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IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF ARIZONA

United States of America, Plaintiff, v. Gear Box Z, Inc. Defendant.	No. CV-20-08003-PHX-JJT **THE UNITED STATES' MOTION AND MEMORANDUM IN SUPPORT FOR PRELIMARY INJUNCTION** **[Oral Argument Requested]**

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ATTACHMENT A – Gear box Z Defeat Device Product List

EXHIBIT 1 – Declaration of Rose Galer

EXHIBIT A – Pertinent excerpts from April 24, 2017 Letter from Matt Salazar (U.S. EPA) to Jerry Black (Gear Box Z, Inc.) requesting information pursuant to CAA Section 208

EXHIBIT B – Pertinent excerpts from June 30, 2017 Letter from Matthew Barlow (Gear Box Z, Inc. Counsel) to Matt Salazar (U.S. EPA) enclosing GBZ response to April 24, 2017 CAA Section 208 Information Request

EXHIBIT C – July 24, 2017 E-mail from Rose Galer to Matthew Barlow requesting additional information about GBZ's responses, specifically regarding "maintenance mode"

EXHIBIT D – August 25, 2017 Letter from Matt Barlow (Gear Box Z, Inc. Counsel) to Rose Galer (U.S. EPA) responding to follow-up CAA Section 208 responses

EXHIBIT E – September 7, 2017 Email from Rose Galer to Matthew Barlow requesting subsequent additional information regarding "maintenance mode"

EXHIBIT F – September 22, 2017 E-mail from Matt Barlow (Gear Box Z, Inc. Counsel) to Rose Galer (U.S. EPA) responding to follow-up CAA Section 208 request for information

EXHIBIT G – December 22, 2017 Notice of Violation issued to Gear Box Z, Inc.

EXHIBIT 2 – Declaration of Nigel Jones

EXHIBIT 3 – Declaration of Mario Jorquera

MOTION

Plaintiff the United States, on behalf of the United States Environmental Protection Agency ("EPA"), pursuant to Rule 65 of the Federal Rules of Civil Procedure, moves this Court for entry of a Preliminary Injunction enjoining Defendant Gear Box Z, Inc. ("GBZ"), and all persons acting on its behalf, from taking any action related to the sale, offer for sale, or transfer of any products or components listed in Attachment A, or any materially similar products, including related intellectual property. This motion is based upon the following grounds:

(1) The United States filed a Complaint, dated January 3, 2020, alleging that GBZ manufactures, sells, and offers for sale motor vehicle aftermarket products that defeat, bypass, or render inoperative emission controls ("defeat device products") in violation of Section 203(a)(3)(B) Clean Air Act ("CAA"), 42 U.S.C. § 7523(a)(3)(B).

(2) Unless enjoined by this Court, Gear Box Z will continue to sell its defeat device products.

(3) The United States is likely to establish that the sale and offer for sale of GBZ's defeat device products, or the causing thereof, violates Section 203(a)(3)(B) of the CAA, and therefore will prevail on the merits of its claims.

(4) A preliminary injunction is necessary to prevent irreparable harm to public health and the environment that will result from continued sales of GBZ's

defeat device products, which defeat emission controls in motor vehicles, thereby generating excess emissions of harmful air pollutants. The United States would have no adequate remedy at law, and this Court's ability to fashion effective relief would be significantly impaired if GBZ's actions continue but is found to be unlawful.

(5) Significant impacts on human health and the environment from the excess emissions of harmful air pollutants GBZ's defeat device products cause motor vehicles to generate outweighs any harm to GBZ from enjoining its sale, offer for sale, or transfer of its defeat device products.

(6) Granting the requested preliminary relief will serve the public interest.

(7) This Court has the authority under Federal Rule of Civil Procedure 65 to issue the requested preliminary relief.

(8) The United States is not required to give security pursuant to the Federal Rule of Civil Procedure 65(c).

This Motion is supported by the following Memorandum in Support, by the Declaration of Rose Galer, the EPA Scientist assigned to this matter ("Galer Decl.") (attached hereto as Ex. 1), by the Declaration of Nigel Jones, the United States' software expert ("Jones Decl.") (attached hereto as Ex. 2), by the Declaration of Mario Jorquera, the EPA engineer for motor vehicles emission controls testing ("Jorquera Decl.") (attached hereto as Ex. 3), and Attachment A,

which lists the GBZ's defeat device products at issue. A proposed order granting a preliminary injunction is lodged herewith. Because this motion and the supporting memorandum exceed 17 pages, a motion to exceed the page limit has also been filed with this Court.

MEMORANDUM IN SUPPORT

INTRODUCTION

The United States' Complaint in this case asserts violations of the Clean Air Act ("CAA") arising from Gear Box Z, Inc.'s ("GBZ" or "Defendant") manufacture, sale, and offers for sale, of aftermarket products, commonly known as "defeat devices," that defeat, bypass, or render inoperative pollution controls installed in diesel trucks. The CAA explicitly prohibits the manufacture, sale, and offer for sale of these devices. 42 U.S.C. § 7522(a)(3)(B). These products severely undermine the Environmental Protection Agency's ("EPA") mobile source emission control regime. Use of these devices on motor vehicles generates tons of excess emissions that harm public health and the environment in that they cause or contribute to adverse health impacts like respiratory problems, heart attacks, childhood asthma, and premature death. The United States requests that

this Court enjoin GBZ from selling or transferring these products[1] to prevent irreparable harm to public health and the environment.

EPA's Office of Enforcement and Compliance Assurance designated stopping the manufacture, sale, and installation of defeat devices on motor vehicles and engines as one of six national compliance initiatives ("NCI") for 2020-2023.[2] Declaration of Mario Jorquera ("Jorquera Decl.") ¶ 12. EPA has identified illegally-modified vehicles and engines as contributing substantial excess pollution that harms public health and impedes EPA and state efforts to plan for and attain air quality standards. *Id.* Evidence from EPA's investigations of defeat devices and tampered vehicles demonstrates that each diesel truck with deleted emission controls generates an average of one ton of excess nitrogen oxides ("NO_x") emissions over the remaining life of the deleted vehicle. *Id.* ¶ 13. EPA also estimates that since 2009, emission controls have been removed or rendered inoperative on at least half a million diesel trucks. *Id.* This amounts to roughly 500,000 tons of excess NO_x emissions over the expected remaining life of

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[1] These products are identified in a product list in Attachment A – "GBZ Defeat Devices." The requested injunction would pertain to these products, related intellectual property, and any materially similar products.

[2] U.S. EPA, *National Compliance Initiative – Stopping Aftermarket Defeat Devices for Vehicles and Engines*, https://www.epa.gov/enforcement/national-compliance-initiative-stopping-aftermarket-defeat-devices-vehicles-and-engines (last updated Feb. 21, 2020).

the vehicles. Jorquera Decl. ¶ 13. For NO_x emissions alone, this is the equivalent of adding nine million fully-controlled diesel trucks to our roads. *Id.*

GBZ manufactures and sells defeat devices that physically and/or electronically disable pollution controls installed in diesel trucks. Declaration of Rose Galer ("Galer Decl.") ¶¶ 16, 20. From January 1, 2015 through April 24, 2017, GBZ sold over 8,000 of these defeat devices. *Id.* ¶ 16. Although EPA does not have sales figures outside of this period, GBZ continues to offer defeat devices for sale, including its current "Summer Sale" for 20 percent off all of GBZ's products. *Id.* ¶ 30. Extrapolating on previously-submitted sales data, EPA estimates that each month GBZ continues to sell defeat devices results in 132 excess tons of NO_x alone over the remaining life of the altered vehicles. Jorquera Decl. ¶ 61. GBZ's defeat device products thereby have and continue to cause substantial and illegal excess emissions that irreparably harm human health and the environment. *Id.* ¶ 59.

The United States requests that this Court preliminarily enjoin GBZ from selling and/or transferring these illegal products, including transferring any

associated intellectual property, to prevent further harm.[3] As the United States demonstrates below, a preliminary injunction is justified because (1) there is a likelihood of success on the merits; (2) without an injunction there will be irreparable harm; (3) the balance of the equities favors an injunction; and (4) issuance of an injunction furthers the Congressional intent behind the CAA.

BACKGROUND

I. The Clean Air Act and Emissions Standards

Title II of the CAA and the regulations promulgated thereunder establish standards for the emissions of harmful air pollutants from motor vehicles and motor vehicle engines, which includes NO_x, particulate matter ("PM"), carbon monoxide ("CO"), and non-methane hydrocarbons ("NMHC"). 42 U.S.C. § 7521(a)(3)(A). Diesel truck emissions are a significant source of these pollutants. Jorquera Decl. ¶¶ 9, 11. As described further in Section II.B.2 of the Argument, these pollutants are linked to various respiratory issues, cardiovascular health problems, and premature death and are especially harmful to vulnerable persons

[3] To narrowly tailor the injunction to mitigate any harm to GBZ, the United States only requests that this Court enjoin GBZ from selling and transferring defeat devices and associated intellectual property, although the manufacture of defeat devices is also prohibited under Section 203(a)(3)(B) of the CAA. While this case is pending GBZ can continue to manufacture and store its defeat devices provided that it does not distribute those devices, and the intellectual property for them, until this matter is resolved (although GBZ may incur additional liability if it chooses to do so).

such as the elderly, children, and the immune compromised. To reduce air pollution and achieve long-term goals of improved air quality, EPA has set emission limits for different classes of motor vehicles and engines. Jorquera Decl. ¶ 8. *See* 79 Fed. Reg. 23,416 (Apr. 28, 2014) (final rule implementing tier 3 standards). EPA also requires vehicle manufacturers to obtain certificates of conformity ("COC") to ensure that every vehicle introduced into United States commerce is designed and built to meet applicable emissions standards for the duration of its useful life. 42 U.S.C. § 7522(a)(1).

A. Emission Controls

To meet progressively more stringent emissions standards, the automotive industry designed and installed highly-sophisticated and efficient emission control devices and software to reduce emissions. EPA regulations do not require use of specific emission control devices. Rather, the original equipment manufacturer ("OEM") designs and installs a configuration of hardware and software that work together to control emissions of regulated pollutants to meet the emission standards for NO_x, PM, NMHCs, CO, and other air pollutants during the useful life of the motor vehicle or motor vehicle engine. 42 U.S.C. § 7525(a)(2); *see* 40 C.F.R. §§ 86.007-30(a)(1)(i), 86.1848-01(a)(1). In its COC application, the OEM describes and documents the emission control strategy it implements – including specific hardware and software components – to comply with applicable emission

standards for that vehicle. 40 C.F.R. §§ 86.094-21(b)(1); *see also* 86.1844-01(d)–(e).

The hardware emission control systems in diesel trucks typically include – depending on the model year – diesel oxidization catalysts ("DOC") to control CO and NMHCs, exhaust gas recirculation systems ("EGR") to control NO_x, diesel particulate filters ("DPF") to control PM, and selective catalytic reduction ("SCR") systems to further reduce NO_x. Jorquera Decl. ¶¶ 19-25; Declaration of Nigel Jones ("Jones Decl.") ¶¶ 14-21. Motor vehicles contain dozens of electronic control units ("ECUs"), which are microprocessors equipped with software calibrations for the various controls in the motor vehicle. Jones Decl. ¶ 22. The engine control module ("ECM") is the ECU for the engine that is equipped with software calibrations governing the operation of the above-mentioned pollution control hardware, as well as engine operation and performance parameters that affect emissions such as air-fuel ratio, fuel injection timing, fuel quantity, and fuel injection pressure. *Id.* ¶ 13.

The OEM pre-sets, and discloses to EPA in its COC application, the calibrations for these parameters as part of its emission control strategy, which are also known as the "certified stock calibrations." 40 C.F.R. § 86.2843-01(e)(2). To ensure the proper functioning of emission controls, the CAA requires diesel trucks to be equipped with on-board diagnostics ("OBD") systems to monitor and detect problems with the emission controls, alert owners, repair shops, and

inspection agencies of these problems, and electronically store malfunction information. 42 U.S.C. § 7521(m); 40 C.F.R. § 86.1806-05, 65 Fed. Reg. 59,896, 59,900-01 (Oct. 6, 2000). The hardware, software calibrations, and OBD are each installed to ensure that the vehicle meets emission standards promulgated pursuant to Title II of the CAA.

B. Aftermarket Defeat Devices

The above-described vehicle emission control systems are vital to EPA's efforts to limit air pollution from mobile sources and protect human health and the environment. Recognizing this, Congress enacted Section 203(a)(3)(B) of the CAA that makes it illegal for any person:

> to manufacture or sell, offer to sell, or install any part or component intended for use with, or as part of, any motor vehicle or motor vehicle engine, where a principal effect of the part of component is to bypass, defeat, or render inoperative any device or element of design installed on or in a motor vehicle or motor vehicle engine in compliance with the regulations [promulgated under Title II of the CAA], and where the person knows or should know that such part or component is being offered for sale or installed for such use or put to such use.

42 U.S.C. § 7522(a)(3)(B). This provision prohibits parts or components that bypass, defeat, or render inoperative a "device or element of design" installed in compliance with CAA regulations. The specific suite of hardware and software components that OEMs use to comply with EPA's emissions standards are devices and/or "elements of design" installed in compliance with CAA regulations. These include the hardware emission controls such as DOC, DPF and EGR, as well as

the engine software calibrations and the OBD that the OEM presets in the vehicle's ECM.

II. GBZ's Aftermarket Defeat Devices

GBZ, headquartered in Colorado City, Arizona, manufactures and sells aftermarket defeat device products for diesel trucks to wholesalers, distributers, and directly to end-users through its company website and third-party online retailers, like Amazon and eBay. Galer Decl. ¶ 10. GBZ's defeat devices are designed and marketed for use on specific makes and models of Dodge, General Motors ("GM"), and Ford diesel trucks that are sold in the United States. *Id.* ¶ 19. Certain aftermarket product manufacturers and retailers, including GBZ, manufacture and sell products that remove and disable emissions controls such as the EGR, DPF, DOC, SCR and emissions-related calibrations as a means of enhancing vehicle performance, power, torque, and/or fuel economy because the proper operation of these controls consumes engine power, fuel, and requires maintenance. Jones Decl. ¶¶ 13, 15, 16, 19, 44, 45, 72.

With the exception of GBZ logo t-shirts, phone and monitor mounts, and monitors sold without GBZ add-ons, every product GBZ manufactures and offers for sale is an illegal defeat device. These illegal products are identified in the product list in Attachment A – "GBZ Defeat Devices." Jones Decl. ¶¶ 1, 111. GBZ's defeat devices fall into two broad categories: (1) hardware defeat devices, and (2) software defeat devices. Galer Decl. ¶ 16. Hardware defeat devices

physically remove and/or replace the exhaust system emission-control hardware installed by OEMs in diesel trucks. Galer Decl. ¶ 16; Jorquera Decl. ¶¶ 31-33. Examples of GBZ's hardware defeat devices include plates that block the EGR flow to the engine, known as "block plates," and pipes that replace the aftertreatment emission control system, which are commonly called "delete pipes" or "straight pipes." Jorquera Decl. ¶¶ 54-55.

Installing hardware defeat devices on a diesel truck typically requires installation of a software defeat device to "tune" the vehicle so that it functions without the emission controls. Jones Decl. ¶¶ 45-46. This combination is referred to as a "full delete," because both the vehicle's hardware and software emission controls are removed or altered. Jorquera Decl. ¶ 42. Several of GBZ products are "full delete" combinations or "delete packages" that contain both hardware defeat devices and software defeat devices packaged together – which typically includes a straight pipe with a programmer. Galer ¶ 26; Jorquera ¶ 54; Jones ¶ 79. GBZ manufactures and sells products known as "tuners" which are handheld devices preloaded with GBZ's "tunes." Jones Decl. ¶ 73. GBZ's tunes are software files that modify and/or overwrite emissions-related calibrations that the OEM installed in the vehicles' ECM as part of its emissions control strategy certified by EPA. Galer Decl. ¶ 16; Jones Decl. ¶¶ 67-68. Specifically, these tunes electronically disable the sensors related to hardware emissions controls and, in some cases, modify or overwrite emissions-related engine calibrations such as

injection timing, air-to-fuel ratio, and fuel injection pressure, thereby increasing emissions. Jones Decl. ¶¶ 13, 37, 46, 60, 65, 69. GBZ's tunes mask the removal and/or disabling of emissions controls by changing certified stock calibrations and reprograming the ECM so that the OBD will not detect, record, or notify the owner of hardware or other calibration changes and resulting emissions increases. *Id.* ¶¶ 13, 26, 52-53, 79-87, 101-105, 110; Jones. Decl. Appdx D ¶¶ 124, 126, 128, 137, 143, 151, 160. As a result, if the vehicle is inspected by municipal or state authorities that rely only on the malfunction indicator lamp ("MIL") checks or OBD scans for inspections, tuning makes it more difficult for authorities to detect the tampering. Jorquera Decl. ¶ 37.

III. EPA Enforcement History against GBZ

In August 2016, EPA investigators first identified products on GBZ's website that appeared to be aftermarket defeat devices. Galer Decl. ¶ 11. EPA also discovered other online sources of evidence such as public YouTube videos and Facebook posts providing tutorials on GBZ products which demonstrate that GBZ products defeat emissions controls. *Id.* On April 24, 2017, EPA sent GBZ an information request pursuant to its authority under Section 208(a) of the CAA, 42 U.S.C. § 7524(a), seeking information relating to GBZ's manufacture and sale of aftermarket defeat devices that occurred from January 1, 2015, to April 24, 2017 ("Reporting Period'). Galer Decl. ¶ 14; Ex. A ("208 Request"). GBZ responded on July 10, 2017, and provided product descriptions and information,

installation instructions, and sales data. Galer Decl. ¶ 15; Ex. B ("208 Responses"). Based on the information GBZ provided, EPA determined that during the 28-month Reporting Period, GBZ manufactured and/or sold at least 8,323 defeat devices. *Id.* ¶ 16.

In December 2017, EPA issued a Notice of Violation ("NOV") to GBZ for the manufacture, sale, and offer for sale of defeat device products, which covered sales of 129 exhaust replacement pipes, 866 EGR block plates, and 656 tuners – each a separate violation of the CAA. Galer Decl. ¶ 25; Ex. G ("NOV"). Notably, the 656 tuners cited in the NOV are products GBZ admitted have delete capabilities, as they were packed with DPF emulators. *Id.* ¶¶ 15, 26; Ex B. DPF emulators are devices that simulate signals to the ECM that the DPF is properly functioning when it has been removed or disabled. Galer Decl. ¶ 16; Jorquera Decl. ¶ 35; Jones Decl. Appdx D ¶ 137. EPA also identified an additional 6,672 tuners that interfere with the OBD system, but were not included in the NOV because GBZ made conflicting statements to EPA regarding these devices' capabilities prior to issuance of the NOV. Galer Decl. ¶ 26. However, after issuance of the NOV, EPA advised GBZ that the tuners appear to also interfere with OBD systems and therefore are also illegal. *Id.* ¶ 25. Despite EPA's notice that the products in the NOV violate the CAA, and EPA's emphasis to GBZ during early discussions that it has concerns regarding all of GBZ's tuners, including those not in the NOV, GBZ continues to manufacture and offer for sale,

and sell, defeat devices and has added new defeat devices to its inventory. Galer Decl. ¶¶ 26, 30.

The United States seeks a preliminary injunction because each day GBZ illegally sells or transfers these products increases excess emissions and the associated harm to human health and the environment.

ARGUMENT

When installed, each defeat device that GBZ has sold and will sell causes diesel trucks to emit excess emissions of harmful pollutants. This Court should enjoin GBZ's sale and transfer of these devices because, as set forth below, the United States is likely to establish that GBZ's sale of these defeat devices is illegal, that ceasing their proliferation will prevent irreparable harm caused by excess pollution, and thereby further the goals of the CAA.[4]

I. Legal Standard for Issuing a Preliminary Injunction

To obtain a preliminary injunction, Plaintiff must demonstrate (1) it is likely to succeed on the merits; (2) it is likely to suffer irreparable harm in the absence of a preliminary injunction; (3) the balance of equities tips in its favor; and (4) a preliminary injunction is in the public interest. *Winter v. NRDC*, 555

[4] The transfer of defeat devices and any associated intellectual property, includes but is not limited to, donating, lending, sharing, or any other action that ultimately "causes" the sale of defeat devices.

U.S. 7, 20 (2008). In the Ninth Circuit, when "serious questions" on the merits are raised and the balance of hardships tips sharply in the plaintiff's favor, the issuance of a preliminary injunction is favored, assuming the other *Winter* factors are also met. *Alliance for the Wild Rockies. v. Cottrell*, 632 F.3d 1127, 1132 (9th Cir. 2011). This approach allows for the elements to be balanced so that a stronger showing of one element may offset a weaker showing of another. *Lopez v. Brewer*, 680 F.3d 1068, 1072 (9th Cir. 2012). Because the United States satisfies all four *Winter* factors, especially regarding success on the merits and equitable balancing, this Court should grant the Motion for Preliminary Injunction.

II. The Public is Entitled to Preliminary Injunctive Relief in this Case

A. The United States is Likely to Succeed on the Merits

As set forth above, to establish a violation of Section 203(a)(3)(B) of the CAA, 42 U.S.C. § 7522(a)(3)(B), the United States must show that: (1) GBZ is a "person;" (2) GBZ has and continues to manufacture, sell, and offer for sale a "part or component" intended for use with a motor vehicle or motor vehicle engine; (3) a "principal effect" of the "part or component" is to "bypass, defeat, or render inoperative any device or element of design" installed on the vehicle by the OEM; (4) the affected "device or element of design" was installed by the OEM in compliance with the mobile source regulations under Title II of the CAA; and (5) GBZ knew or should have known that the product would be offered for sale or installed for such use or put to such use. 42 U.S.C. § 7522(a)(3)(B). The only

element that requires in depth analysis is element (3): whether a principal effect of the products is to bypass, defeat, or render inoperative an element of design installed on the vehicle by the OEM, although the other elements are briefly discussed below.

1. GBZ Is a Person Who Manufactured, Sold, and Offered for Sale Parts or Components Intended for Use With Motor Vehicles

First, GBZ admits it is a person within the meaning of Section 302(e) of the CAA, 42 U.S.C. § 7602(e). *See* GBZ's Answer, ECF Doc. 9, ¶ 2. Second, since at least January 1, 2015, GBZ has and continues to manufacture, sell, and offer for sale parts or components intended for use with EPA certified "motor vehicles" or "motor vehicle engines." Galer Decl. ¶¶ 19, 30. GBZ advertises its products for use with and to be installed on specific Ford, GM, and Dodge diesel trucks. *Id.* ¶ 19. These OEMs sought and obtained COCs for these motor vehicles, which unequivocally demonstrates these are all "motor vehicles" under the CAA. *Id.* Thus, the first two elements to establish the violations are readily addressed.

2. A Principal Effect of GBZ's Products Is to Bypass, Defeat, or Render Inoperative a Device or Element of Design on a Motor Vehicle Installed in Compliance with the CAA

GBZ sells two types of products: hardware and software. Both of these types of GBZ products bypass, defeat, or render inoperative devices and elements of design installed in the motor vehicle in compliance with the CAA. As explained above, the OEM installs various hardware and software systems to

ensure that each motor vehicle meets CAA emissions standards. These devices and elements of design include (1) hardware exhaust, such as the EGR, and aftertreatment systems, such as the DOC, SCR, and DPF; and (2) OEM software calibrations residing in the vehicle's ECM that operate the hardware pollution controls, govern emissions-related engine parameters such as air-to-fuel ratio and engine timing, monitor emissions components to ensure proper functioning in accordance with the certified stock calibrations, and direct OBD functions as mandated by the CAA. Jones Decl. ¶ 13. As explained below, GBZ's products bypass, delete, or render inoperative emission control devices and elements of design.

Hardware Products. GBZ's hardware parts are undoubtedly prohibited defeat devices under the CAA because their only purpose is to remove emission controls. These parts include: EGR block plates and exhaust replacement pipes (straight pipes or delete pipes). Galer Decl. ¶ 15; Ex. B. GBZ's own marketing materials, product manuals, and online statements explicitly acknowledge that its hardware products defeat emission controls by blocking the exhaust return valve in the EGR system or physically removing various emission controls and replacing them with a hollow exhaust pipe. Galer Decl. ¶¶ 11, 16. Jorquera Decl. ¶¶ 32, 54. Moreover, GBZ admitted in its 208 Responses that all of its exhaust system components sold during the reported period of sales "enable[s] removal of an emission related part." Galer Decl. ¶ 15; Ex. B (Table 1 and Table 2). GBZ also

admitted to selling 866 block plates that disable the EGR and 129 exhaust replacement pipes that enable the removal of the DPF and/or DOC. *Id.*

Software Products. It is also evident that GBZ's tunes are prohibited defeat devices based on the product descriptions, manuals, source code, online customer communications, and 208 Responses. GBZ admitted in its 208 Response that its Dodge 3.0 tuner (GBZ-DD30), "disables or renders inoperative an emission related part," identifying the DPF as the affected emission part. Galer Decl. ¶ 15; Ex. B (Table 2). GBZ sold 656 of these Dodge 3.0 tuners (GBZ-DD30) during the Reported Period. *Id.* For GBZ's other tuners with preloaded tunes, the United States' software expert, Nigel Jones, applied software engineering principles in his review of GBZ's products for sale on its website—the product descriptions, user manuals, the product source code, customer Q&As online, and 208 Responses. Jones Decl. ¶¶ 1, 73. His Declaration thoroughly explains that a principal effect of GBZ's tuners with preloaded tunes is to bypass, delete, or render inoperative emission controls. *Id.* ¶ 111.

However, given the complexity of vehicle engine software in relation to the functionality of GBZ' tunes, this topic demands further discussion. Sections a-d below summarize Mr. Jones Declaration, starting with a general overview of vehicle software and how it relates to emission controls, in particular the ECM; ECM hardware; and how software communicates and functions throughout the vehicle, which are all foundational to tuning. Then, the four tuning methods

GBZ's software products employ with examples of how these methods impact emission controls is detailed. Next, Mr. Jones analysis of GBZ's highest grossing tuner, the Ford 4.0 Programmer, is laid out to illustrate how GBZ's pre-loaded tuners/programmers perform these methods of tuning resulting in a principal effect of defeating emission controls.[5] Finally, the last section concludes with a discussion showcasing examples of various GBZ communications with customers online, which highlight the delete capabilities and principal effect of its tuners.

a. Motor Vehicle Software Programing and Emission Controls

All of GBZ's tunes allow end-users to bypass, defeat, or render inoperative one or more emission controls, including hardware emissions controls and OEM software calibrations. Jones Decl. ¶¶ 2, 111. GBZ's tuners do so through ECM programing and signal and Controller Area Network ("CAN Bus") emulation. *Id.* ¶¶ 2, 53, 87, 111; Jones Decl. Appx D ¶¶ 126, 128, 137, 143, 151. In short, these tunes make changes to ECM programming in three respects: (1) by electronically disabling hardware emission controls such as the EGR and DPF; (2) by modifying (thereby defeating or bypassing) the OEM's certified stock calibrations for certain engine operations such as the emissions limits that trigger certain emission controls, engine power, torque, and fuel economy; and (3) by disabling critical

[5] A similar product analysis for the additional GBZ programmer/tuners offered for sale on its website can be found in Appendix D of the Jones Declaration. (Ex. 2, Appx. D).

OBD functions such as the diagnostic trouble codes ("DTCs") and MIL (described in the next paragraph) related to the emission controls. Jones Decl. ¶¶ 13, 26, 52-53, 79-87, 90, 101-105, 110.

The ECM. GBZ's tuners target the ECM because it is the vehicle engine's control center, or the engine ECU. *Id.* ¶ 22. The ECM adjusts a host of software parameters that govern and enable the operation of hardware emission controls such as the EGR and DPF, software emission control parameters that trigger emission controls to stay within emission limits, fuel injection timing, air-to-fuel ratio, engine timing, and OBD functions. *Id.* ¶ 13. OBD functions include triggering a DTC if a fault is detected, and the illumination of the MIL for certain issues. *Id.* In some vehicle applications, the ECM will gradually de-rate the engine power until the malfunction is fixed. Jones Decl. ¶ 13. This is commonly referred to as limp-home mode because it allows the vehicle to be driven, albeit slowly, home or to a garage to fix the problem. *Id.* The ECM employs this notification and de-rating protocol when certain emission controls are removed, disabled, or malfunctioning. *Id.* GBZ's delete tunes disable such notifications and derating, thereby facilitating the removal or disabling of emission controls. *Id.*

ECM Hardware. Vehicles contain dozens of ECUs that serve as microprocessors for each vehicle control system. *Id.* ¶ 22. Hardware subsystems in the ECM, such as microprocessors, sensor inputs, different types of memory, and the CAN Bus are utilized by tunes to perform tuning functions. *Id.* ¶¶ 23-31.

The ECM Flash memory contains the OEM-developed program, which enables the vehicle to comply with the requirements of the Certificate of Conformity. Jones Decl. ¶ 26. GBZ tunes change ECM programming by reprogramming the Flash memory. *Id.*

CAN Bus Interface and Vehicle Data Transmission. All of the ECUs, including the ECM, are connected to and communicate through the CAN Bus interface, which is the network for data transmission throughout the vehicle. *Id.* ¶ 38. ECUs broadcast information on the CAN Bus by sending out messages and any ECU connected to the CAN Bus can receive any message. *Id.* ¶ 38-39. An ECU interested in a particular parameter configures its CAN Bus interface to receive a message ID associated with that parameter. Jones Decl. ¶ 50. For example, an ECU that monitors an emission control system, such as the DPF, transmits an emission control status message stating whether or not the emission controls are working correctly. *Id.* ¶ 52. If the status is "OK," then the ECM would continue to run normally. *Id.* However, if the status becomes "Not OK," then the ECM will likely trigger related DTCs and illuminate the MIL and potentially cause the vehicle to de-rate into limp home mode. *Id.* The CAN Bus is accessible through the vehicle's OBD port on the dashboard. *Id.* ¶ 40. A device plugged into the OBD port, such as a GBZ tuner, can upload software that uses various methods to convince the ECM (and OBD) that emission controls are present and operating properly even if they are not. Jones Decl. ¶ 41.

b. Tuning Methods Used by GBZ Tuners and Programmers

GBZ's tunes modify vehicle software to circumvent emission controls through one or a combination of the following methods. *Id.* ¶ 46.

1) **Signal emulation**. An emission-control related sensor is disconnected and then the GBZ tune overrides sensor input data so that the ECM and OBD do not detect the removal and think the circuit is continuing to perform normally, thereby not triggering a DTC or MIL. *Id.* ¶¶ 47-49.

2) **CAN Bus emulation**. The tune replaces an emission control ECU with one that emulates the behavior of the original ECU but sends out false information. This works by communicating to the ECM that emission controls are functioning, even if they are removed or disabled. *Id.* ¶¶ 50-53.

3) **Mapping table modification**. The tune modifies the OEM data used by the ECM that is stored in a form called a mapping table or map. *Id.* ¶ 54. OEM maps adjust air-to-fuel ratio, timing, EGR percentage, etc., to produce an acceptable level of power, torque, and fuel economy, while keeping the vehicle's emissions within the legal limits. Jones Decl. ¶ 60. Maps are produced to EPA as part of the motor vehicle certification process. 40 C.F.R. § 86.1844-01(g)(6). Changing map values over-writes the OEM parameters to levels/limits high enough that the threshold to trigger emission controls is never reached, thereby defeating OEM

calibrations that ensure the vehicle meets emission standards. Jones Decl. ¶ 60. For example, tunes can change the DPF map values to a high enough level that PM accumulates beyond the OEM-set threshold levels without causing the DPF to regenerate and trigger the DTCs. *Id.*

4) **Executable code modification**. Tunes modify the actual executable code in the binary image, i.e., tune, instead of the maps. *Id.* ¶ 62. This is a step further and more technical than changing the maps, because it requires using a disassembler to convert the 1's and 0's of binary executable back into assembly language, then the actual instructions are modified to change the behavior of the program. *Id.* ¶¶ 62-63. For example, if the OEM instructions related to an emission control read "If DEF Level < 5 Then Turn MIL ON," modifying the actual OEM instructions through executable code modification to change the behavior would change the instructions to "If DEF Level < 5 Then Turn MIL OFF." *Id.* ¶¶63-64. This also requires a technical skill set or background in computer science or engineering, but is highly effective, because it can be repeated infinite times to the OEM certified stock image. Jones Decl. ¶ 65. Once all of the checks related to emission controls are suppressed, the modified image is then written back to the ECM using the same technique. *Id.*

GBZ's tuners use the above methods, alone or in combination, to defeat emission controls and provide the advertised engine performance. *Id.* ¶¶ 46, 74.

For example, GBZ's tunes include modified ECM binary images containing code that is uploaded to the ECM and suppress DTCs related to emissions controls through modified maps and executable code modification. Jones Decl. ¶¶ 65-66, 69. Delete tunes may also use signal emulation or CAN Bus emulation to convince the ECM that the emission control system is functioning properly. *Id.* ¶ 70.

c. Product Analysis of the GBZ-FD40 Ford 4.0 Programmer

On GBZ's website, tuners are listed for sale under "Gauges, Monitor and Tuning Systems." *Id.* ¶ 75. GBZ's highest selling tuner is the GBZ-FD40 Ford 4.0 Programmer. GBZ sold 3,375 of these programmers during the Reporting Period. Galer Decl. ¶ 15; Ex B (Table 2). The GBZ Ford 4.0 Programmer reprograms the ECM and suppresses DTCs, allowing a Ford truck to operate without the EGR, DOC, and DPF. Jones Decl. ¶¶ 79, 86-87. On GBZ's website, when a customer selects the Ford 4.0 Programmer a drop-down menu titled "Ford Exhaust Options" is presented that requires choosing one of three hardware delete hardware options, one of which is called the "CAT/DPF Delete Race Exhaust." *Id.* ¶ 77. Selecting this option adds two straight pipes to the order. Installation of these straight pipes requires the removal of the DOC and DPF and the Ford 4.0 Programmer to upload a delete tune to the ECM so that the vehicle can operate without these hardware emissions controls. *Id.* ¶¶ 79, 86-87. A screen shot of the GBZ webpage listing the Ford 4.0 Programmer is reproduced below, which shows

the two straight pipes included with the selected "Ford Exhaust Option" of "CAT/DPF Delete Race Exhaust."

As the image above shows, the product "Features" list includes "Reads and clears DTCs." Jones Decl. ¶ 81. The description links to the product manual, which lists all of the DTCs that the Ford 4.0 Programmer can clear, including several pertaining to emission controls. *Id.* ¶ 82. To use the Ford 4.0 Programmer in "DTC Mode," the product manual guides the end-user to clear (which in this application means suppress) all DTCs, including any that typically generate when removing the DOC and DPF. *Id.* ¶¶ 82, 85. The end-user may also choose "ECM Program Mode." During this step, the ECM is reprogrammed with

a new binary image. Jones Decl. ¶ 86. The new binary image is designed to operate with Ford model year 2011 diesel trucks that have the DOC and DPF removed. *Id.* The delete tuning methods employed here are mapping table modification, likely executable code modification, and signal emulation. *Id.* ¶ 87.

d. GBZ Online Customer Communications

GBZ's online customer reviews and Q&As also demonstrate that its tunes use the tuning methods outlined above. A publicly-available customer review for a GBZ tuner is reproduced below, and it confirms that the tuner downloads the ECM image to suppress DTCs after installing deletes. *Id.* ¶ 103. The customer says, "I installed dpf and cat delete pipes and egr delete kit and no codes." *Id.*

Tony on May 01, 2016

Wasn't sure about this tuner because of the price being so low compared to H&S and SCT tuners, but I decided to give if a try... it installs very easily, just plug it into OBDII port and it goes through the tuning and tells you when to unplug it. I installed dpf and cat delete pipes and egr delete kit and no codes. Runs much stronger and around 3 mpg better. I have the no hp gain tuner. You can feel the engine runs much freer. A good little tuner for the price

In response to a customer's question about which tuners support EGR block plates, GBZ answers, "[A]ll of our programmers support the EGR plates." Jones Decl. ¶ 99. In addition to selling EGR block plates, GBZ manufactures these hardware defeat devices that bypass the EGR system. Jones Decl. Appx D ¶¶ 159-161. In order to "support EGR plates" the GBZ tuner disables EGR-related DTCs. *Id.* ¶ 100. GBZ explains to its customers that its "maintenance mode" add-on, equipped on all GBZ tuners, disables the EGR-related DTCs. Jones Decl. ¶ 100; Galer Decl. ¶ 15 Ex. B.

Thus, GBZ's own admissions and the United States experts' analyses show that a principal effect of all of GBZ's products in Attachment A is to defeat, bypass, or render inoperative the emission controls on a motor vehicle by physically replacing them with hardware defeat devices and/or installing tunes that use one of the tuning methods described above to alter the ECM and/or the OBD programming. Jorquera Decl. ¶¶ 31, 62; Galer Decl. ¶ 20; Jones Decl. ¶¶ 2, 111.

3. GBZ Knew that Its Products Were Being Used on Motor Vehicles for Purposes of Defeating Emission Controls

GBZ knew that the products it manufactured, sold, and offered for sale were intended to be installed on a motor vehicle and used to bypass, defeat, or render inoperative emissions control devices. GBZ's defeat devices are marketed for use with various Ford, GM, and Dodge make and model year diesel trucks. Galer Decl. ¶ 19. On GBZ's website, when purchasing a defeat device, customers must select the vehicle make and model from the Ford, Dodge, and GM options provided; which are all EPA-certified motor vehicles. *Id.* GBZ's marketing, product descriptions, product manuals, and online communications all demonstrate GBZ's awareness of the use and purpose of its defeat devices on Ford, GM, and Dodge trucks. Jorquera Decl. ¶¶ 49-52.

GBZ also knew that installing and using its products on these diesel trucks removes or bypasses pollution controls. GBZ admitted to EPA that all of its exhaust system components (hardware defeat devices) enable removal of the DPF,

DOC, and/or EGR and that one tuner, the Dodge 3.0 (GBZ-DD30), disables or renders inoperative the DPF.[6] Galer Decl. ¶ 15; Ex. B (Table 2). GBZ also admits that its "maintenance mode" tune, identified as an "Add-On for all OBD Products," enables removal of the DPF, EGR, and SCR by preventing the OBD system from detecting the missing emission related parts. *Id.* Notably, GBZ's sale numbers show that "maintenance mode" was included with every tuner GBZ sold. *Id.* Additionally, GBZ's current website includes product descriptions that mention these capabilities (e.g., "4 Down-Pipe CAT/DPF Delete Exhaust"[7]), user manuals with specific instructions to remove or bypass controls ("Exhaust sensors do not need to go back in the pipe"[8]), as well as customer reviews and responses to customer questions submitted online that discuss the effect of removing the emission controls on their trucks ("All of our programmers support the EGR [delete] plates"[9]).

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[6] GBZ's response to EPA's information request identifies products sold between January 1, 2015 and April 24, 2017. However, the same products identified in GBZ's response are still offered for sale on GBZ's publicly available website, www.gearboxz.com, as of August 4, 2020.

[7] Gear Box Z, *Duramax 4.0 Programmer*, https://gearboxz.com/collections/gm/products/duramax-4-0-programmer-gbz-gmd40?variant=22035159879 (last visited May 21, 2020).

[8] Gear Box Z, *Ford DPF-R 4.0 Installation Instructions*, https://cdn.shopify.com/s/files/1/1286/9547/files/FD40.pdf?593079092716441981 (last visited May 21, 2020).

[9] Gear Box Z, *Customer Questions and Answers*, (April 26, 2017), https://gearboxz.com/blogs/news/customer-questions-and-answers-6 (last visited May 21, 2020).

Thus, this element is satisfied and the United States is highly likely to succeed in establishing that the aftermarket defeat devices it seeks to prohibit GBZ from manufacturing and selling are illegal under Section 203(a)(3)(B) of the CAA.[10]

B. GBZ's Products Cause Irreparable Harm

The traditional showing of irreparable harm is outlined in the subsequent sections, starting with the EPA estimated amount of excess emissions GBZ's products cause vehicles to generate, followed by the irreparable harm to human health that is caused by each air pollutant in excess. However, this requisite demonstration of harm is not essential here. When the United States is bringing a statutory enforcement action that authorizes injunctive relief, such as the Clean Air Act, the court can presume irreparable harm. *See FTC v. Consumer Def., LLC*, 926 F.3d 1208, 1213 (9th Cir. 2019). This standard in governmental enforcement actions authorized by statute has been applied in cases pertaining to vast subject matters. *United States v. Odessa Union Warehouse Co-op*, 833 F.2d 173, 175-76

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[10] Notably, GBZ claims it is exempted from Section 203(a)(3)(B) of the CAA because of a "maintenance exception." However, this is an affirmative defense that GBZ has the burden of proving, as this is the "general rule where [the defendant] claims the benefits of an exception to the prohibition of a statute." *U.S. Commodity Futures Trading Comm'n v. Monex Credit Co.*, 931 F.3d 966, 973 (9th Cir. 2019) (quoting *United States v. First City Nat'l Bank of Houston*, 386 U.S. 361, 366 (1967)).

(9th Cir. 1987) (Food, Drug and Cosmetics Act); *Navel Orange Admin. Comm. v. Exeter Orange Co., Inc.*, 722 F.2d 449, 453 (9th Cir. 1983) (Agricultural Marketing Agreement Act); *United States v. Hayes Int'l Corp.*, 415 F.2d 1038, 1045 (5th Cir. 1969) (Civil Rights Act).

GBZ's products cause vehicles to generate excess emissions of air pollution, resulting in irreparable harm to human health, specifically to respiratory and cardiovascular systems. It is well established that harm to human health and the environment constitutes irreparable harm for purposes of a preliminary injunction because "environmental injury, by its nature, can seldom be adequately remedied by monetary damages and is often permanent or at least of long duration, i.e., irreparable." *Amoco Prod. Co. v. Vill. of Gambell, Alaska.*, 480 U.S. 531, 545 (1987); *see also High Sierra Hikers Ass'n v. Blackwell*, 390 F.3d 630, 642 (9th Cir. 2004). It is undeniable that excess emissions from diesel trucks adversely affect the environment and create long-lasting, often permanent adverse health effects.

1. GBZ's Products Cause Excess Emissions of Harmful Air Pollutants

As discussed above, GBZ's illegal products include EGR block plates; hollow straight pipes that replace aftertreatment controls such as DOC, DPF, and SCR, and any related sensor and actuators; and tunes that modify or manipulate the ECM to enable removing hardware emission controls, change emissions-

related calibrations, and alter OBD functions so that such changes are not detected. Jorquera Decl. ¶¶ 31-38; Jones Decl. ¶¶ 13, 26, 45-46, 53, 99-104, 111. The use of GBZ's illegal products to disable emission controls cause diesel trucks to generate excess emissions of PM, NO_x, CO, and NMHC beyond EPA-approved levels. Jorquera Decl. ¶ 62. Because these controls reduce emissions by over 90 percent, removing or disabling them results in a vehicle producing from 10 to over 100 times the emissions it was certified to emit. *Id.* ¶ 18. On average, without emission controls, diesel trucks pollute at pre-2002 EPA emission standards levels, essentially reversing 20 years of EPA air pollution control. *Id.* ¶ 43.

EPA developed a two-pronged approach to estimate the excess pollution caused by removing emission controls from diesel trucks: testing and engineering analysis. *Id.* ¶ 39. Testing entails running a certified stock calibrated diesel truck through standard emissions testing in a laboratory, then deleting the emission controls and re-testing the truck to measure the change in emissions. *Id.* ¶ 41. EPA and its contractor, Eastern Research Group, Inc. ("ERG"), conducted 67 tests on five diesel pickup trucks using defeat device products functionally equivalent to GBZ's products. Jorquera Decl. ¶¶ 41-42, 56. Sixty-one of the tests were conducted with a tuner and the emissions control hardware intact, whereas six tests were conducted with a tuner and all of the emission controls removed (i.e., a "fully deleted truck" with a straight pipe installed in place of the factory exhaust system). *Id.* ¶ 42.

The EPA testing conducted with tuners and full deletes is representative of the excess emissions that result from GBZ products, as the GBZ tuners and straight pipes for Ford diesel trucks are functionally equivalent to two configurations EPA tested. Jorquera Decl. ¶ 56. The testing results demonstrate that GBZ's products cause exponentially higher emissions than a truck in its certified configuration. *Id.* For example, the EPA testing shows that a 2011 Ford diesel truck equipped with a tuner and straight pipe functionally equivalent to a GBZ tuner and GBZ "CAT/DPF Delete Race Exhaust" (straight pipe) emits 310 times more NO_x; 1,140 times more NMHC; 120 times more CO; and 40 times more PM than a 2011 Ford diesel truck equipped with certified stock emissions controls. *Id.* ¶ 56. The emission increases may differ slightly for other Ford trucks in different model years or with different engine displacements, but the net effect is essentially the same—a substantial increase in emissions. *Id.*

EPA also used engineering analysis to estimate the effect of GBZ's products. Engineering analysis uses engineering principles to estimate the emissions from a diesel truck without emission controls. *Id.* ¶¶ 43, 57. This conservative approach compares the certified emission rates from a fully-controlled truck meeting then-current EPA emissions standards using emission controls such as a DOC, DPF, EGR, and SCR (as applicable) against a similar truck with a similar engine built for the model year 2002. *Id.* ¶ 43. EPA used the model year 2002 trucks as the base comparison because aftertreatment emission

controls were not necessary for trucks to meet 2002 emission standards and are thus equivalent to a fully deleted truck. Jorquera Decl. ¶ 43. Furthermore, diesel engines have not changed significantly over time, so a 2002 and 2020 diesel engine are essentially technologically equivalent in function – although the emissions control technology has advanced considerably. *Id.*

EPA's engineering analyses also show that GBZ products for pre-2011 trucks cause significant increases in emissions. Jorquera Decl. ¶ 58. For model year 2004-2007 Dodge/Cummins engines, NMHC increases by seven times, CO increases by eight times, NO_x increases by ten times, and PM increases by forty-five times. *Id.* For model year 2008-2010 Ford trucks, CO increases twenty-one times and NO_x increases thirty-seven times. *Id.* For model year 2007-2010 GM trucks, CO increases by six times and NO_x increases by thirty times. *Id.* ¶ 55. This engineering analysis is highly conservative because it results in lower estimated excess emissions rates for a fully deleted 2011 Ford truck than EPA's own test results. *Id.* ¶¶ 46-48. For example, EPA testing demonstrates that the 2011 Ford trucks actually generate excess emissions closer to the same rate as a pre-control diesel truck did in the 1980's. Jorquera Decl. ¶¶ 46-47, 58. Therefore, the estimated emission increases using engineering analysis are less than what testing results have demonstrated in similar applications. *Id.* ¶¶ 46-48.

The cumulative impacts of excess emissions from GBZ's products, estimated by EPA using a conservative methodology, are astounding and undo

years of EPA regulation and industry advances in emissions control technology. The analysis shows that just 28 months of GBZ sales created an estimated 3,790 tons of excess NO_x emissions, 87 tons of excess PM emissions, 1,722 tons of excess CO, and 120 tons of excess NMHC over the remaining life of the vehicles equipped with GBZ's defeat devices. Jorquera Decl ¶ 60. GBZ averaged 262 sales per month for the reported sales period, which means each month GBZ's products are estimated to result in excess emissions of 132 tons of NO_x, 3 tons of PM, 62 tons of CO emissions, and 4 tons of NMHC over the remaining life of the vehicles. *Id.* ¶ 61. EPA utilized a conservative methodology in calculating these estimated emission increases. *Id.* ¶ 60. For example, to prevent double counting, GBZ's sales of EGR block plates, DPF emulators, and straight pipes were not counted because these parts may have been installed on the same trucks that GBZ tunes were installed on. *Id.* As a result, even though GBZ reported 8,323 sales of defeat devices between January 1, 2015, and April 24, 2017, the calculation only assumes 7,328 deleted trucks, representative of the 7,328 delete tuners GBZ sold. Jorquera Decl. ¶ 60; Galer Decl. ¶ 15; Ex. B (Table 2). More importantly, this only accounts for a 28-month period of GBZ sales. *Id.* GBZ sold defeat devices before this period, after this period, and currently offers these products for sale. Therefore, these alarmingly high estimates likely only represent a fraction of the actual excess emissions of harmful pollution caused by GBZ.

2. Excess Emissions Cause Irreparable Harm to Human Health

The negative health impacts from air pollutants found in diesel exhaust, like PM, NO_x, CO, and NMHC, are well known. *See Am. Petroleum Inst. v. EPA*, 684 F.3d 1342, 1345 (D.C. Cir. 2012) (Combustion processes in automobile and truck engines account for most of the production of NO_x, which have a variety of documented adverse effects on human health, including increases in asthma attacks respiratory illness in children.). CO, NO_x, and PM are criteria pollutants under the CAA, meaning EPA must establish national ambient air quality standards for these pollutants because of the danger they pose to human health. *See* 40 C.F.R. §§ 50.1-50.19. The adverse impact to respiratory health caused by air pollution, especially for those with respiratory ailments, is a textbook example of irreparable harm. *Beame v. Friends of the Earth*, 434 U.S. 1310, 1314 (1977).

Diesel exhaust is a major source of these air pollutants and they are easily inhaled by the public, particularly in urban environments. Jorquera Decl. ¶ 11. Burning diesel fuel forms NO_x, which includes nitrogen dioxide, a pollutant known to aggravate asthma and contribute to the development of asthma.[11] NO_x and NMHCs are reactive gases that contribute to the formation of ozone and PM.

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[11] Integrated Science Assessment (ISA) for Oxides of Nitrogen – Health Criteria (Final Report). U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-15/068, 2016.

85 Fed. Reg. 3,306, 3,310 (Jan. 21, 2020). Ozone exposure reduces lung function and causes respiratory symptoms like coughing, shortness of breath, chest pain, and congestion, and worsens bronchitis, emphysema, and asthma. *Id.* PM is a mixture of solid particles and liquid droplets that form in the air from the reaction of NO_x.[12] PM in diesel emissions include PM 2.5 particles, which are very small, roughly 30 times smaller than a human hair. *Id.* Exposure to PM can cause harmful effects on the cardiovascular and respiratory systems, including heart attacks, strokes, and asthma attacks. 85 Fed. Reg. 3,306, 3,310 (Jan. 21, 2020). CO is a colorless, odorless, highly toxic gas that forms when the carbon in fuel does not burn completely.[13] When inhaled, CO can reduce the amount of oxygen transported in the blood stream to essential organs like the heart and brain. *Id.*

These various health problems may result in increased medication use, emergency room visits, hospitalizations, and in some cases, premature death. *Id.* Vulnerable groups such as the elderly, children, outdoor workers, and those with heart or lung disease are particularly at risk from exposure. *Id.* The current COVID-19 health crisis exemplifies how underlying health conditions like those

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[12] U.S. EPA, *Particulate Matter (PM) Basics*, https://www.epa.gov/pm-pollution/particulate-matter-pm-basics (last updated Nov. 14, 2018).
[13] U.S. EPA, *Carbon Monoxide (CO) Pollution in Outdoor Air*, https://www.epa.gov/co-pollution/basic-information-about-carbon-monoxide-co-outdoor-air-pollution#Effects (last updated Sept. 8, 2016).

caused by these pollutants, can increase susceptibility to other infections, which can be fatal. The health risks from exposure to these pollutants and environmental impacts cannot be undone or remedied, and are by definition irreparable and merit an injunction to prevent further harm. *Shell Offshore Inc. v. Greenpeace, Inc.,* 864 F. Supp. 2d 839, 851 (D. Alaska 2012).

It is undeniable that GBZ's illegal products have generated excess emissions, which has caused and will continue to cause irreparable harm. Respiratory illnesses, cancer, and heart disease are often permanent and incommensurable with money, emphasizing the necessity of an injunction to prevent any further damage.

C. Public Health Harm Outweighs Potential Economic Harm to GBZ

Before issuing an injunction, the Court must find that the balance of hardships favors the plaintiff. *Winter*, 555 U.S. at 20. In this case, that balance weighs heavily in favor of issuing a preliminary injunction. Specifically, the harm to public health and the environment from excess emissions of air pollution associated with GBZ's defeat devices substantially outweighs any potential harm to GBZ in temporarily halting sales and transfers of its defeat devices.

Generally, courts have found that avoiding even **potential** harm to the public health and environment trumps **certain** economic loss to the polluter. *League of Wilderness Def. v. Forsgren*, 184 F. Supp. 2d 1058, 1070-71 (D. Or.

2002) (finding that potential harm to environment outweighs certain financial loss); *see also Arkansas Wildlife Fed'n v. Bekaert Corp.*, 791 F. Supp. 769, 784 (W.D. Ark. 1992) (finding that issuing an injunction with strict adherence to permit levels that would likely put the defendant out of business was outweighed by the benefit to the community of lessening the environmental harm). Here, the harm to human health and the environment is not just possible but is certain and permanent. In contrast, any economic harm to GBZ is the mere delay of its profits from selling defeat devices. Such economic harm is not "irreparable." *Los Angeles Mem'l Coliseum Comm'n v. NFL*, 634 F.2d 1197, 1202 (9th Cir. 1980). In contrast, the loss of life and impact of living with a serious respiratory illness or disease cannot be rectified and thus clearly outweighs temporary financial loss, which favors issuing the requested injunction.

D. A Preliminary Injunction is in the Public Interest and Furthers the Goals of the CAA

Congress' goals behind the CAA further supports issuance of a preliminary injunction in this case. Congress enacted the CAA "to protect and enhance the quality of the Nation's air resources as to promote the public health and welfare and the productive capacity of its population," and "to initiate and accelerate a national research and development program to achieve the prevention and control of air pollution." *See* 42 U.S.C. § 7401(b). In creating the CAA, Congress found, in part, that "the increasing use of motor vehicles . . . has resulted in mounting

dangers to public health and welfare." 42 U.S.C. § 7401(a)(2). EPA is required to set emission standards for air pollutants from motor vehicles, which have been found to cause, or contribute to, air pollution that may endanger public health or welfare. 42 U.S.C. § 7521(a)(1). These pollutants include NO_x, PM, NMHCs, and CO. 42 U.S.C. § 7521(a)(3)(A).

Vehicle emission controls are crucial to achieving emission standards and thereby reducing air pollution. Recognizing this, Congress prohibited the manufacture, sale, and installation of defeat devices. 42 U.S.C. § 7522(a)(3)(B). The sale and installation of defeat devices on motor vehicles nullifies emission limits, derails long-term EPA projections and goals to reduce air pollution, and harms public health and the environment. While this Court has equitable discretion in selecting the appropriate injunctive relief, "Courts of equity cannot, in their discretion, reject the balance that Congress has struck in a statute." *United States v. Oakland Cannabis Buyers' Coop.,* 532 U.S. 483, 497-98 (2001). Congress prohibited the sale of defeat devices to ensure that EPA emission limits are adhered to in an effort to achieve air quality standards to protect public health and the environment. The United States' proposed injunction prevents additional defeat devices from entering commerce and voiding vehicle emission controls, in the least impactful way to Defendant.

Halting GBZ's illegal actions that frustrate the CAA objectives benefits the public interest. *High Sierra Hikers Ass'n*, 390 F.3d at 642 (public interest

benefitted by preliminary injunction when the management practices of defendant was contrary to environmental statute's goals); *see also City of S. Pasadena v. Slater*, 56 F. Supp. 2d 1106, 1142 (C.D. Cal. 1999) (potential violations of the CAA and other environmental statutes sufficient for the issuance of a preliminary injunction). Thus, temporarily halting GBZ's illegal sale and transfer of defeat devices for diesel trucks best serves the public interest and Congressional intent of enhancing air quality to protect public health and productivity, thereby favoring preliminary relief here.

CONCLUSION

The United States respectfully requests that this Court prevent further environmental harm caused by GBZ's illegal activity by ordering GBZ to cease all sales and transfer of its defeat device products as identified in the "GBZ Defeat Device" product list in Attachment A, as well as any substantially similar products, and any associated intellectual property.

Respectfully submitted,

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