

14 Nov 2024

Via Email & Certified Mail, Return Receipt Requested

Michael Regan, Administrator U.S. Environmental Protection Agency William Jefferson Clinton Building 1200 Pennsylvania Avenue, NW Mail Code 1101A Washington, D.C. 20460 <u>Regan.Michael@epa.gov</u>

Debra Shore, Regional Administrator U.S. Environmental Protection Agency Region 5 77 W. Jackson Blvd. Chicago, IL 60604 <u>Shore.Debra@epa.gov</u>

# Re: Clean Air Act Notice of Intent to Sue for Failure to follow CAA as written for full useful life.

Dear Administrator Regan and Regional Administrator Shore:

Green Diesel Engineering LLC (GDE) gives notice to the Environmental Protection Agency, Michael Regan and Debra Shore (collectively "EPA") of GDE's intent to sue EPA for its failure to follow its mandatory duty to adhere to the Clean Air Act as written. GDE sends this notice pursuant to section 304(b) of the Clean Air Act ("Act"), 42 U.S.C. § 7604(b), and 40 C.F.R. SS 54.2 and 54.3. At the conclusion of the 60-day notice period, GDE intent to file suit under section 304 of the Act, 42 U.S.C §7604, to prosecute EPA's failure to improve the health and welfare of citizens.

On 31 May 2023, GDE entered into a settlement with the United States Environmental Protection Agency (EPA) to resolve alleged violations of Section 203(a)(3)(A) and 203(a)(3)(B) of the Clean Air Act, related to the removal and/or rendering inoperative of emission control devices and elements of design and the manufacturing selling, offering to sell, and/or installing defeat devices for use on heavy-duty diesel engines. Refer to Docket No. CAA-05-2023-0017.

EPA violated the CAA 42 U.S.C. Chapter 85, Subchapter II, Part A, Sec.7521 and 7541 as it pertains to useful life of vehicles. Vehicle emission standards and compliance are based on defined useful life periods based on the application. For most vehicles, full useful life is defined as 10 years or 120,000/150,000 miles, whichever comes first. After full useful life there are no written regulations in Clean Air Act or the Code of Federal Regulations (CFR). EPA states in Mobile Source Enforcement Memorandum N0. 1A, dated June 25, 1974 that modifications within full useful life limits need to meet certain requirements. EPA revised this memorandum on November 23, 2020 and added the following wording: "The Act's prohibitions on tampering and defeat devices apply for the entire life of vehicles, engines and equipment. They apply regardless of whether the regulatory "useful life" or warranty period has ended." This statement goes beyond EPA authority as provided by Congress in CAA. The EPA should not be interpreting law or creating new laws. If the government wants to create emission regulations for vehicles in their after-life, this needs to go through congress.

# Green Diesel Engineering

Vehicle emission systems are complicated with technology issues and degradation over time. EPA understands this as 4,000 mile emission limits are more restrictive than limits at 150,000 miles, they expect tailpipe emissions to degrade during useful life. Holding emission levels beyond full useful life defies engineering principles on component durability.

GDE will be suing for recouping the consent decree fine, lawyer fees, and lost revenue over the last 5 years. EPA has reached beyond their authority and targeted only a few companies, while others continue operating with no change or enforcement action. The vehicles GDE tuned were all outside the full useful life emission regulations and not subject to emission regulations.

EPA never performed any emission testing of GDE tunes. GDE ran emission testing at a 1066 emission certified test lab to determine total tailpipe emissions of HC, CO, CO2, NOx and PM. Those results show total tailpipe emissions were reduced by 90 gr/mile. 99% of this reduction is in the form of less CO2. EPA stated they do not care about CO2 in the environment, this is very bad policy and will lead to continued climate change. Below is a full assessment of automotive emissions and shows the misguided efforts of EPA.

## Alternative Emission Strategy Proposal

 The Environmental Protection Agency (EPA) has stated that the Clean Air Act (CAA) was created in part "to protect and enhance quality of the Nation's air resources so as to promote 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."

• When the CAA was enacted in 1970, our nation had levels of excessive SO<sub>2</sub> and NO<sub>x</sub> emissions. However, changes made to fuel and combustion technology, significantly reduced those pollutants which left the air quality good by 1990. Since that time, the push to further reduce NO<sub>x</sub> emissions to hundredths of the gram per mile, inevitably resulted in a detrimental increase in CO<sub>2</sub> and N<sub>2</sub>O greenhouse gases. This catch-22 occurs in diesel combustion, because there is a tradeoff. In order to reduce NO<sub>x</sub> (NO and NO<sub>2</sub>), the burn cycle must become less efficient and more fuel is needed for the same torque. Ironically, the more fuel that is burnt; the more CO<sub>2</sub> is produced which seemingly defeats the purpose of reducing NO<sub>x</sub>. During the last 28 years our transportation fleet has created almost 20% more CO<sub>2</sub> yearly, in comparison to a transportation fleet calibrated for minimum CO<sub>2</sub> and increased NO and NO<sub>2</sub>. The US averages 1800 million metric tons of CO<sub>2</sub> formation from the transportation sector on a yearly basis. If the US focused on minimum CO<sub>2</sub>, we could realize a drop of 450 million metric tons of CO<sub>2</sub> per year from this sector. <u>https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions</u>

• Controlling air pollution is vital in the US and the entire world. The long-term detriments of increasing CO<sub>2</sub> on this planet, cannot be understated. CO<sub>2</sub> is a stable gas with a 300-year half-life. Once CO<sub>2</sub> is made, it will stay in the atmosphere and continually warm the planet which could lead to environmental problems and strains on our economic systems. NO<sub>x</sub> on the other hand, is an unstable compound and has roughly a day half-life on this planet. Organically, it breaks down into N and O<sub>2</sub>—both elements which are naturally found in our atmosphere.

2. A goal of CAA, is to align emission standards to "reflect the greatest degree of emission reduction achievable through the application of [available] technology."

• In the transportation sector, we are not achieving the greatest degree of  $CO_2$  reduction. The entire fleet of diesel vehicles in the US could achieve a 20% reduction in  $CO_2$  formation with proper guidance. • The current technology is focused on minimizing NO<sub>x</sub> without regard to CO<sub>2</sub>. These technologies in Selective Catalytic Reduction (SCR) and Exhaust Gas Recirculation (EGR) are problematic at best and increase the life cycle operating costs. As a result, this increase in "well to wheels" emission levels must be considered in both the manufacturing and recycling processes.

• SCR has been on vehicles for 10-15 years. Though this technology does lower NO<sub>x</sub> emissions, the by-products it generates include ammonia (NH<sub>3</sub>) and nitrous oxide (N<sub>2</sub>O). Ammonia is more detrimental for humans than NO or NO<sub>2</sub>, and N<sub>2</sub>O is a strong greenhouse gas which is roughly 300 times more potent than CO<sub>2</sub>. In the long run, increasing these by-products is not a good trade-off for the environment or those concerned about climate change.

- 3. NO and NO<sub>2</sub> (NO<sub>x</sub>) have been over-regulated for decades. Yet rather than gaining a better understanding of the chemistry, properties and usefulness of NO and NO<sub>2</sub>, issues are being researched in an effort to stimulate further reductions.
  - NO and NO<sub>2</sub> are naturally forming compounds on this planet, primarily as a by-product of lightning. NO<sub>x</sub> formation from lightning is greater than the entire transportation sector on a yearly basis with an estimate of 8.6-34 million metric tons.

     (https://www.nasa.gov/topics/earth/features/nox\_lightning.html)
     (https://www.epa.gov/report-environment)
  - NO<sub>x</sub> never accumulates on the Earth as it is constantly decomposing into Nitrogen and Oxygen.
  - NOx is produced endogenously by humans. This means our lungs produce NOx internally as a by-product of breathing. Human NOx production varies based on food intake, activity level and constituents in the air. More research should be focused here. (Thoraz 1999;54:947-952, Nasal Nitric Oxide in Man, J Lundberg, E Weitzberg), (Integrated Science Assessment for Oxides of Nitrogen, EPA/600/R-15/068, January 2016. Pg. 351, 356, 360-361.)
  - Some research claims NO<sub>x</sub> leads to asthma; however, the correlation is weak and causation is not apparent. The majority of asthma cases correlate strongly with seasonal mold and pollen airborne allergens. Asthma is most prevalent in spring and fall months. (<u>https://data.web.health.state.mn.us/asthma-charts</u>), (Integrated Science Assessment for Oxides of Nitrogen, EPA/600/R-15/068, January 2016. Pg. 490-500.)



The graph above shows the significant reductions in NO<sub>2</sub> across the US in the last 40 years. The US has been below the National Ambient Air Quality Standards (NAAQS) safety thresholds for decades, including the 1-hour threshold at 100 ppb. We solved the NO<sub>x</sub> issue 40 years ago. NO<sub>x</sub> regulations for combustion engines should be reverted back to acceptable levels to allow for 20% CO<sub>2</sub> reduction. Powertrains need to be calibrated for minimum fuel consumption in all operating conditions.



There is a consensus that the rising rate of  $CO_2$  is leading to global climate change.  $CO_2$  does fluctuate naturally on this planet over time, and it can change rapidly when a calamitous natural disaster occurs, such as a large volcanic eruption, or meteor impact that burns a significant portion of the planet. These have happened several times on planet earth.  $CO_2$  spikes from a natural disaster are somewhat similar to the  $CO_2$  spike we have seen in the last 100 years. With the advent of the industrial revolution, the imprint of human activity contributed significantly to the release of  $CO_2$ . If this trend continues, subsequent generations will be at risk.

The goal should be carbon neutral, but this will take decades to achieve and new technology required. In the interim, we must limit  $CO_2$  generation as best we can. Changing to plant-based fuels offer the largest net decrease in  $CO_2$  formation. If all transportation was converted to plant-based fuel, net  $CO_2$  would drop 70% on a yearly basis. This approach offers the lowest net carbon in the atmosphere.



The graph above is from a NASA satellite image which highlights the areas with NO<sub>x</sub> issues. Since these areas are predominantly urban vicinities or downstream of power plants, it would be more beneficial to focus on localized efforts to reduce NO<sub>x</sub>. A good 70% of people live in the urban areas and reducing NO<sub>x</sub> in these inner cities will provide the most focused assistance. Ideally, most city transportation would be electric to eliminate emissions at source. Cities could build large parking lots outside urban areas for combustion vehicles and mass electric transit into city center. Keep in mind, electric vehicles do not reduce emissions, but rather change where those emissions are produced (battery mining / manufacturing / recycling plants) and electric power-distribution facilities. Moving the emissions away from where most people live would be prudent. Electric transportation does not reduce CO<sub>2</sub> emissions over the vehicle life cycle due to battery manufacturing, mining, recycling and charging. Electric vehicles will help reduce smog in LA, Denver, etc. where there is poor airflow, however, they will not reduce carbon emissions when battery recycling/lifespan is incorporated in the well to wheels analysis. (https://climate.mit.edu/ask-mit/are-electric-vehicles-definitely-better-climate-gas-powered-cars),( https://www.iea.org/data-and-statistics/charts/comparative-life-cycle-greenhouse-gas-emissions-of-amid-size-bev-and-ice-vehicle), (https://www.epa.gov/greenvehicles/comparison-your-car-vs-electricvehicle),(https://www.sciencedirect.com/science/article/pii/S1361920921000614).

## **Proposed Emission Standard Guidelines**

- Modify the emission standards on gasoline and diesel with the primary emphasis to be on minimizing CO<sub>2</sub>.
- Increase NO<sub>x</sub> limit for diesel engines to 3 gram/mile on EPA emission test cycles. This is still cleaner than 1980 standards. With proper engine tuning, the smaller NO<sub>x</sub> increase allows for a decrease of 100 gram/mile of CO<sub>2</sub>.

- Maintain the theme of clean diesel and keep particulate filters to prevent PM (particulate matter) emissions.
- Manufacturers could add GPS software to go into low NO<sub>x</sub> mode when near NO<sub>x</sub> abatement zones.
- Re-allocate tax incentives for urban residents to purchase BEV (battery electric vehicle)
- Work with states on regional smog issues as these are very limited in geographical area. The top cities are: Los Angeles, Denver, Miami, New York City, Houston, Atlanta, etc. Moving to primarily electric vehicles in dense population zones eliminates point of use emissions.
- Work with bio-fuel producers, farmers, refineries as needed to promote plant-based fuels that do not impact the food system. Hemp would be a good starting point as the entire plant can be utilized. The seed oil produces bio-diesel and the stalk produces ethanol. A robust bio fuel industry could reduce CO<sub>2</sub> up to 1000 million metric tons yearly.
- Electric is a good solution for local driving patterns. It is not good for long distance runs or pulling loads and does suffer in range with extreme cold or heat.
- Re-calibrating vehicles in the field for low CO<sub>2</sub> will yield the quickest return on investment.

#### **Identity of the Noticing Party**

GDE

Keith Cavallini, President 1032 Rig Street Commerce Township, MI 48390 Telephone: (248) 787-6177 Email: keith@greendieselengineering.com

#### Conclusion

Following the 60-day period, GDE will file suit in U.S. District Court to compel EPA to perform its regulatory duty under the Clean Air Act. If you wish to discuss this matter short of litigation, please direct all future correspondence to Keith Cavallini.

Sincerely,

Keith Cavallini

Keith Cavallini

Cc: Christopher Grubb Office of Regional Counsel U.S. Environmental Protection Agency, Region 5 grubb.christopher@epa.gov

> Caitlin Kelleher Meisenbach Attorney-Advisor Vehicle and Engines Enforcement Branch Office of Enforcement and Compliance Assurance U.S. Environmental Protection Agency Meisenbach.Caitlin@epa.gov

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