



**TWENTY SEVENTH MEETING OF THE GRPE WORKING GROUP ON THE
WORLDWIDE HEAVY DUTY CERTIFICATION PROCEDURE (WHDC)**

Budapest, 10 to 12 March 2009

MINUTES OF THE MEETING

Venue: KTI, Thán K.u. 3-5, H-1119 Budapest, Hungary
Chairman: J.P. LAGUNA-GOMEZ (Spain, INTA)

1.- ADOPTION OF THE AGENDA

The provisional agenda GRPE/WHDC/A27 was adopted as circulated.

2.- APPROVAL OF THE MINUTES OF THE 26th WHDC MEETING
(GRPE/WHDC/26 - Geneva, 13 January 2009)

The minutes of the 26th meeting were approved.

3.- UPDATE FROM 26th WHDC MEETING

The Secretary summarized the results from the 26th WHDC meeting held in Geneva. Option 1 (engine power) and option 5 (PM filter specification) had been solved though the final report from TÜV on option 5 was going to be presented at this meeting. The work programs on option 2 were still underway. Despite WP.29/AC.3 acceptance of excluding options 3 and 4 from the current mandate, discussion will continue after some opening from EPA. To that purpose engine industry offered engine tests that can be witnessed by EPA.

4.- DISCUSSION OF WHDC OPTIONS & OTHER ELEMENTS

4.1 Single reference fuel

No test results were presented. Dr. Shimpi (EMA) reported that the EMA program at SwRI was delayed and results would be expected to be available for the next WHDC meeting. The secretary informed the group that JRC could not test the Cummins engine due to problems of properly operating the engine on their test facility. Due to another test program the engine had to be removed from the test cell. Testing is anticipated to start again around late March.

The secretary raised the issue of FAME content in the reference fuel. Diesel fuel with a FAME content of 4.5% to 5.5% is usually not available outside the EU. It is therefore necessary to specially blend such reference fuel, which would significantly increase the fuel price. The WHDC members finally agreed to delete the lower FAME content of 4.5% and to only specify the maximum content of 5.5%, but with the option to the contracting parties to have tighter requirements within the general specification.

4.2 Soak time

The secretary presented the test program on option 3 as agreed with EPA:

Day 1: USFTP cold - 20 minute soak - USFTP hot as baseline testing of the engine to ensure it is 2010 compliant (or very close); if these data already exist there is no need to recreate it provided the controls and configuration are the same. No Supplemental Emission Testing (SET) is required.

Day 2: WHDC cold - 10 minute soak - WHDC hot - 20 minute soak - WHDC hot - 10 minute soak - WHDC hot - 20 minute soak - etc. for as many cycles as possible in a day with rotating soak lengths.

Day 3: WHDC cold - 20 minute soak - WHDC hot - 20 minute soak - WHDC hot - 10 minute soak - WHDC hot - 20 minute soak - etc. for as many cycles as possible in a day with rotating soak lengths.

Industry offered testing of US2010 and Euro VI prototype engines, which could be supervised by EPA staff. The tests are anticipated to take place in March/April 2009. The secretary reminded the group that the final decision on soaktime and cold start weighting factor needs to be taken at the 58th GRPE meeting.

4.3 PM filter specification

Document: GRPE/WHDC/FE32

Mr. Schulte presented the final results of the option 5 test program (GRPE/WHDC/FE32). The conclusions from the previous meetings were confirmed. For several cases, the statistical analysis (t-test, F-test) showed differences between the teflon coated glass fiber filter and the teflon membrane filter, mainly for the t-test (comparison of mean values). The F-test (comparison of standard deviation) passed in most cases. Mr. Schulte indicated that the t-test must not be the only criterion for determining equivalency.

Consequently, the group finally confirmed the decision taken at the 25th WHDC meeting: deletion of 70 mm filter diameter, allowance of both filter materials.

5.- Discussion of gtr amendments

5.1 Draft gtr

Document: GRPE/WHDC/FE31

The secretary introduced document GRPE/WHDC/FE31, which includes the proposal for amending the gtr. All chapters of the document were discussed in detail.

The most important decisions are listed below:

- table of contents should show 2 levels; secretary will check with GRPE secretary, if gtr rules allow for that;

- participants are asked to check by 28th WHDC meeting, if the multiple regeneration adjustment factors proposed for ECE R 83 should be transferred to this gtr;
- chapter 6.10 on crankcase gases was accepted;
- mapping of negative torque needs to be added,
- introduction of drift correction was agreed;
- new table 3 with WHSC cycle statistics will be added;
- NOx humidity correction factor will remain;
- PM buoyancy correction formula will be amended according to Japanese proposal
- EPA did not accept diluent temperature of 20°C to 42°C, as proposed as compromise between US requirement and current gtr requirement;
- specifications of filter cassette will be added;
- Annex 6 (example calculations) will be revised;
- introduction of NDUV analyzer for NOx measurement was accepted.

5.2 Other input

None.

6.- REVIEW OF WHDC TIME LINE

The next meeting will take place as follows:

- 28th WHDC meeting on 09 June 2009, Geneva

7.- SUMMARY AND CONCLUSIONS

The secretary summarized the results of the meeting as follows:

- Agreement was reached on most issues.
- Discrepancy still remains on diluent temperature and drift verification.
- EPA will confirm their acceptance of the draft gtr by 18/03/09.
- Decision on soaktime and cold start weighting factor will be taken at the 28th WHDC meeting.
- The secretary will send the draft gtr, as agreed at this meeting, to GRPE after EPA's feedback.
- The participants thanked KTI for hosting the meeting.

8.- OTHER BUSINESS

None.
