

Haar Consulting Services, LLC

Special Newsletter – U.S. Marine & Offshore Petroleum Engines

August 28, 2009

Information contained in this newsletter regards U.S. EPA actions for Marine and Offshore Petroleum Industries. This information is a summary of documents from both the EPA and U.S. Coast Guard. Please contact me with any questions or concerns regarding any of this summary information.

1. The EPA has three basic categories of engine sizes
Category-1 - Engines up to 7 liters per cylinder – This includes up to 3500 engines for Caterpillar
Category-2 - Engines from 7 to 30 liters per cylinder – This includes 3600 & MaK M20 & M25 engines for Caterpillar
Category-3 – Engines 30 liters and above per cylinder – This includes MaK M32 & M43 engines for Caterpillar.
Personal Comment: Within the documents, the amount of emission reduction and timing are different for each category. For example, Category-3 engines are not Tier 3 until 2016, while the Category-2 engines will be Tier 3 in 2014.
2. On October 8, 2008, the U.S. Government ratified the IMO MARPOL 73/78 Annex VI with the IMO organization and it became enforced on January 8, 2009.
Personal Comment: This enforcement is for vessels with keels laid January 1, 2000 up to December 31, 2006. Vessels built after this December date fall under the EPA Clean Air Act for Tier 2 operation until such time as the U.S. Government ratifies the next IMO Annex VI regulation.
3. Two certificates are required under these new rules for vessels above 400 gross tons. An IAPP Certificate is for the vessel and issued by the U.S. Coast Guard after a vessel survey. The second certificate is the EIAPP Certificate for each engine above 130 kW (175 Hp) issued by the EPA and accompanied by a complete IMO technical file. LEXM7151 Product News can be used to order the technical file and certificate.
Personal Comment: Prior to the enforcement date of the IMO Annex VI, the only requirement was an EPA sticker on the valve cover of the engine for

compliance to the Clean Air Act. Now all vessels back to January 2000, must obtain both the IAPP Certificate for the vessel, along with Technical Files & EIAPP Certificates for each engine onboard involved in the operation of the vessel.

4. If a vessel has a Statement of Voluntary Compliance (SOVC), this should be exchanged for a vessel IAPP Certificate with the U.S. Coast Guard.

Personal Comment: The Coast Guard is no longer issuing a SOVC, but are issuing the IAPP Certificates after inspection of the seven (7) vessel systems affecting emission.

5. The EPA is revising the Clean Air Act to have specific emission requirements for Category-3 engines used in propulsion on oceangoing vessels. This new regulation will be in-line with the new IMO Annex VI.

Personal Comment: This revision to the Clean Air Act will cover both engine out emission and fuel sulfur ppm content. This will be aligned with the Emission Control Area regulations in the new IMO Annex VI.

6. On March 27, 2009, the U.S. and Canadian Governments submitted a proposal to amend the MARPOL Annex VI to designate North American coastal waters as a Emission Control Area (ECA).

Personal Comment: This will require vessels within 200 nautical miles of the U.S. or Canadian coastline to meet stringent NOx and fuel sulfur requirements. Vessels traveling from other parts of the world to U.S. and Canadian ECA's will be required to have two different qualities of fuel on board to meet the Global IMO sulfur operation and the ECA sulfur operation.

7. The U.S. and Canadian Governments have an agreement signed to work together on several different emission programs that affect trans-boundary conditions. Item 6 is one example of this agreement.

Personal Comment: This action will set the same standard for each country to enforce as Canada has also ratified IMO MARPOL Annex VI. U.S. vessels entering Canadian ports or Canadian ECA area will fall under the same rules as if in U.S. ports or ECA areas.

8. A new Annex VI addresses engines above 30 liters per cylinder and residual fuels. This new Annex VI will go into effect in January 2010. The regulation will be phased in within a 3 year period.

Personal Comment: The EPA initiated a low sulfur regulation in 2007 for on-highway engines and plans to implement the IMO sulfur recommendation within the U.S. ECA which will start in 2010 and be complete by 2013. By the 2013 date, the fuel sulfur content must not exceed 1000 ppm. Fuel viscosity improvement additives may be required to ensure needed lubrication for fuel system components.

9. Foreign vessels of 400 gross tons or above involved in international voyages that enter into U.S. waters or ports must show compliance with IMO Annex VI. This includes both EIAPP Certificates and Engine Technical files and IAPP Certificate for the vessel.

Personal Comment: When Caterpillar engines are in foreign flagged vessels entering into U.S. ports and are inspected by the US Coast Guard, assistance by the local dealer may be required to either help with Certification documents or help with upgrading the engines to meet the IMO Tier 1 requirement.

10. U.S. flagged vessels under 400 gross tons that engage in voyages to ports or offshore terminals under the jurisdiction of other Parties to Annex VI need not hold a valid IAPP Certificate. A Certificate of Inspection (COI) is required that indicates compliance with Annex VI. The vessel should have valid EIAPP Certificates and engine technical files for engines regulated under Annex VI.

Personal Comment: Even though the vessel doesn't meet the 400 gross ton requirement, the fact of the Clean Air Act qualifies the engines 130 kW (175 Hp) involved in the vessel operation to meet the IMO requirements for EIAPP Certificates and Engine Technical Files.

11. The EPA is considering amending the Annex VI requirement and specify engines installed in vessels in 1994 up to 2000 that are remanufactured (overhauled) after January 2000, would be under the Annex VI regulation if an EPA Certified consists is used during the remanufacture process.

Personal Comment: Engines installed prior to January 2000 were un-regulated and would not meet the Annex VI NOx limits. The EPA Certified consists is a program for manufactures to work through the EPA validation group to demonstrate the overhaul consists achieve these NOx limits. Caterpillar is currently working on this very thing for the 3500 engines and the 3600 engines will be next.

References:

1. IMO MARPOL 73/78 Annex VI – 63 pages
2. IMO MARPOL 73/78 Annex VI revised for 2010 – 149 pages
3. EPA Clean Air Act – 437 pages
4. U.S. Coast Guard IMO enforcement policy letter – 43 pages
5. 5 x EPA Regulator Announcements – 33 pages
6. U.S & Canadian Government Clean Air Agreement – 27 pages

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