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From: [redacted]
To: EVOQ (NHTSA); [redacted]
Cc: NHTSA ODI CRD; [redacted]
Subject: ODI-11442614 and 11449287
Date: Friday, February 25, 2022 6:44:09 PM

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[redacted]
Subject: [redacted]FMCSA complaint number): 11442614 NHTSA TRACKING NUMBER: 11449287 NHTSA TRACKING NUMBER
To: vsh@dot.gov, nccdb@dot.gov, nhtsa.webmaster@dot.gov

Hi, my name is [redacted] If you receive this email, then you likely know what my complaints are regarding truck exhaust fumes coming into the cab of International LT series and Prostar series tractors. If you are not familiar, I am willing to provide any needed background information. Here is a link to thermal videos of the main complaint of Crankcase ventilation leaking under the hood:
[redacted]

I had the pleasure of receiving a call from the Director of FMCSA in Little Rock, AR. I had presented compelling evidence that International trucks with Cummins engines, having an Open Crankcase Ventilation system, leak copious amounts of engine fumes under the hood. I had it explained to me that the Exhaust system of these trucks meet requirements, since the CFR does not specifically label crankcase ventilation as "exhaust", although crankcase ventilation is always mentioned in conjunction with engine exhaust in the CFR. Crankcase ventilation is defined as "Emissions", and the EPA regulations state that it must be counted as part of total exhaust emissions when tested, if it vents to the atmosphere.

I was informed that I cannot prove how much exhaust gas is getting into the cab, and if it is above acceptable limits. That supposes that a certain amount of emissions is ok for me to breathe in an enclosed space for long periods of time. I can assure you that it is not. If I had not become ill from it, and found that having fresh air has slowly been curing my problems, I would never have looked. If I had not previously had a month-long exposure to much higher levels of exhaust fumes, after which I had some of the same physical problems, I might never have thought to look. Also, being told that I cannot prove how much is coming into the truck implies that nobody else has tested this. The least JB Hunt or Cummins/Navistar could do is send one of the identified tractors for proper testing. Or maybe FMCSA, if they have the resources and jurisdiction.

The conclusion reached by the Director was that JB Hunt had done its part in regard to exhaust leak from the crankcase. When asked what that means, I was told that JB Hunt did not change the design of the truck, and that is doing their part. After stating that the regulations state the "Exhaust" system cannot leak under the hood or cab (which is true), and that the designed crankcase ventilation is not defined as part of the "exhaust" system, he told me that he could not tell JB Hunt to change the design of the truck. Further, JB Hunt would not be willing. The Director stated both he and JB Hunt are not willing to take on the liability if something were to go wrong, which is understandable.

This ignores the liability for driver health issues, probably mostly long term, from breathing exhaust gases and oil/fuel vapors plus other chemicals. I was asked what I thought should be done to fix the trucks. I stated that a length of hose could be run along the frame from the crankcase ventilation opening to the rear of the cab, or at least extend the existing tube close to the ground. That was the design of many older tractors, for good reason. Having the crankcase exhaust routed to the rear of the cab would eliminate gases coming in while parked, as well as while driving. Metal hose would probably work fine if fire is a concern, as was suggested by the Director.

Of course, when I removed the plastic fenders from under the hood to clear out the exhaust, JB Hunt said I was defacing the truck. I must drive it as designed, or not at all. The panels I removed did clear out most of the exhaust, but had the side effect of pulling SCR leaks forward from under the cab (at least more than before). My

health concerns were not important enough for JB Hunt to allow me to leave a couple of plastic fenders behind at the yard. I suppose that is JB Hunt doing its part, also. With approval from FMCSA, it seems.

I restated to the Director that whether the law specifically names crankcase ventilation as part of the exhaust does not change the fact that it is exhaust gases; I will provide supporting references from EPA, manufacturers, etc., proving as much. If anything, Crankcase Ventilation gases are worse than the regular exhaust.

---- As an aside, JB Hunt and various government employees have said that lots of people would complain if it were a real problem. If drivers end up slowly poisoned, and the immediate effects seem relatively minor, and they don't have a reason to suspect they are being poisoned, how can they complain? I do know that drivers on my account at JB Hunt do not want to move to an International after having been assigned to a Freightliner. They cannot seem to agree why, but they mostly prefer not to drive an International. If you feel better driving one truck as opposed to another, but don't know why, there still is a reason, even if you can't articulate what it is. The first driver on my account that I asked how he was feeling, he told me that when it became colder and he started running with his windows up, he started getting headaches and his eyes were burning. He said he got some cold medicine for it. At my suggestion, he asked to have truck checked for exhaust leaks. He was assigned a different tractor, after which the problems stopped. His problems were likely more due to After-treatment leaks; many of these model trucks have Regen/ammonia leaks as well. ----

What I ended up telling the Director, since he asked for my input, was that JB Hunt could go to the manufacturer and ask for the problem to be fixed. I was told that engineers designed, and the governing bodies (NHTSA, etc) accepted the design, so it must be fine. The Director claims that at least the current design is legal, even if exhaust is getting into the cab from the designed location of a designed exhaust leak. This opinion doesn't take into account the approval process, which I have found to allow much self-testing and self=reporting by the manufacturers to the NHTSA, EPA, etc. It is also worth noting that a previous Senior VP at Navistar testified in court that Navistar "did not test !@#. Those facts lead to the possibility of flawed and unsafe/improperly tested equipment getting approved and manufactured. Navistar is owned by Volkswagen Group, and they have had their problems with getting caught falsifying emissions data. I am not saying this is the case here, only pointing out that approval of a design does not mean it is actually safe, or properly tested/reported.

To date, I have yet to find any test anywhere done to find the amount of exhaust gases getting into tractors. Seattle found the time to test school buses and found that crankcase fumes were the main contributor to pollution on buses. Trucks have bigger engines, and only about 5% of the cab space of a bus.

A design flaw is only noticed when it becomes apparent to someone. It has become apparent to me; the Director says that if it is a design flaw, it's up to NHTSA. His job is to make sure that companies' equipment is functioning as designed. It seems I was mistaken in thinking that the Safety Inspection rules for truck drivers would apply to a designed exhaust leak, as well as the accidental ones.

I shouldn't be asked to prove to a scientific certainty the amount of exhaust gases coming into the cab. It is enough I proved it does. The extreme spikes in CO2 in the cab when parked sometimes is enough to prove that. I was asked by JB Hunt to prove there were leaks, and then to find the leaks. I did both. All leaks I found on the right side of the engine were addresses (and I did have to find them, since Maintenance was unable to find them all). When I found and presented thermal video evidence of the much worse leak on the left side of the engine, all action stopped. I was told many times to drive their "functioning" equipment, or stay home. Cummins at least had my last tractor routed to their shop. It turns out they only would address the other leaks from the after-treatment system. Cummins claims they can't fix the crankcase ventilation problem because JB Hunt won't ask/tell them to. JB Hunt says they can't change the design of the truck.

OSHA says it's not their jurisdiction since the workplace crosses state lines (even though they are a Federal agency). FMCSA says they can't handle it, since it's being used as designed. Even when presented with an obvious exhaust leak under the hood/cab and ahead of the driver, since the Crankcase Ventilation isn't legally defined as part of the Exhaust System, it doesn't count. Of course, if a Closed Crankcase Ventilation system were used, it would add these gases to the exhaust stream. That's because it's exhaust.

Maybe EPA will take an interest. Just based on what i've experienced and recorded, it doesn't seem likely that EPA is fully aware of how much emissions is coming from the Crankcase ventilation on these model engines.

They also likely aren't aware the cabins allow so much of it in. Also, gases from the turbo are also vented from the same opening. Under a load, and with the turbo engaged, it is definitely a lot of exhaust. Enough that not only can I continuously smell it coming from the a/c vents, but if I open the window, I can smell what is being pushed out a small opening at the top of hood coming in from the outside.

As for health effects, since I started running with the windows open, I can say that my breathing is 80 percent better than before. The air in these trucks always seemed heavier than the outside air, likely due to the chemicals and vapors in it. My mood and cognitive abilities have slowly become better. My digestion is getting back to normal. I only notice now how much better I feel, since I have very slowly felt worse over the last 4 years. I wasn't paying much attention, and thought it was my new normal. At least until I was sick enough to pay attention.

It seems reasonable to me that just adding a few feet of tube, and eliminating the possibility of drivers breathing exhaust, would be worth doing. Closing the gaps in the firewall would help as well. I think I have identified the major gap in the firewall, as i have notified JB Hunt and manufacturers. It also seems reasonable that those with oversight of commercial vehicle safety would be willing and able to address an obvious exhaust leak that violates their own regulations, even if it doesn't have a legal label calling it exhaust.

...

To answer the question "Is crankcase ventilation exhaust?", here are relevant citations:

49 CFR:§ 393.83 Exhaust systems.

"a. Every motor vehicle having a device (other than as part of its cargo) capable of expelling harmful combustion fumes shall have a system to direct the discharge of such fumes. No part shall be located where its location would likely result in burning, charring, or damaging the electrical wiring, the fuel supply, or any combustible part of the motor vehicle.
g. No part of the exhaust system shall leak or discharge at a point forward of or directly below the driver/sleeper compartment. The exhaust outlet may discharge above the cab/sleeper roofline."

[redacted]

40 CFR 86.007 11(c): Emission standards and supplemental requirements for 2007 and later model year diesel heavy-duty engines and vehicles.

"No crankcase emissions shall be discharged directly into the ambient atmosphere from any new 2007 or later model year diesel HDE, with the following exception: HDEs equipped with turbochargers, pumps, blowers, or superchargers for air induction may discharge crankcase emissions to the ambient atmosphere if the emissions are added to the exhaust emissions (either physically or mathematically) during all emission testing. Manufacturers taking advantage of this exception must manufacture the engines so that all crankcase emission can be routed into a dilution tunnel" ... "and must account for deterioration in crankcase emissions when determining exhaust deterioration factors. For the purpose of this paragraph (c), crankcase emissions that are routed to the exhaust upstream of exhaust aftertreatment during all operation are not considered to be "discharged directly into the ambient atmosphere."

[redacted]

US EPA:
"The 2007 emission standards and later amendments introduced a number of additional provisions:
Crankcase Ventilation—Effective from 2007, the regulation maintains the earlier crankcase emission control exception for turbocharged heavy-duty diesel fueled engines but requires that if the emissions are discharged into the atmosphere, they be added to the exhaust emissions during all testing. In this case, the deterioration of crankcase emissions must also be accounted for in exhaust deterioration factors."

[redacted]

Caterpillar Application & Installation Guide Crankcase Ventilation Systems

"Crankcase emissions are
essentially concentrated exhaust
fumes"
[redacted]

Dieselnet.com: Crankcase Ventilation
"The crankcase of a combustion engine accumulates gases and oil mist—called blowby—that can leak from several sources. The most important source of blowby is the combustion chamber, Figure 1 [Avergard 2003]. Most of the combustion blowby occurs when the combustion chamber pressure reaches a maximum, during the compression and the expansion strokes. At high pressures, the gases leak to the crankcase around the piston rings and through the piston ring gap."
[redacted]

CUMMINS.COM: Crankcase Ventilation
"Since crankcase emissions can
contribute up to 25% of total emissions, control of this air pollution source is critical"
[redacted]

NIH.gov Cited study: Quantification of Self Pollution from Two Diesel School Buses using Three Independent Methods

Relevant section: "...confirmed crankcase emissions as the major SP source. We confirmed buses' SP using three independent methods and quantified crankcase emissions as the dominant contributor." note: SP means "self-pollution". Self pollution is what is contributed to the cab of the vehicle from the engine.
[redacted]

New York Dept. of Environmental Conservation: 2010-13 School Bus Diesel Emission Reduction Project
"DEC partnered with NYSERDA to reduce diesel emissions from school buses transporting children in the State. Funds were made available to school districts across the State for their choice of one of these projects:
--install diesel particulate filters and closed crankcase ventilation filters to reduce diesel emissions by filtering exhaust and crankcase gases"
[redacted]

New York State Department of Transportation Bus & Passenger Vehicle Regulations Title 17

(a) The vehicle body shall be constructed to: (1) carry the authorized passenger load safely, (2) prevent crankcase fumes and other gases from entering the passenger section.
[redacted]

ScienceDirect.com: Crankcase ventilation study (no quote, read article)
[redacted]

[redacted]

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[redacted]
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