched starting with the first case available in 1983 through the last case as of January 1, 2020. The following categories of data were coded during content analysis of these case summaries: summary information on the nature of the crime, year, docket number, state, major environmental and non-environmental charging statutes used, number of defendants, whether the defendants were individuals and/or companies, penalties assessed, and whether each case involved a death and/or injury to humans or animals that was clearly discussed in the case narratives. If the case was prosecuted under the CAA, it was selected for the analysis. A total of 2,588 cases were analyzed, which yielded 377 complete CAA cases for analysis. As the OCE and ECS were founded in the years prior to 1983, this represents a fairly full accounting of CAA prosecutions.

This approach is limited to the extent that only EPA cases entered into the database can be analyzed. If the EPA failed to include a case, it was not coded and included in the analysis below. Additionally, other agencies can undertake environmental criminal prosecution as well. The roles of different agents, such as the prosecutor or investigators, in the cases is unknown. This information is limited to the prosecution summaries. The U.S. Government's fiscal year runs October-September, therefore a full analysis of Fiscal Year 2019 was not complete as the authors completed the analysis on the first day of calendar year 2020. One can use various search criteria to explore the database, including state, statute, year, etc. However, searching by fiscal year going case by case was the most accurate method to catalog all of the appropriate CAA cases (other methods such as searching by statute did not consistently capture all of the cases.)

Coding protocols were developed by examining cases through fiscal year 2005. The protocol was piloted for four weeks with two coders until 90% accuracy on inter-coder reliability was achieved. Two individuals coded cases independently with one of the authors reviewing for discrepancies, which were then discussed among the group to find consensus. The most common point of disagreement came

18. Wayne B. Gray and Jay P. Shimshack, *The Effectiveness of Environmental Monitoring and Enforcement: A Review of the Empirical Evidence*, 5 REV. OF ENVTL. ECON. & POL'Y 1, 1 (2011); *c.f.* Michael J. Lynch, *The Sentencing/Punishment of Federal Environmental/Green Criminal Offenders, 2000-2013,* 38 DEVIANT BEHAV. 991, 1002-1003 (2017)*;* Joshua Ozymy and Melissa L. Jarrell, *Why do Regulatory Agencies Punish? The Impact of Political Principals, Agency Culture, and Transaction Costs in Predicting Environmental Criminal Prosecution Outcomes in the United States*, 33 REV. OF POL'Y RES. 72 (2016).

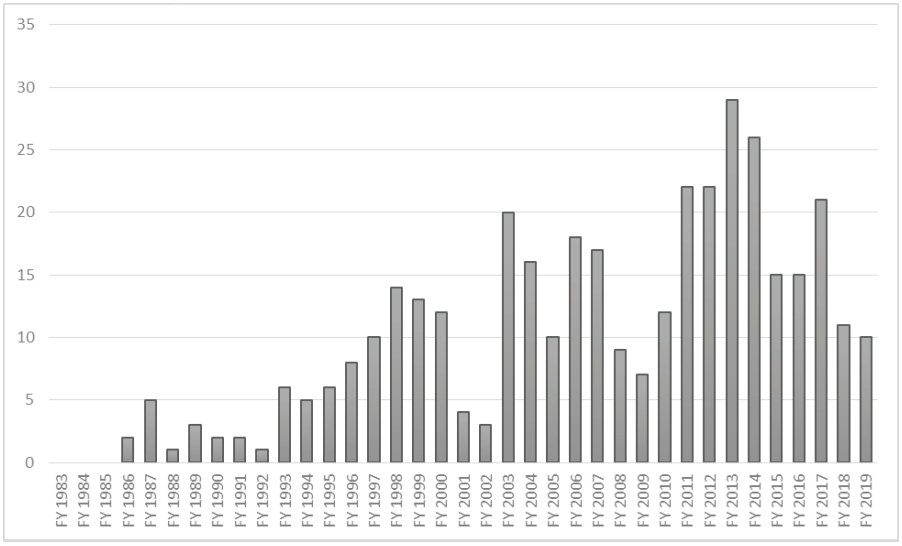
19. *See Summary of Criminal Prosecutions Database*, U.S. ENVTL. PROTECTION AGENCY (last updated Apr. 9, 2021), https://cfpub.epa.gov/compliance/criminal_prosecution/index.cfm.

with complex sentences handed down in cases with multiple defendants. The level of agreement for coding was approximately 95% by dividing the agreed upon items by total items coded in the dataset.[20]

III. RESULTS

Figure 1 provides an overview of the number of total CAA prosecutions adjudicated by EPA fiscal year, 1983-2019. In the 1980s, we do not see a prosecution adjudicated until 1986, with 11 total prosecutions during the decade. Total prosecutions grow with time through the 1990s (67), 2000-09 (116), and 2010-19 (183). Prosecutions likely grew with the institutionalization and professionalization of the criminal enforcement process. As the precursor to the OCE was only formed a year prior to the data, it takes time to cooperate with federal prosecutors and other state, local, and federal law enforcement agencies on investigations, prosecutions, and to properly utilize key federal statutes to successfully prosecute environmental criminals and this is likely reflected in the data.

Figure 1. Total U.S. Clean Air Act Criminal Prosecutions Adjudicated by EPA Fiscal Year, 1983-2019.

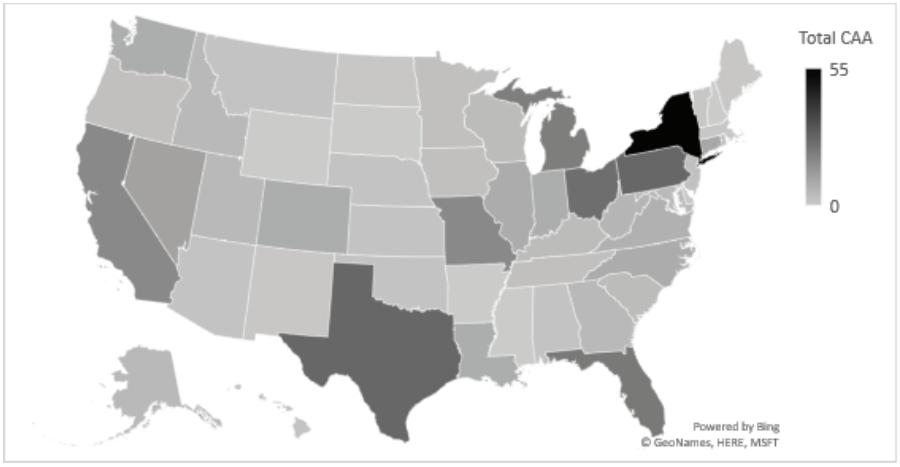


Source: *EPA Summary of Criminal Prosecutions Database*

Figure 2 displays the total prosecutions by state graphically. These CAA prosecutions range from 0-55 with Texas, Florida, and New York's dark shading representing a greater number of prosecutions and South Dakota and Wyoming fewer prosecutions. Prosecutors also pursued cases in Washington D.C. and Puerto Rico.

20. *See* OLE R. HOLSTI, CONTENT ANALYSIS FOR THE SOCIAL SCIENCES AND HUMANITIES 140 (1969).

Figure 2. Total U.S. Clean Air Act Criminal Prosecutions Adjudicated by U.S. State, 1983-2019.



Source: *EPA Summary of Criminal Prosecutions Database*

Table 1 shows the distribution of prosecutions by U.S. State, totaling all prosecutions by state in the first column. In some cases, other federal environmental statutes are used to charge and prosecute defendants. These are included in the adjacent column for CAA plus CWA, then CAA plus TSCA, RCRA, CERCLA, and FIFRA. A handful of states were found where no prosecutions take place over the last 37 years including Arkansas, Mississippi, New Hampshire, South Dakota, and Wyoming. The average number of prosecutions across the states is about 7.5 annually during this period. A few states dominate the total number of prosecutions, including California (18), Florida (22), Michigan (21), Ohio (25), Pennsylvania (27), and Texas (27). A total of 55 cases were prosecuted in New York, which represents approximately 15% of cases occurring in the states. Two prosecutions in Washington D.C. and Puerto Rico respectively were found. In 14 cases, defendants were prosecuted under CAA + CERCLA, and in 8 cases CAA + CWA or TSCA. In 4 cases CAA + RCRA was used.

Table 1. Total U.S. Clean Air Act Criminal Prosecutions by U.S. State and Territory Plus Additional Charging Statutes, 1983-2019.

State	CAA	+ CWA	± TSCA	± RCRA	± CERCLA	± FIFRA
AK	5					
AL	2	1				
AR	0					
AZ	2					
CA	18					1
CO	8			1		
CT	10					

DE	1	1			
FL	22				
GA	5				
HI	2				
IA	3				
ID	5				
IL	9		1		
IN	8				
KS	2				
KY	4		1		1
LA	8				
MA	1				
MD	5	1	1		
ME	1				
MI	21				
MN	3			1	
MO	18		1		
MS	0				
MT	2				1
NC	9				
ND	1				
NE	2				
NH	0				
NJ	3	1			
NM	1				
NV	11				
NY	55	1	2	2	5
OH	25				2
OK	2				
OR	3				
PA	27		1		3
RI	3	1	1		1
SC	4				
SD	0				
TN	3				
TX	27				

UT	5					
VA	7					
VT	1					
WA	8	1				
WI	4					
WV	6					
WY	0					
DC	2					
PR	2				1	
*	1	1				
Total	377	8	8	4	14	1

Source: *EPA Summary of Criminal Prosecutions Database* *Note: In one prosecution the U.S. state where the case took place cannot be determined.

A case example of CAA + CWA was the 2002 prosecution of principal defendant John Daniel Bell in Alabama. Bell along with co-defendant Koppers Industries were charged for violations of the CAA and CWA. In the case, Bell, the environmental manager at the Woodward Coke Plant in Dolomite, Alabama, instructed employees to tamper with the plant's monitoring methods. Bell was sentenced to 36 months of probation, ordered to pay a $2,000 fine and a $100 special assessment fee. Koppers was sentenced to 36 months of probation, a $2.1 million fine, restitution of $900,000, and a special assessment fee of $1,200.[21]

A CAA + CERLA prosecution example was the 2000 prosecution of Nicholas LaPenta and NPLA Corporation in Syracuse, New York. LaPenta was the owner of Antonio's restaurant and illegally removed asbestos, did not report the removal, and gave false statements to investigators concerning the removal. He was charged under CERCLA with failure of a person in charge of a facility to notify authorities of the removal of a hazardous substance, one knowing violation of the CAA for the release of the material, and false statements. LaPenta paid a $5,000 fine and the company was fined $20,000.[22] A CAA + TSCA example was another illegal asbestos removal case against Ambers Scott Rind. Rind illegally removed asbestos from a facility in Martinsburg, West Virginia and disposed of it on a nearby farm. Rind was prosecuted for the illegal removal and disposal of the asbestos under the CAA and TSCA, as well as for making false statements. The defendant was sentenced to 36 months of probation, a $5,000 fine and ordered to pay $25 in fees.[23]

Gerald Cohen was sentenced in New York in 2010 under the CAA + RCRA for illegal storage of hazardous waste (RCRA) and illegal operation of diesel engines

21. United States v. Koppers, CR-02-S-0300-S (N.D. Alabama 2003) (Bell falsified DMR's and directed employees to tamper with the monitoring methods used at the plant).

22. United States v. LaPenta, 00-CR-67 (N.D. New York 2000) (LaPenta removed asbestos from a food storage location at the restaurant without inspecting the facility for the presence of asbestos).

23. United States v. Rind, CR:04-JUN-2002 (N.D. West Virginia 2003).

without a permit (CAA) at his company Lawrence Aviation (co-defendant in case). Cohen was sentenced to 12 months and a day incarceration, 36 months of probation, and to pay restitution in the amount of $105,816.[24]

A CAA + FIFRA case involved David Grummer, who was prosecuted and sentenced in 2010 in California.[25] Grummer was a manager for an environmental services company that contracted with the city of San Diego to manage household hazardous waste collection facilities. He diverted chemicals and pesticides to sell online for personal profit via FedEx and did not properly label the packages as hazardous materials. In executing a search warrant for violation of the environmental regulations, federal officials found child pornography on Grummer's computer. He was charged with the unlawful use of a pesticide (FIFRA), sale of a Class I ozone depleting substance to an uncertified individual (CAA), a HazMat violation for transporting hazardous waste via FedEx without a proper declaration, and receipt and possession of child pornography. On February 23, 2009 Grummer was sentenced to 18 months incarceration, 36 months of probation, a $3,000 fine, and $92,410 in restitution on the environmental charges alone.[26]

Table 2 examines common criminal charges found in the prosecutions, many of which were Title 18 violations. Some were investigated by the EPA, but ultimately defendants were prosecuted for state-level crimes.[27] In 78 cases, or 21% of the data, defendants were charged with false statements. A common case example is that of defendant Terry Conklin prosecuted in New York and sentenced in 1999. Conklin illegally removed asbestos and buried it before a new concrete floor was poured over the dumpsite. He was charged with making false statements in conjunction with the crime, CAA violations, and CERCLA violations for the illegal disposal. He was sentenced to 10 months incarceration and a $12,000 fine.[28]

Another example of a Title 18 violation being combined with CAA charges stems from the case settled in 1995 in Ohio against the Wastebestos Construction Company and related defendants. As the company name suggests, it was in the business of asbestos abatement and removed asbestos from a City of Cleveland Parks and Recreation Facility in July 1992. They illegally dumped 300 bags of asbestos in a ravine and the defendants were charged with obstruction and false statements for concealing the crime and a CAA violation for the illegal disposal. The associated defendants, Frank Ljubec and Rose Dumas, were collectively sentenced to 48

24. United States v. Cohen, No.2:06-CR-0596 (E.D. N.Y. Sept. 6, 2006) (Cohen was sentenced to 12 months and a day incarceration, 36 months of probation, and was ordered to pay $105,816 to the EPA).

25. United States v. Grummer, No. 08CR4402-DMS (S.D. Cal. Apr. 24, 2008) (Grummer plead guilty to one misdemeanor FIFRA count, one felony CAA count, and one felony count of violating the Hazardous Materials Transportation statute. Grummer was sentenced in 2010).

26. *Id.* (Grummer was sentenced to 18 months incarceration, 36 months of probation, required to pay a $3,000 fine, and required to pay $92,410 in restitution on the environmental charges).

27. 18 U.S.C. § 6005 (2021).

28. United States v. Conklin, No. CR 98 CR-428 (W.D. N.Y. Oct. 1, 1998) (Conklin was charged for illegally removing asbestos from a location in New York and burning the asbestos on the site. He was also with making false statements in conjunction with the crime and was sentenced to 10 months incarceration and a $12,000 fine).

months of probation, six months home detention, and to pay special assessment fees totaling $100.[29]

Table 2. Common Criminal Charges in U.S. Clean Air Act Criminal Prosecutions, 1983-2019.

Statute	Number of Cases	Percentage of Total
False Statements*	78	21%
Conspiracy	69	18%
Fraud**	31	8%
Smuggling	10	3%
Obstruction	8	2%
Bribery	3	1%

Source: EPA Summary of Criminal Prosecutions Database. Note: *In three case summaries defendants are guilty of false information, making false declarations, and falsifying records. We count these in the false statements category; otherwise there would be 75 total cases. **Includes multiple types of fraud including wire fraud, Social Security Fraud, and Mail Fraud. Percentages are rounded. Defendants in a case may be charged with multiple violations.

In 18% of the cases in the dataset, or 69 total cases, we found the defendants charged with conspiracy. An example case is that against Louisiana Pacific Corporation, Dana Francis Dulohery, and Robert Russell Mann, Jr, which settled in Colorado. In 1991-92, the defendants tampered with air emissions controls and falsified emissions reports to conceal that the company had exceeded its discharge permits. The defendants were charged with conspiracy, fraud, wire fraud, false statements, and the CAA violation for tampering with emission controls, submitting false reports, and conspiring to conceal the crime. The company was sentenced to 60 months of probation, $235,000 in restitution, $500,000 in community project fines and $36.5 million in other fines so that total fines equaled $37 million. Mann was sentenced to six months incarceration, 36 months of probation and fined $10,000. Dulohery was sentenced to 10 months incarceration, 36 months of probation and fined $15,000.[30]

In 8% of cases defendants were charged with fraud. In a case settled in Florida in 1995, Daniel J. Fern was prosecuted for a "rip and run" asbestos removal, where he removed asbestos containing material from a 196-room hotel without properly wetting it, providing proper equipment for workers, or providing air monitoring. Mr. Fern was prosecuted for fraud, witness tampering (Title 18

29. United States v. Wastebestos Construction Co., No. CR-92-V-3-4 (N.D. Ohio May 18, 1993) (Wastebestos performed an asbestos abatement project and disposed 300 bags of asbestos by tossing them into a ravine. Dumas was sentenced to 12 months of probation and a special assessment of $50 and Ljubec was sentenced to six months home detention, 36 months of probation, and a special assessment fee of $50).

30. United States v. Louisiana Pac. Corp., No. 95-CR-215 (D. Colo. June 14, 1995) (Defendants conspired to tamper with air emission control equipment and conspired to falsify emission report data to state and federal regulators. Mann was sentenced to six months incarceration, 36 months of probation and fined $10,000 and Dulohery was sentenced to 10 months incarceration, 36 months of probation and fined $15,000).

violation), and the illegal removal and disposal under the CAA. He was sentenced to 138 months incarceration and to pay a $400 special assessment fee.[31]

In 3% of cases, defendants were charged with smuggling.[32] An example case settled in 2003 in Michigan involved the principal defendants, Michael James Dolmetsch, Max Wagerman III, and Ronald Simon.[33] In the case, the defendants

31. United States v. Fern, No. CN:94-233-CR-GRAHAM (S.D. Fla. May 27, 1994) (The owner of Air Environmental Research and the owner of the hotel conspired to defraud an insurance company by making false claims of widespread asbestos contamination based on falsified air samples. Defendant was sentenced to 138 months incarceration and to pay a $400 special assessment fee).

32. United States v. Alston, No. 85-236 (S.D. Tex. Oct. 4, 1985) (Defendant, an automobile broker and associates, deceived the EPA into granting them a "five year old exemption" for nonconforming vehicles. Alston and Williams were both charged with 10 counts of smuggling, and Laurus was later charged with two counts of smuggling); United States v. Pennell, No. 95-0365-CR-RYSKAMP (S.D. Fla. May 24, 1995) (Pennell and Alfano were both charged with one count of smuggling goods into the United States. Pennell was sentenced to 12 months of incarceration, 36 months of probation, and forced to pay $3.4 million in restitution. Alfano was sentenced to 14 months of incarceration, 36 months probation, fined $3.4 million, and forced to pay $23,035 in fines); United States v. Burrell, No. 95-0757-CR-FERGUSON (S.D. Fla. Sept. 26, 1995) (Burrell and Raja were each indicted on 20 charges, which included illegally smuggling Freon into the United States. Burell was sentenced to 12 months of incarceration, 24 months of probation, and fined $75,000. Raja was sentenced 12 months of incarceration, 36 months of probation, 300 hours of community service, and fined $100,000); United States v. Refrigeration USA, No. CR:96-0267-CR-MORENO (S.D. Fla. Mar. 26, 1996). The company was charged with smuggling for importing more than 4,000 tons of Freon, an ozone depleting refrigerant gas. The company was fined $37,372,826 and sentenced to 60 months of probation); United States v. Pacheco-Pina, No. L-97-138 (S.D. Tex. Apr. 8, 1997) (Pacheco-Pina smuggled five 30 pound canisters of Freon into the United States. Pacheco-Pina was charged with smuggling, and was sentenced to three months of incarceration and 36 months of probation); United States v. Reyes, No. 96-236 (S.D. Tex. Nov. 13, 1996) (Reyes was charged with illegally importing freon and sentenced to six months of incarceration); United States v. Lizcano-Hernandez, No. M-97-203 (S.D. Tex. Aug. 8, 1997) (Lizcano-Hernandez was charged with two counts of smuggling after he attempted to smuggle 360 pounds of Freon into the United States. Lizcano-Hernandez was sentenced to four months of incarceration and 24 months of supervised probation); United States v. Medina Forwarding Co., No. 98-6100 (S.D. Tex. Feb. 23, 1998) (Medina Forwarding Co. was charged on four counts, (1) conspiracy; (2 smuggling; (3) entry of goods by false statements; and (4) violating the CAA, after transporting 1200 thirty-pound cylinders of CFC-12, refrigerant gas, into Long Island, New York from Russia in 1995. After pleading guilty to all charges, the company was sentenced to a $16,000 federal fine); United States v. Lopez, No. 99-457-11 (S.D. Tex. Nov. 23, 1999) (Lopez was charged with violating 18 U.S.C. 545 - smuggling into the United States, after U.S. Customs Inspectors discovered 60 twelve-ounce cans of Mexican-made CFC-12 hidden in the spare tire well of the trunk of Lopez's car as he entered the United States from Matamoros, Mexico. After being convicted at trial by a jury, Lopez was sentenced to 24 months' probation and ordered to pay a special assessment fee of $100 and fined $1,000); United States v. Dolmetsch, No. 99-80061 (E.D. Mich. Jun. 26, 2002) (Dolmetsch was charged with 8 counts including conspiracy to violate the CAA, false statements and illegal monetary transactions after smuggling virgin CFC-12 into the United States from Canada. After pleading guilty to all charges, Dolmetsch was sentenced to 24 months' probation, ordered to perform 800 hours of community service, pay a $100 special assessment fee and a $5,000 federal fine).

33. *Id*; United States v. Wagerman, No. 99-80196, 02-CR-80140 (E.D. Mich. Mar. 17, 1999) (Wagerman was charged with one count of conspiracy, a violation of 18 U.S.C. 371 and one count of smuggling, a violation of 18 U.S.C. 545, after smuggling virgin CFC-12 into the United States from Canada. After pleading guilty to all charges, Wagerman was sentenced to 24 months' probation, ordered to perform 500 hours of community service, pay a $100 special assessment fee and an $11,494 federal fine); United States v. Simon, No. 02-CR-81039 (E.D. Mich. Nov. 26, 2002) (Simon was charged with one count of conspiracy, a violation of 18 U.S.C. 371 and one count of smuggling, a violation of 18 U.S.C. 545, after smuggling virgin CFC-12 into the United States from Canada. After pleading guilty to all

smuggled CFC-12 (also known as Freon or Freon-12), into the United States from Canada. The defendants were charged with smuggling, false statements, and conspiracy to violate the CAA. They were collectively sentenced to 72 months of probation, $28,288 in fines, and 1,800 hours of community service for the crimes.

In Table 3, supplemental data gleaned from the cases is provided. In 148 cases, defendants were charged with non-environmental, criminal charges associated with their environmental crimes. Most of these are Title 18 violations, but others include state crimes. This finding suggests that approximately 39% of CAA prosecutions involve more than environmental crimes, but also related criminal charges. We find that 35% of cases involve a company or organization as the defendant in the case. In 24 cases we can identify in the case summary that individuals are injured or killed as the result of a CAA violation, and in one case, animals are killed. A 2005 case in Delaware against the Motiva Corporation represents a prosecution for human and animal injuries.[34] A storage tank at the company's facility leaked 300,000 gallons of spent sulfuric acid on the ground. The material caught fire, injuring eight workers and was discharged into a nearby stream further injuring marine life. The company was charged with knowingly violating the CAA, as well as a CWA violation for the negligent release, and was sentenced to 36 months of probation, ordered to pay a $10 million fine, and a $525 special assessment fee. Our analysis shows that cumulatively, 709 defendants were prosecuted across these 377 cases.

Table 3. Supplementary Data for U.S. Clean Air Act Criminal Prosecutions, 1983-2019.

Case Description	Total
Cases with Individuals Killed or Injured	24
Cases with Animals Killed or Injured	1
Defendants Prosecuted	709
Cases with Companies/Organizations as Defendants	133
Cases with Non-Environmental Criminal Charges	148

Source: EPA Summary of Criminal Prosecutions Database

Table 4 provides the total penalties assessed in CAA prosecutions analyzed between 1983-2019. Penalties were categorized by those levied against individuals and companies, including fines, probation, and incarceration. Additionally, community service, community corrections, and home confinement is included. In 258 cases, individual defendants were assessed monetary penalties in terms of fines,

charges, Simon was sentenced to 24 months' probation, ordered to perform 500 hours of community service, pay a $100 special assessment fee and an $11,494 federal fine).

34. United States v. Motiva Corp., No. 05-CR-021-SLR (D. Del. Mar. 17, 2005) (Motiva was charged with three counts; (1) negligently; and (2) knowingly violating the CWA; and (3) violating the CAA, after an above ground storage tank at the Motiva facility leaked approximately 300,000 gallons of spent sulfuric acid that caught fire resulting in eight injuries and one missing worker; the spent sulfuric acid was discharged into a nearby stream, killing an estimated 2,500 fish and 100 crabs. Motiva pled guilty to all three counts and was sentenced to 36 months' probation, ordered to pay a $525 special assessment fee and a $10 million federal fine).

special assessments, and other payments. These monetary penalties totaled over $474 million in the analysis. This number is skewed by a few large penalty cases.

The largest individual fine was a Texas case settled in 2016 against defendant Philip Joseph Rivkin . The defendant plead guilty to mail fraud and false statements under the CAA for defrauding the federal government's biodiesel credit program. The Energy Independence and Security Act of 2007 allowed companies to generate credits for producing renewable energy sources. The defendant generated over 60 million biodiesel credits known as Renewable Identification Numbers ("RINs") by claiming to produce significant amounts of biodiesel through three companies he owned and controlled, but in actuality, he never produced the product. Rivkin was sentenced to 121 months in prison, three years of supervised release, and $138 million in penalties, including $87 million in restitution and forfeiture of $51 million in illegal gains from the operation. Other major penalties against individuals included over $72 million in penalties against Eric Farbent and his co-defendants involved in a Racketeer Influenced and Corrupt Organizations Act ("RICO") case over organized criminal activity in New York related to asbestos abatement and E-biofuels, which was assessed with its co-defendants over $55 million in restitution for federal biofuel credit fraud.[35]

Table 4. Total Penalties Assessed in U.S. Clean Air Act Criminal Prosecutions, 1983-2019.

Penalty	Number of Cases	Total ($)
Individual Fines ($)	258	474,983,558
Individual Probation (Months)	259	12,386
Incarceration (Months)	176	7,638
Company Fines ($)	122	3,151,704,478
Company Probation (Months)	86	3,637
Home Confinement (Months)	69	415
Community Corrections (Months)	35	907
Community Service (Hours)	61	17,437

Source: EPA Summary of Criminal Prosecutions Database.

In 259 cases in the dataset, individuals were assessed probation time at sentencing. The analysis found that they were cumulatively sentenced to 12,386 months of probation over this time period. In 176 cases, defendants were sentenced to prison, which totaled 7,638 months of incarceration. In 69 cases, individuals were sentenced to 415 months of home confinement and in 35 cases they were sentenced

35. United States v. Rivkin, No. H 14-603M/H14-250 (S.D. Texas June 15, 2015) (Rivkin was sentenced to 121 months in prison, three years of supervised release and to pay more than $87 million in restitution and was ordered to forfeit $51 million for generating and selling fraudulent biodiesel credits in the federal renewable fuel program); United States v. Farbent, No. 02-CR-51 (N.D. N.Y. Feb. 21, 200) (Farbent and his co-defendants were all sentenced to incarceration for varying periods of times and to pay over $72 million in penalties); United States v. E-biofuels, LLC., No. 1:13-CR-0189SEB-TAB (S.D. Ind. Sept. 17, 2013) (E-biofuels and its co-defendants were sentenced to pay $56,135,811 in restitution after being charged with wire fraud, making false statements, obstruction of an investigation and money laundering);18 U.S.C. §§ 1961-1968 (2016).

to a cumulative total of 907 months of community corrections. Sixty-one cases resulted in defendants being sentenced to over 17,000 hours of community service.

In 86 cases, companies were assessed probation amounting to a total of 3,687 months. In 122 cases, companies were assessed monetary penalties exceeding $3 billion. This figure, like the individual defendant total, is skewed by a few large cases. The 2017 case settled in Michigan against Volkswagen AG for their long-term emissions rigging scheme resulted in a $2.8 billion fine, which was by far the largest in the analysis. The 2009 case settled against British Petroleum for the 2005 Texas City refinery explosion, which killed 15 workers and injured over 170, was settled for 36 months of probation and a $50 million fine.[36] Excluding these two cases lowers the total penalties against companies to approximately $301 million.

In the final section of the analysis, all of the CAA cases are organized into a typology that helps to provide a meaningful exploration of the general themes we uncovered in the data. In Figure 3, the typology of CAA cases is provided, and the cases are organized around six themes. These include asbestos related crimes, vehicle emissions fraud, false reporting, renewable fuel credit fraud, negligent operations, and trade in restricted refrigerants. In some cases the dividing line between false reporting and negligent operations can be very difficult to find and an argument may be made in certain examples that a particular case may just as well fit in another category. The best available case data was used for the investigation and prosecution and the central crime for which the defendants were being prosecuted in the case to make the categorization. The themes uncovered are sufficiently clear in the data.

Figure 3. Typology of U.S. Clean Air Act Criminal Prosecutions, 1983-2019.

Category I **Asbestos Related Crimes** 221 Prosecutions	**Category II** **Vehicle Emissions Fraud** 37 Prosecutions
-Failure to obtain proper accreditation for asbestos remediation workers -Selling fraudulent asbestos abatement certificates -Performing asbestos abatement without proper NESHAP workplace standards -Improper demolition of a structure with asbestos containing materials -Improper removal of asbestos containing materials -Improper disposal of asbestos containing materials	-Illegal importation of non-conforming vehicles into the United States -Smuggling non-conforming vehicles into the United States -Illegal importation of engines that are non-conforming into the United States -Mislabeling vehicles as conforming to emissions standards -Manufacturing and selling vehicles with emissions-testing cheating devices

36. United States v. BP Products N. Am., No. 4:07-CR-434(S.D. Tex. Oct. 22, 2007) (BP Products North America Inc. paid a $50 million criminal fine (the largest ever assessed under the Clean Air Act) and will serve three years of probation after pleading guilty to a felony violation of the Clean Air Act); United States v. Volkswagen AG, No. 16-CR-20394 (E.D. Mich. Apr. 21, 2017) (Volkswagen AG was sentenced to pay a $2.8 billion criminal penalty for Connection with Conspiracy to Cheat U.S. Emissions Tests).

-Improper removal of asbestos containing materials without a permit -Failure to provide proper notice of removal of asbestos containing materials	-Issuing vehicle registrations for vehicles that failed emissions testing or clean scanning vehicles
Category III **False Reporting** 28 Prosecutions -Falsifying lab testing results -Submitting false records or emissions reports -Submitting falsified shipping logs -Failure to report failure of emissions control devices	**Category IV** **Renewable Fuel Credit Fraud** 8 Prosecutions -Fraudulently claiming tax credits for renewable energy production -Fraudulently reporting the production of biodiesel and renewable fuels and selling/trading the Renewable Identification Numbers (RINs)
Category V **Negligent Operations** 61 Prosecutions -Chemical or solid/hazardous waste spills -Illegal release of refrigerants -Illegal release of air emissions without a permit -Illegal release of emissions over permitted levels -Tampered with pollution monitoring controls -Using unpermitted or malfunctioning equipment or failing to install proper emissions control equipment -Operating without a risk management plan -Operating without proper permits	**Category VI** **Trade in Restricted Refrigerants** 20 Prosecutions -Illegally importation of R-12, R-22, or other restricted refrigerants -Smuggling of R-12, R-22, or other restricted refrigerants -Illegal distribution and/or selling of R-12, R-22, or other restricted refrigerants -Illegal purchase of R-12, R-22, or other restricted refrigerants -Selling mislabeled canisters of R-12, R-22, or other restricted refrigerants -Installing mislabeled substitutes for R-12

Source: *EPA Summary of Criminal Prosecutions Database*. Note: In two cases principal defendants Paul Chavez and Thomas Janiak violated the CAA, but it is not possible to discern the exact nature of the crime in the information provided in the database and those cases are not represented in the Figure, which is why total prosecutions equals 375 and not 377 across all six quadrants.[37]

37. United States v. Paul Chavez, 088-362 (D. California April 25, 1988) (Defendant plead guilty to two counts of making false statements for vague violations of the Clean Air Act. Defendant was sentenced to twenty-four months of probation and ordered to perform 200 hours of community service); United States v. Thomas Janiak, 93 CR-58(EBB) (D. Connecticut April 14, 1993) (The Defendants were charged with one count each of violating the CAA (failure to notify) and conspiracy. Defendant Louis Lavitt was sentenced to sixty months of probation and two hundred and fifty hours of community service. Defendant Thomas Janiak was sentenced to sixty months of probation and a $4,000

By far the most common type of CAA prosecution in the dataset were those dealing with asbestos related crimes. In approximately 50% of cases, defendants were primarily charged for asbestos related crimes under the CAA. We list these in Category I in the upper left-hand side of Figure 3. This rather broad theme uncovered a variety of criminal actions we note in the first quadrant that help to explain how prosecutors used the CAA to charge environmental criminals for asbestos crimes. The first sub-category revolved around failing to provide proper training to workers, proper worker certification, or follow National Emissions Standards for Hazardous Air Pollutants ("NESHAP") workplace standards when modifying or demolishing structures containing Asbestos-Containing Material ("ACM").

A case settled in Idaho in 1996 against Patricia Persons and Mountain States Insulation is illustrative of this sub-category.[38] Mountain States was an asbestos abatement contractor that generated revenue from government contracts related to regulations under The Asbestos Hazard Emergency Response Act ("AHERA"), which requires schools and state and local agencies to inspect their facilities for ACM, develop an asbestos management plan, and remove the material if it is disturbed or renovations take place. This is a common revenue stream for the asbestos abatement industry. Persons did not obtain proper certification for employees conducting the abatement, gave false statements, and then received six months incarceration, 36 months of probation and a fine of $6,000. Mountain States received 36 months of probation and a $19,000 fine.[39] In another case example, principal defendant Anthony Priore and eleven co-defendants were charged initially in 1999 in New York and sentencing was completed in 2004 for a complex case focused on the issuance of fraudulent asbestos training certificates.[40]

Other sub-categories centered around failure to provide proper notice of asbestos removal or failure to obtain proper permits. Joseph Michael Kehrer was sentenced in Illinois in 2018 for failure to provide proper notice. He was required by law to notify authorities if he removed more than 160 feet of ACM. As the owner of the former Okawville Elementary School building in Okawville, Illinois, he obstructed the investigation by lying about the previous removal and disposal of asbestos on the property.[41] Principal defendant, Dennis Marchuck, was indicted

fine. Defendant David Liebman was sentenced to ten months incarceration, twelve months of probation and fined $3,000. Defendant William Janiak was sentenced to six months home detention, two hundred and fifty hours of community service and sixty months of probation).

38. United States v. Persons, No. 4:96CR00005-01. (D. Idaho Nov. 1, 1996) (Persons failed to obtain accreditation for employees conducting asbestos removal in school buildings, then gave false statements about same to the government); United States v. Priore, No. 5:99-CR-295 (N.D. N.Y. May 20, 1999) (Priore and co-defendants were engaged in efforts to fraudulently issue asbestos training certificates to individuals in the Albany, New York area, who did not complete the required training courses).

39. *See id.*

40. U.S. ENVTL. PROTECTION AGENCY, MORE THAN A DOZEN DEFENDANTS PLEAD GUILTY TO VIOLATION ASBESTOS RULES; ONE INDICTED FOR NUMEROUS ALLEGATIONS OF WRONG-DOING (Feb. 24, 2000), https://archive.epa.gov/epapages/newsroom_archive/newsreleases/7ff3d8aaaf0a2768852 57173006bd933.html.

41. United States v. Kehrer, No. 18CR30030SMY (S.D. Ill. Aug. 16, 2018) (Kehrer was sentenced to five months imprisonment and a criminal fine of $50,00. Upon release, Kehrer will placed on supervised release for one year); United States v. Marchuk, No. 91-000669 (E.D. Pa. Dec. 15, 1991) (Marchuk was sentenced to two years imprisonment and a fine of $25,000. Marchuk was also sentenced to three years supervised probation).

sentenced along with three co-defendants in Pennsylvania in 1994 for the demolition and removal of friable asbestos (i.e. material that can be easily crumbled or pulverized by hand pressure) without a permit.[42]

The most common sub-category of asbestos related prosecutions involved improper removal or disposal of ACM or demolition of a building containing ACM (i.e. typically in ceilings, floor tiles, building insulation, and pipe insulation). Cuyahoga Wrecking Corporation was prosecuted for improper demolition and conspiracy to defraud the EPA. RAL Properties was sentenced in Ohio in 1993 for illegal removal and disposal of ACM.[43] The owner of the company Michael Laska and his assistant, co-defendant Steve Howell, were also charged and sentenced for the CAA violations, conspiracy, and failure to notify under CERCLA.[44] Laska was sentenced to seven months incarceration and seven months of home detention, a special assessment fee of $100 and fine of $3,000. Steve Howell was sentenced to 24 months of probation and ordered to pay a special assessment fee of $50.[45]

Category II characterizes 37 prosecutions or approximately 10% of the data as vehicle emissions fraud. Prosecutions that involved illegal activity to subvert emissions regulations for vehicles under the CAA were selected. The first sub-category of prosecutions generally involved the illegal import of non-conforming vehicles or non-conforming engines, mislabeling vehicles as conforming, or smuggling non-conforming vehicles in the United States. An example case was Dennis Alston sentenced in Texas in 1986 for importing non-conforming cars from Germany and deceiving the EPA into granting the importation under a five-year exemption clause at the time.[46] Hyundai Construction Equipment Americas was sentenced to a $1,950,000 fine in 2018 for importing non-conforming construction equipment into the United States in violation of the CAA. During a phase-in period for new emissions standards, the company was allowed to import a limited number of non-conforming engines but under-reported the actual number of non-conforming engines and its employees conspired to hide this fact from the EPA.[47]

The next sub-category of vehicle emissions fraud relates to "clean scanning" operations that falsified vehicle emissions reports to circumvent emissions testing in non-attainment areas (i.e. those areas having air quality worse than levels defined for criteria pollutants in the NAAQS) or issued false emissions certificates

42. Lee Linder, *Four Charged with Environmental Violations in Delaware County Development*, ASSOCIATED PRESS (Dec. 12, 1991), https://apnews.com/article/3538f42230f557643ae23466adc92445.

43. United States v. Cuyahoga Wrecking Corp., No. 4-89-CR-0281 (N.D. Ohio Sept. 21, 1989) (The Corporation plead guilty and was ordered to pay a fine of $1,000,000 with $800,000 held in abeyance. Co-Defendants were sentenced to probation and fines ranging from $3,000-$5,000).

44. United Stated v. RAL Prop., No. 91 (s)-V-3-1 (N.D. Ohio Sept. 30, 1992) (Owner and co-defendant were each indicted on three counts of violating CERCLA, the CAA and conspiracy).

45. *Id*; 18 U.S.C. §§ 1961-1968.

46. Alston, *supra* note 27.

47. United States v. Hyundai Constr. Equip. Americas, No. 1:18-CR-00379 (N.D. Ga. 2019) (Hyundai Constr. Equip. Americas was notified that they were importing engines that violated emissions standards under the Clean Air Act. Hyundai disregarded the notice and intentionally misrepresented the number of noncompliant engines it had imported and was fined $1.95 million dollars for conspiring to defraud the US and to violate the Clean Air Act).

to individuals.[48] Olga Mata was prosecuted in Missouri and sentenced to 14 months incarceration in 2016 under the false statements provision of the CAA. She created false bills of sale and registered numerous vehicles that failed emissions tests, and was also charged with mail fraud for mailing the false documents to the Missouri Department of Revenue.[49] Jon Arthur Clark and Herschel L. Clark, Jr., both emissions inspectors at Clark Tire and Auto Wholesale in Imperial, Missouri, were sentenced in 2011 for a clean scanning operation. They charged inflated fees to scan vehicles that would pass emissions tests and used that falsified data to help customers fraudulently obtain passing emissions certificates for their own vehicles. Investigators found at least 132 instances of fraudulent emissions testing. Jon Clark was sentenced to a 24 month probation and a $1,500 fine. Herschel Clark was sentenced to a 36 month probation, 100 hours of community service, and ordered to pay a special assessment fee of $100.[50]

The final sub-category is a special case related to manufacturing and selling vehicles with emissions-testing cheating devices, which includes multiple cases against Volkswagen AG for its emissions-rigging scheme to defraud customers into believing their clean diesel vehicles complied with U.S. emissions standards. The company was charged with conspiracy, wire fraud, obstruction, and importation of merchandise by false statements, and was sentenced to pay a $2.8 billion penalty.[51] Cases related to the Volkswagen prosecution include James Robert Liang, a Volkswagen engineer involved in the failed design of clean diesel engines that would not meet U.S. emissions standards. Liang helped to design software that would recognize when the car was being tested on a dynamometer versus real driving conditions in order to cheat the testing devices to register higher fuel economy than the vehicles would achieve in real driving conditions. This fraud continued for new model years 2009-16. For his role in this multi-year conspiracy, he was sentenced in

48. U.S. ENV'T PROT. AGENCY, CURRENT NONATTAINMENT COUNTIES FOR ALL CRITERIA POLLUTANTS, (February 28, 2021), https://www3.epa.gov/airquality/greenbook/ancl.html; *see also Charlotte Man Sentenced to 12 Months in Prison for Vehicle Emissions Fraud*, U.S. DEP'T OF JUST. (Sept. 25, 2013), https://www.justice.gov/usao-wdnc/pr/charlotte-man-sentenced-12-months-prison-vehicle-emissions-fraud (Clean scanning is a form of emissions testing fraud, where a vehicle that cannot pass emissions testing is passed when the testing equipment is installed in the tailpipe of a car that will pass. The data is passed onto regulators and the owner of the vehicle is able to fraudulently register a vehicle that cannot pass emissions tests. Such operations often charge a premium to customers under the table. Because clean scanning is meant to circumvent federal air quality rules, it comes under the purview of the CAA.).

49. United States v. Mata, No. 2014R00704 (E.D. Mo. 2016) (Mata registered vehicles that had failed emissions tests to addresses outside the five-county non-attainment area. Additionally, Mata created fake sales documents and vehicle applications with intent to defraud the Missouri Department of Revenue. Mata pled guilty and was sentenced to 14 months in federal prison).

50. United States v. Clark Jr., No. 4:10CR00432AGF (E.D. Mo. 2011) (Herschel Clark Jr., an emissions inspector, fraudulently scanned approximately 42 vehicles that would not meet the required emissions standards by using another car that gave passing marks on an emissions test. Herschel Clark was given 36 months of probation, 12 months served under home confinement, 100 hours of community service, and payment of a $100 special assessment fee).

51. United States v. Volkswagen AG, No. 16-CR-20394 (E.D. Mich. 2017) (Volkswagen imported diesel vehicles with software designed to cheat emissions for a decade. Volkswagen fraudulently represented its vehicle's compliance as a part of its emissions cheating scheme. Volkswagen paid the U.S. $2.8 billion dollars as part of a criminal plea deal and paid an additional $1.5 billion in a civil deal).

2017 to 40 months in federal prison and two years of supervised release. Oliver Schmidt, the former general manager of the company's U.S. Environment and Engineering Office, was sentenced to 84 months in prison and a $400,000 criminal fine. IAV GmbH was also sentenced in the conspiracy case to a $35 million fine and must appoint an independent corporate monitor for two years.[52]

Category III characterizes 28 cases stemming from false reporting issues. These include falsifying lab analysis, submitting false records or emissions reports, submitting false shipping logs, and failing to report equipment malfunctions. In some cases, it is important to reiterate the difficulty in determining the dividing line between which issue is the central one in the prosecution—the unpermitted release of emissions or the false reporting. Cases that focused on false reporting issues were prioritized, but sometimes there was strong overlap.

The prosecution of John Littlehale in Indiana is a good example. Littlehale claimed on his permit application that certain equipment would be installed in a large printing press operation to control emissions, but the device was never connected to the emissions control device. He was charged under the CAA for making false statements and conspiracy.[53] The crime was coded as false reporting, as that was the focus of how prosecutors used the CAA to indict and prosecute the defendant, although his actions led to unpermitted emissions and his equipment was not fully functional.[54]

Jet Pep was a commercial fuel blender operating in Alabama that failed to perform the appropriate blending tests. They were charged with making false statements under the CAA and sentenced in 2003 to 36 months of probation, a special assessment fee of $400, and a $200,000 fine.[55] Kinder Morgan Bulk Terminals was sentenced in Florida in 2010 for making false statements under the CAA that its baghouse air pollutant control systems used to capture particulate matter were fully functional. While this is an issue of malfunctioning equipment, the issue at the core of how the CAA was used to prosecute was false reporting, so the case was coded in this category.

Category IV contains a set of prosecutions that center on renewable fuel credit fraud. The Energy Independence and Security Act of 2007 created a series of federal programs to encourage the production of renewable fuels, such as biodiesel.[56] Production of these renewable fuels generated RINs. The production of RINs created a subsequent marketplace for the credits and an attached market value. This system created an opportunity for producers to fraudulently claim the production of biofuels to generate the RINs, which could then be sold on the marketplace for significant profit. Both the fraudulent claim and the subsequent sale are punishable crimes and examples which we found in the data. Andre Mark Bernard was sentenced in Florida in 2018 for producing at least 60 million fraudulent credits, generating at least $42

52. *See id.*

53. United States v. Littlehale, No. NA 03-01-CR-01 H/N (S.D. Ind. 2004) (Littlehale avoided air pollution devices by making false statements about the construction of a printing press. Littlehale pled guilty and was sentenced to 18 months incarceration, an additional 24 months of probation, 50 hours of community service, and a $4,000 fine).

54. *Id*.

55. United States v. Alabama & Gulf Coast Ry., L.L.C., No. CR-03-S-0127NE (N.D. Ala. 2020).

56. Energy Independence and Security Act, Pub. L. No. 110-140 (2007).

million in profits from the sale of the credits and approximately $4.3 million in tax credits. Bernard was sentenced to 87 months of incarceration for conspiracy to commit wire fraud, false statements under the CAA, and fraudulently claiming tax credits. He was also assessed a $10.5 million penalty—the amount the court determined as the proceeds from his crimes.[57]

Category V characterized 61 prosecutions as stemming from negligent operations. These cases were sub-categorize as stemming from the illegal release of emissions; release of emissions over permitted amounts; the illegal release of refrigerants into the ambient air; chemical, solid, or hazardous waste spills prosecuted under the CAA; tampering with pollution control devices; and operating without proper permits.

Amitech, USA was sentenced in Louisiana in 2007 for emitting styrene without proper emissions controls. Douglas Stevens, the owner of Apache Manufacturing in Norfolk, Nebraska, was prosecuted in 2016 for producing xylenes in excess of its Title V permit. He was sentenced to one year probation and a $20,000 fine.[58] There were a handful of defendants prosecuted for the illegal release of refrigerants and for stealing air conditioners that release refrigerants into the ambient air. For example, Joel C. Patterson, owner of AC Recycling in Fort Myers, Florida, was in the business of recycling air conditioners, but his employees regularly cut the refrigerant lines and released chemicals into the ambient air. He was charged with 15 counts of knowingly releasing and venting HCFC-22 refrigerant gas into the air in violation of the CAA. He was sentenced to 36 months of probation, including 6

57. *See* United States v. Bernard, No. 2:17-CR-61-FTM-38MRM (M.D. Fla. Feb. 6, 2018) (Barnard was sentenced to 87 months in federal prison and was also ordered to pay a fine of $10.5 million). *See also* United States v. Gunselman, No. 5:12-CR-00078-C-BG (N.D. Tex. Aug. 8, 2012) (Gunselman was sentenced to 188 months in federal prison and was ordered to pay a fine of $175,000. Additionally, Gunselman was ordered to pay more than $54.9 million in restitution); United States v. Hailey, No. 1:11-CR-00540-WDQ (D. Md. Nov. 8, 2011)(Hailey was sentenced to 12 years and 6 months incarceration and ordered to pay approximately $42.2 million to over 20 countries and forfeit $9.1 million in proceeds from the fraud); United States v. Smith, No. 2:15-CR-44 (S.D. Ohio Feb. 23, 2015)(Smith was sentenced to 41 months incarceration and the court ordered Smith and his co-defendants to pay $23 million in restitution); United State v. Jariv, No. 2:14-CR-00006-APG-NJK (D. Nev. Jan. 8, 2014) (Alex Jariv was sentenced to 30 months of incarceration and ordered to pay $491,061 in restitution); United States v. Rivkin, No. H14-603M/H14-250 (S.D. Tex. June 15, 2015) (Rivkin was sentenced to 121 months in prison, three years of supervised release, ordered to pay more than $87 million in restitution, and ordered to forfeit $51 million for generating and selling fraudulent biodiesel credits) United States v. E-biofuels, LLC, No. 1:13-CR-0189SEB-TAB (S.D. Ind. Sept. 17, 2013) (The company was sentenced to pay $56,135,811 in restitution jointly with co-defendants. Co-defendant Brian Carmichael was sentenced to 60 months of incarceration. Co-defendant Joseph S. Furando was sentenced to 20 years of incarceration. Co-defendant Chris Ducey was sentenced to 72 months of incarceration. Co-defendant Katirina Tracy was sentenced to 36 months of probation. Co-defendants Jeffrey Wilson and Craig Ducey were sentenced to prison terms of 120 months and 74 months, respectively. Jeffrey Wilson was ordered to pay $16 million in restitution. Co-defendant Chad Ducy was sentenced to 84 months in prison); United States v. Witmer, No. 1:16-CR-00064-TLS-SLC (N.D. Ind. July 18, 2017) (Witmer was sentenced to 57 months in prison. Co-defendant Gary Jury was sentenced to 30 months in prison).

58. United States v. Stevens, No. 8:16CR154 (D. Nebraska Aug. 8, 2016) (Defendant Stevens was ordered to probation for a term of one year and a fine in the amount of $20,000).

months home detention, and had to pay a $100 special assessment fee.[59] The case against Corey Blake Beard was an example of a prosecution of air conditioner thieves that stole units to dismantle for the copper and aluminum parts. They were prosecuted under the CAA for knowingly venting or releasing a refrigerant and conspiracy.

Category VI characterized cases centering on trade in restricted refrigerants. These 20 cases all involve phaseouts of chlorofluorocarbon halomethane ("CFC") in the United States. The Montreal Protocol made CFCs, particular R-12 (known commonly by the tradename Freon or Freon-12), scarce and incentives were created to avoid the cost of retrofitting vehicles for new refrigerants and this class of crime was prosecuted under the CAA.[60] Cases involving the illegal importation of R-12, R-22, or other restricted refrigerants, illegal distribution, smuggling, mislabeling, or purchase were found. Refrigeration USA was sentenced in 1997 for unlawfully importing 4,000 tons of Freon-12 in knowing violation of the CAA, as well as smuggling, conspiracy, and tax evasion. Robert Pennell was sentenced in 1996 for violating the CAA and smuggling related to his actions to illegally import 41 cargo containers holding 513 tons of Freon-12 into the United States. Glenn Shortt was charged under the CAA and sentenced in 1998 to 36 months of probation for installing HC-12a (used for industrial applications) instead of R-12 in vehicles. [61]

IV. CONCLUSION

The analysis of historical patterns in EPA criminal prosecutions has yielded very clear trends for how federal prosecutors have used the CAA to prosecute environmental criminals. Out of 377 relevant prosecutions pulled from a larger set of 2,588 from 1983-2019, the most prevalent theme to be asbestos related prosecutions. Prosecutions related to asbestos abatement certification, proper notice, permits, removal, disposal, and demolition make up over half of all cases prosecuted under the CAA since the OCE and ECS were founded. No other singular category defines how the CAA was used in federal criminal prosecution than crimes related to the proper removal or handling of asbestos or more specifically ACM. Asbestos cases track historical trends for when the emphasis on abatement became necessary in the 1990s in response to changes in federal law. Only four cases centered on asbestos related prosecutions under the CAA in the 1980s were found.[62] Moreover

59. United States v. Patterson, No. 02-CR-00063-JES-ALL (M.D. Florida April 10, 2003) (Defendant Patterson was sentenced to 36 months probation with a special condition of 6 months home detention and ordered to pay a $100 special assessment fee).

60. James W. Elkins, *Chlorofluorocarbons (CFCs)*, U.S. NAT'L OCEANIC AND ATMOSPHERIC ADMINISTRATION, (1999), https://www.esrl.noaa.gov/gmd/hats/publictn/elkins/cfcs.html.

61. United States v. Shortt, No. EDCR 98-3-RT (Cal. Oct. 28, 1998) (Defendant Shortt was sentenced to 36 months probation and no fines were imposed).

62. United States v. Vileisis, No. N-85-46 (D. Conn. Aug. 1, 1985) (The principal defendant Vileisis was sentenced to 12 months suspended sentence, 60 months probation, a $25,000 fine plus a $25 penalty assessment, 1,000 hours community service, and ordered to attend seminars on the disposal of asbestos. Co-defendant Fabiani was sentenced to 12 months incarceration, 60 months probation, a $25,000 fine plus a $25 penalty assessment and 1,000 hours community service); United States v. Pearlman, No. 86-246 (W.D. Pennsylvania Dec. 30, 1986) (Defendants plead guilty to two counts of violating NESHAP and were each sentenced to pay a $1000.00 fine); United States v. Feinman, No. 88-543 (E.D. Pennsylvania Dec. 28, 1988) (The principal defendant plead guilty to conspiracy and was sentenced to 12 months

an upward trend was found with 41 prosecutions in the 1990s, 86 from 2000-10 and 90 in 2011-19. These trends likely reflect the growing sophistication of the criminal enforcement apparatus over time and better understanding and practical use of the CAA as a prosecutorial tool.

There were only two cases related to vehicle emissions fraud in the 1980s, none in the 1990s, and a significant increase after 2010 to 43 cases by 2019. Many of these were related to vehicle emissions testing in non-attainment areas and fraud that occurred in the testing and certification of vehicles, while others involved the complex conspiracy Volkswagen AG engaged in to defeat dynamometer testing.[63] Trade in restricted refrigerants began in the 1990s as R-12 became scarce and both companies and individuals wished to avoid the cost of retrofitting vehicles with new refrigerants and engaged in a series of smuggling operations, fraudulent importation schemes, and illegal selling and purchase of refrigerants. Another major source of prosecutions involved stationary sources of pollution that lacked proper permits, emitted over permitted levels, intentionally chose to use malfunctioning emissions control equipment or none at all, or gave false statements or falsified reports in order to conceal the illegal emissions that stemmed from these various actions. A steady increase in these prosecutions from the 1980s/90s up to current times was found.

The passage of the Energy Independence and Security Act (2007) created opportunities for fraud around RINs or credits for producing biofuels that could be sold on the open market and also provided producers generous tax credits.[64] Prosecutions began around 2012 to target a series of fraudulent producers that gained substantially from the false production and tax fraud associated with the credits.[65]

Looking at these trends more holistically shows that about 83% of all criminal prosecutions revolve around either asbestos related crimes or problems with excess or unpermitted emissions for stationary sources of air pollution. The remainder of the prosecutions focus on vehicle emissions, individuals and companies attempting to circumvent restrictions on R-12 and other refrigerants, and biofuel credit fraud.

The best estimate is that negligent individual actions undertaken by the primary defendants in the prosecutions were responsible for 69% of the prosecutions,

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incarceration. The other defendant pled guilty to two counts of disposing of asbestos in an unpermitted facility and was sentenced to 12 months incarceration and 60 months of probation); United States v. DAR Construction, Inc., No. 88-CR-65 (S.D. New York Jan. 28, 1988) (The principal defendant was ordered to pay a fine of $50,000 and assessed $600.00 for the victim's crime fund. The other defendant was sentenced to 90 days incarceration and 36 months of probation).

63. United States v. Volkswagen AG, No.16-CR-20394 (E.D. Michigan April 21, 2017) (Volkswagen was sentenced to pay $2.8 billion dollars in criminal penalties).

64. Energy Independence and Security Act, Pub. L. No. 110-140 (2007).

65. United States v. Gunselman, No.5:12-CR-00078-C-BG (N.D. Texas Aug. 8, 2012) (Defendant was sentenced to 188 months of incarceration, fined $175,000 and ordered to pay $54.9 million dollars in restitution).

United States v. Hailey, No.1:11-CR-00540-WDQ (D. Maryland Nov. 8, 2011) (The defendant was sentenced to 12 years and 60 months of incarceration and ordered to pay $42.2 million in restitution and forfeit $9.1 million dollars of proceeds of the fraud); United States v. Smith, No. 2:15CR44 (S.D. Ohio Feb. 23, 2015) (Principal defendant was sentenced to 51 months of incarceration. The other defendant was sentenced to 41 months of incarceration. Both defendants had to pay $23 million dollars in restitution).

leaving the remaining 31% to center primarily on company negligence, but this distinction is difficult to make, as many individual defendants, even if listed as the primary defendant in the prosecution, were often acting on behalf of the company directly or indirectly as an employee, executive, or owner. The EPA maintains a variety of enforcement obligations related to the control of air emissions and we see examples of the agency tackling these issues through criminal prosecution in the dataset.[66] This analysis provides empirical clarification for the scope of how they have used their criminal enforcement tools historically to enforce these provisions under the CAA and the subsequent punishments meted out to environmental criminals.

66. U.S. ENV'T PROT. AGENCY, AIR ENFORCEMENT (2020).