

NEPTA sponsored Fleet Operations Forum AGENDA

September 11, 2014 8:45 am – 11:45 am

8:45 am **Welcome**
David Delforte, Shepard Bros., Inc., NEPTA Vice President
Carol Tally, NEPTA Executive Director

Forum Topic:
Selective Catalytic Reduction (SCR) / Urea based diesel exhaust fluid (DEF)
Advantages, Handling & Storage, Options and Availability
Q & A

Moderator:

- **Patrick Christian, PR Christian Consulting, LLC NEPTA Board Member – Maine Representative**

Panelists:

- **Daniel Cross, Cummins Inc., Technical Support Manager – National Accounts**
- **Russ Osborn, CT Transit, Manager of Equipment and Maintenance**
- **Rich Ahern, Sales Director & Greg Dunker, General Manager, Dennis K. Burke, Inc., President**
- **Tom Galos, Emco Wheaton Fleet Fueling, Bus Fueling Product Manager**
- **Joe Monti, RIPTA, Assistant Superintendent of Maintenance**

Strategies and Solutions: Urea usage

This roundtable discussion will focus on Urea usage in diesel engines. Topics of discussion will include preventative maintenance, storage, usage, engine effects, dispensing, etc. If you would like to submit your questions prior to the workshop, please email membership@nepta.org.

NEPTA's mission: The NorthEast Passenger Transportation Association (NEPTA) is a non-profit association of passenger transportation professionals, in the public and private sectors whose mission is to promote professionalism in the transit industry through workshops and conferences. NEPTA promotes interchange networking cooperation and fellowship among its members and other related organizations, and represents the concerns of its member on issues of federal and regional interest. More information including a list of NEPTA Board of Directors and membership benefits are available at www.nepta.org or call Carol Tally at 800-NEPTA01 (637-8201). NEPTA wishes to thank the Tri-State Committee for welcoming this fleet operations forum into their program.

Forum Follow Up:
Q & A

PO Box 438 • Foxboro, MA 02035
Phone: 800-NEPTA01 (637-8201) • Fax 508-698-2002 • Email: membership@nepta.org
Visit NEPTA at www.nepta.org

NEPTA sponsored Fleet Operations Forum AGENDA September 11, 2014 8:45 am – 11:45 am

Q. What is SCR?

A. SCR is Selective Catalytic Reduction. SCR is technology that uses a urea based diesel exhaust fluid (DEF) and a catalytic converter to significantly reduce oxides of nitrogen (NOx) emissions. SCR is the leading technology being used to meet 2010 emission regulations. Per Cummins bulletin

Q. What is DEF?

A. DEF is Diesel Exhaust Fluid. DEF is the reactant necessary for the functionality of the SCR system. It is an aqueous urea solution made with 32.5% high-purity urea and 67.5% deionized water.

Q. What is the life expectancy of the DPF (Diesel Particulate Filter)?

A. Cummins: Miles isn't a really good measure for most transit buses, since they stay at MPH below 10. Modifying the DPF maintenance interval to be more in line with the hours interval (6500 hrs.) seems to be more successful for transit buses. Many times this can be approximately calculated by taking the age MPH of the fleet, multiplied by 6500 to try to figure out the approximate odometer miles. The DPF requires a maintenance cleaning to remove accumulated ash.

Joe Monti, RIPTA: We have been cleaning our DPF filters @ 75,000 miles for both our ISB and ISL engines (2010 EPA and 2013 EPA engines). The recommended mileage from Cummins is 200,000 or 6500 hrs. We have experienced filters clogging @ 100,000 miles with no problems found with the operation of the engine, so we felt that the 75,000 mile intervals will work best for RIPTA.

Cummins maintenance schedule for DPF: 102-002

- Aftertreatment Diesel Particulate Filter - Clean⁴
 - Aftertreatment Diesel Exhaust Fluid Dosing Unit Filter – Change
1. If the oil drain interval being used is greater than 24,000 Kilometers [15,000 mi], as determined by the Oil Drain Intervals section below, the fuel filter change can be extended until the oil drain interval.
 2. The oil drain intervals are based on an engine equipped with a 14.2 liter [15 qt] capacity lubricating oil pan and a normal duty cycle. For detailed information on oil drain intervals for a specific application/duty cycle, see the Oil Drain Intervals section of this procedure.
 3. Extended coolant drain/flush/fill intervals may be followed when certain requirements are met. For information on these requirements, refer to the Cummins® Coolant Requirements and Maintenance Service Bulletin 3666132.
 4. The aftertreatment diesel particulate filter clean/replace interval is based on the use of lubricating oils that meet the Cummins® Engineering Standard (C.E.S.) 20081 oil specification. If a non-low ash lubricating oil meeting the American Petroleum Institute (API) performance classification CI-4/SL and/or C.E.S. 20078 is used, the service intervals for the aftertreatment systems will be reduced to 241,000 km [150,000 mi] or 5000 Hours

NEPTA sponsored Fleet Operations Forum AGENDA September 11, 2014 8:45 am – 11:45 am

- Q. What is the suggested mileage to replace the dosing system?
A. Most hardware components in the system are not to be replaced unless they break. The DPF has a scheduled maintenance interval at 6500 hours.
- Q. What is the recommended mileage to replace DEF/Urea? DEF (also called Urea) does not need to be changed itself, unless the fluid becomes contaminated.
- Q. Should the fluid run low or run empty?
A. It is advisable to keep the tank full in the event the unit is to be left un-started for a long period of time.
- Q. What is the recommended time frame to top DEF fluid?
A. Generally speaking the DEF should be utilized at a ratio of 2-5% of fuel burned. Depending on how the OEM spec'd the tank, the tank could need to be topped with every fueling.
- Q. What are the requirements of storing DEF?
A. DEF should be stored in a cool, dry, well-ventilated area, out of direct sunlight. Suggested storage temperature is up to 77 degrees F (25 degrees C).
- Q. What is the shelf life of DEF?
A. The average sealed container will last about 2 years. If the product is in sunlight, the average storage life is 3 months.
- Q. Can more information be provided for the 5 minute idling shut down?
A. For more information visit <http://www.epa.gov/region1/eco/diesel/idling.html>. Some agencies utilize Proheat auxiliary heaters that keep the engines coolant hot while the bus is off.
- Q. Current oil spec is CJ4, what will be the new spec for 2016? Will it be cross compatible with CJ4 oil?
Answer to follow

More information and features from the Cummins presentation can be found at The animation video on our YouTube Channel (https://www.youtube.com/watch?v=p8clK9qSGIk&list=UUJFw2pXR2LfJqN_9cKOptsw), the EPA 2010 Driver Tips Card (<http://cumminsengines.com/brochure-download.aspx?brochureid=88>) and the Cummins Aftertreatment System Flyer (<http://cumminsengines.com/brochure-download.aspx?brochureid=85>).

Thank you for attending and please watch your email as plans are underway to continue this discussion and share more information during another meeting in 2015.