February 5, 2010

Linc Wehrly
Manager, Compliance and Innovative Strategies Division
U.S. EPA Office of Transportation and Air Quality
2000 Traverwood Drive
Ann Arbor, MI 48105

-- Delivered via email --

RE: Request for approval of new scheduled maintenance under §86.1834-01(b)(7)(ii))

Dear Linc:

Ford Motor Company (Ford) requests EPA approval for new scheduled maintenance, per §86.1834-01(b)(7)(ii). Our request pertains to the refill of DEF (Diesel Exhaust Fluid) for SCR (Selective Catalytic Reduction) emission control systems, applicable to Ford's 2011 and 2012 model year chassis certified diesel vehicles.

It is our understanding this type of maintenance did not exist prior to the 1980 model year, and we recommend that the maintenance category for DEF refill be classified as emission-related, critical maintenance. For 2011 and 2012 model year chassis certified vehicles, we further recommend the technologically necessary SCR maintenance interval (i.e., DEF tank refill interval) should be set to align with the oil change service interval in miles.

The following is our substantiation of this request:

1) Background

On March 7, 2007, EPA issued a Dear Manufacturer guidance letter (CISD 07-07) setting out its SCR vehicle certification requirements for light-duty and heavy-duty manufacturers. The guidance addressed 40 CFR §86.004-25, §86.094-25 & §86.1834-01 Allowable Maintenance; and 40 CFR §86.094-22 & §86.1833-01 Adjustable Parameters.

2) Reasons why DEF refill is an emission-related, critical maintenance

EPA noted in CISD 07-07 that since the SCR catalyst does not function without the use of a reducing agent, 40 CFR §86.1834-01(b)(4)(ii)(F) and §86.004-25(b)(4)(iii)(F) would apply to the SCR catalyst and all of the associated hardware, including but not limited to, the reducing agent, the reducing agent storage tank, the dosing valve, and all lines and hoses. We agree with EPA that DEF refill is an emission-related, critical maintenance.

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3) **Reasons why the technologically necessary SCR maintenance interval should be aligned with an oil change service interval for Model Years 2011 and 2012**

The quantity (volume and weight) of DEF required to satisfy a maintenance interval, such as the 100,000 mile scheduled maintenance, referred to in (b)(7), creates an engineering constraint with respect to the available space and performance specifications for our medium duty vehicles. For example, to meet a 100,000 mile scheduled maintenance interval, a DEF tank would need to be on the order of 80 gallons, and would require more vehicle space to package such a tank than is possible to accommodate with our vehicle applications. The light-duty/chassis cert industry has developed an aligned service strategy to help ensure customers have DEF readily available to them and therefore the service will be performed in use. This approach improves the convenience to customers by addressing two services (oil and DEF) at a single maintenance interval. Attempting to go to a longer service interval, for example a 16–20 gallon DEF tank to meet a 2 oil change interval would not be feasible with the space limitations and performance requirements that are necessary for typical medium-duty vehicle design. Cargo space, towing capacity and fuel efficiency are highly valued attributes in medium-duty vehicles. We have historically strived to optimize these attributes to maintain leadership in this market. Thus any unnecessary loss in fuel capacity, cargo or truck bed space due to a larger DEF tank would not be acceptable to our customers and place our vehicles at a competitive disadvantage. There are also hard-point packaging issues with attempting to place a large DEF tank in the engine compartment or in the vehicles undercarriage. Undercarriages space is already fully utilized with the engine, exhaust system, catalytic converters, mufflers, fuel tank, etc severely limiting any available space for a DEF tank. In addition to the conflict with inherently space constrained areas, DEF tanks represent significant weight challenge which effects performance and fuel efficiency of the vehicle. For example, assuming a density of 9 lb/gallon, an 8 gallon DEF tank represents an additional 72 lbs on a vehicle already looking to optimize performance. Adding additional DEF tank size to even accommodate a two oil change interval is not feasible given these weight constraints.

In summary, our approach of a maintenance aligned with a single oil change interval ensures a reasonable and common service interval for our customers while simultaneously addressing our issue with limited vehicle architecture space and associated excess weight. For diesel truck applications in particular, where fuel economy performance and load carrying capacity are critical to achieving customer acceptance of our product, this service interval is determined to be our best option at this time.

a) **Vehicles will be designed and equipped to ensure compliance with emissions standards**

i) **Driver Warning**

We have designed our vehicles with an escalating audible and visual warning chain that provides adequate time to re-fill the DEF and therefore help ensure emissions compliance. To improve customer use and acceptance, our approach follows a methodology consistent with the USCAR recommended practice for manufacturers to use as a standardized warning chain, and this warning chain has also been

adopted as an SAE industry-wide recommended practice. SAE has also standardized the DEF indicator symbol and we are using this symbol in our refill warning systems. Our design will use an escalating mix of DEF level indicator, messages in the instrument cluster, and audible warnings to warn the driver of low DEF levels.

ii) Driver Inducement

As a backstop for maintaining emissions compliance, our vehicles will be equipped with escalating and sufficiently onerous levels of inducement to ensure that the DEF is refilled, including speed reduction and a final action of forced idle. Our use of escalating inducement is also incorporated into the identification of incorrect reducing agent.

b) DEF will be readily available and accessible to drivers

i) DEF is available at dealerships, gas stations and truck stops

The manufacturers of SCR vehicles, including Ford, have worked with franchised dealerships to supply DEF to our customers. Beginning January 18th, we began rolling out our introduction of DEF at our dealerships, and Ford's Automotive Distribution centers are currently stocking DEF. Our FADs will serve as centralized wholesale supply/distribution points going forward to dealers servicing diesel trucks and can service other retail entities when market demand for DEF increases. In addition Ford is providing a list of our dealerships to the National Renewable Energy Lab, in March. NREL is supporting industry with a DEF website locator service. The purpose is to provide a national supplemental method for informing our diesel customers of DEF availability, including location and hours of operation. This website will also service other OEMS to provide a wide network of DEF availability across the US. In addition to the website locator, we will have a 1-800 customer service number and roadside assistance service to address unforeseeable circumstances with obtaining DEF at a given time and location. This information is provided in our owners guide and will be included in our dealership and customer service education process. We also understand truck stops, such as TA and Pilot have announced publicly their intention to stock DEF and will be part of the NREL DEF locator service. To further ensure the quality of DEF at these retail locations, the American Petroleum Institute will be conducting a quality control program with the support of distributor and retailer licensing agreements.

ii) An organized industry-wide SCR Stakeholder Group is ensuring wide availability of DEF

DEF infrastructure development continues to make significant progress. Industry-wide standards for DEF infrastructure, a necessary enabler for the widespread availability of DEF, have been put in place, including ISO DEF specifications, API's DEF quality standard, SAE DEF specifications, and USCAR and SAE warning chain standards. The SCR Stakeholder Group has been instrumental in establishing itself

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as a focal point for infrastructure development discussions by producers, suppliers, distributors and users of DEF.

iii) Drivers can locate DEF through locator website
DOE/NREL has established a locator website for drivers to use to locate supplies of DEF.

iv) Public awareness of availability is increasing through DEF public relations activities
Numerous press releases and public relations activities have been distributed related to the development of DEF infrastructure. Announcements of new truck stops planning to add DEF and new industry DEF websites have been released.

c) Maintenance is likely to be performed on schedule
Vehicles will be equipped with an escalating warning chain which will audibly and visually signal that the maintenance needs to be performed. In the unlikely event that the warnings are not heeded and the maintenance is not performed, the performance of the vehicle will be noticeably and significantly degraded.

For the reasons above, Ford requests EPA approval of a new scheduled maintenance interval of DEF refill for light-duty and chassis certified vehicles for Model years 2011 and 2012 that coincides with the manufacturer's service interval (oil change interval). In closing, we thank you and your staff for your guidance and support as we have worked through the issues associated with this new emissions reducing technology.

Sincerely,

Todd Fagerman

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