

## **Thirteenth Plenary meeting of the Working Group On Off-Cycle Emissions 5 and 6 April 2006 The Hague, Netherlands**

### **Agenda Item 1**

- A. The draft agenda was reviewed and approved by the plenary group.

### **Agenda Item 2**

- A. The minutes of the Twelfth Plenary Meeting were reviewed.
- B. There being no other corrections or revisions to the minutes, they were adopted by the Plenary Group and will be submitted the GRPE secretary for posting.

### **Agenda Item 3**

- A. **Presentation by TNO.** TNO made a follow-up presentation to the material presented by the representative from The Netherlands at the January plenary meeting. The presentation focused on the WNTE control area evaluation, specifically looking at the issue as to whether the proposed WNTE control area is sufficiently wide enough to represent European heavy-duty vehicle driving patterns. They looked at specific emissions from specific areas of the engine map to determine if there are areas in the engine map (outside the proposed control area) that have a significant contribution in real life operation emissions and if so, to determine how these points could be added to the proposed control area.

The first part of the presentation concluded that the 25<sup>th</sup> percentile WHTC cumulative engine speed (including idle) is close to the bend of the curve and can be some risk for some engines. A recommendation to increase to 30<sup>th</sup> percentile is considered more 'safe' and a lower limit increase is only small. TNO observed that excluding engine speeds below the WHTC cumulative engine speed of 30% excludes a high concentration of emissions from the WNTE. OICA previously took the position that a 30% calculation including idle is a good number, because the normalization formula in WHTC includes idle, so we want this GTR to be consistent with WHDC GTR.

The next part of the TNO presentation dealt with a methodology for calculating emission contribution. A larger WNTE zone could increase the amount of time included in the WNTE time-share. Some of the preliminary conclusions were that time share of engine operation in WNTE zone rather low, and emission contribution in the WNTE zone is considerably higher. Emission contribution of idle operation is comparatively low. A WNTE control zone which does not include power values below 30% can exclude a high emission contribution area, depending on the vehicle application, and finally, the NTE carve out for PM seems unnecessary. These conclusions were based on a on a limited dataset of European heavy-duty vehicle operation. Further research is needed and will be executed during a study for DG Enterprise to appraise the suitability to European engines and driving conditions of the draft WNTE control zone concept contained in the draft OCE GTR. TNO stated that it may have a preliminary report available in 3 ½ to 4 months. They will try to provide a status report at the Geneva OCE Plenary meeting in June. New data will not be collected for this study, but existing data will also be used.

The Chairperson asked about the debate between having a 25% vs. a 30% cumulative frequency and if OICA had an alternative method to look at this, because Japan came forward and said that 25% is a good number. OICA stated that the Japanese data excluded idle and if you include idle, the number is not that different.

The Chairperson asked if the three cycles the vehicles were tested over in the TNO presentation represented different types of driving, such as urban, rural etc. and if they were actual real world driving patterns or were a created statistical cycle developed from real world data? TNO stated that the cycles had been developed from multiple data sets and the cycle was developed which best represented the data sets. The cycles were developed by TNO, and they are the same

cycles used in the ARTEMIS. These may not be the best representative cycles based on the new information and there will be more opportunities to do further testing of the representative driving pattern.

The Chairperson stated that the testing was done on a EURO 3 engine and asked if TNO has any information as to whether the story will be different for a EURO 5 or for an engine with NOx emissions equivalent to one-half of the EURO 5 NOx limit? Will it be similar directionally or different? TNO said this is hard to say because there is no data using a EURO 4 or 5 engine. It would also depend on the shape of the engine map, and tailpipe emissions will be different for a EURO 5 engines. The plan is to test these engines in the upcoming study.

EMA stated that in the US, the PM carve out was necessary because the PM emission limits could not be achieved in this part of the zone, but the TNO presentation concluded that the PM carve out would not be necessary and asked for clarification of this conclusion. TNO stated that the basis for the conclusion is that in real life, emissions are higher (slide 11), but because engines do not operate very much in this area, the contribution is low, therefore concluded that it is not necessary to have this carve out. Out of a 30 second interval, you are only in the area for 1 to 2 seconds, not the whole 30 seconds.

EMA responded that this was the rationale for having the PM carve out in the US and it was developed on a technical basis. The trade-off is there because the PM limit would have to be increased in the zone if there is a significant amount of driving there. OICA responded by stating that because the GTR is a regulation for the future, DPFs will be widely used, and thus the carve out will not be needed. EMA reminded folks that the GTR is being written for a number of technologies, so there may be a need to maintain the idea of a carve out.

The Netherlands stated that in the future, the carve out may have no meaning in this GTR, and the GTR will have to be revised to take into consideration future technologies, so it may complicated the GTR now to keep this carve out for PM.

The Chairperson reminded the group that the 1998 Agreement discusses the possibility of emission limits for countries which may not be as progressive as the US, EU, and Japan, therefore we have to take this under consideration for these developing countries. Perhaps we will have to ask the broader group to determine if this group wants to limit the GTR to advance emission levels only.

- B. **Presentation by EC-JRC.** The European Commission's JRC made a presentation on the evaluation of WNTE and some alternative options. The data and calculations were based on real world driving conditions using a EURO 3 heavy-duty diesel truck. The presentation showed data from two vehicles (though the committee has data from up to nine vehicles). The data is from a EU PEMS (Portable Emissions Measurement System) project. OICA stated that 5 of the vehicles used are from 5 different manufacturers. The reference load was chosen by each manufacturer. The main purpose of this testing was to establish a protocol for evaluating Portable Emissions Measurement Systems, not necessarily to gather data from real world driving operation. JRC stated that in the US, the trucks operate in open spaces for long hauls, whereas in the EU it is mostly stop and go traffic.

In order to evaluate the in-use data collected, a homologation of the data must be established. The approach to do this was separated into three categories: "Control area" (WNTE, US-NTE); Work-based (could also be Fuel-based); and, Compliance Factor (or BSFC based).

The Control Area approach was not based on entire engine operation but rather on a "control area" that can match – to a certain extent – the control area from homologation cycles, such as US NTE and the WNTE approach contained in the current draft of the OCE GTR. Some preliminary conclusion presented, and based on the data, were that the Control Area approach was a very efficient tool to capture random operation of the engines in a definite control area.

With the current definitions (US-NTE or WNTE) and a 30s minimum sampling rule, it provided a very good tool to capture the operation of “long-haul” HD vehicles, (in particular if operated with a cruise control), which is typical of the US heavy-duty long haul operation, but what about other types of operation, such a EU driving cycles and/or urban buses. The size of the “Control Area” and the associated rule could be adjusted to reflect wider regulatory needs. In the Work Window approach, brake specific emissions are calculated for a defined work value. The “work window” is moved throughout the data set and the size of the window depends on the time needed to reach the defined work value. This Work Window approach came up in the PEMS group discussion. JRC explained that to evaluate the data, you take a complete data set and slide the work window over the data. JRC still has some work to do, including further evaluations to complete the data set evaluation in the Work Window approach.

The Compliance Factor approach is mainly for in-use purposes. It establishes ratios between a certification value and an in-use value, therefore you can have two values to determine if vehicle passes or fails.

The Chairperson asked if there is a link between the JRC work and the contractor work TNO is doing? The EC representatives stated that these are separate activities, but there will be questions in the new work TNO is undertaking, for JRC. JRC said its work started with a focus on in-use evaluation based on real world data, whereas TNO data will not be real world data.

EMA stated that it seems with the work window approach there will be a need to re-evaluate limit values to accommodate the work windows that are lightly loaded (EPA approach limit values would have to be adjusted in this approach). EMA stated that the problem is the limit values are driven less by engine design than by the load factor of the work window .

JRC said the work window approach would be an appealing approach and a major step towards transparency for approval authorities.

OICA stated that it is interesting that the work-based approach takes into account transient operation. OICA asked the group if it could agree there is a need to further analyze this approach for inclusion in the GTR, the real advantage being that there may not be a need for further analysis to show approval authorities.

- C. **Presentation by US EPA.** The US EPA stated that when it went through the process of deciding what type of NTE approach to include in the Tier 4 nonroad diesel rulemaking, US EPA considered an alternative approach to the existing on-highway approach. One alternative approach that was considered had no NTE control zone and no 30 second windows, which was conceptually similar to the Work Window approach described by JRC. US EPA gave a short presentation on this alternative NTE approach. In the end the approach which was finalized for nonroad was similar to the on highway approach because manufacturers had several concerns with the alternative approaches presented and because nonroad engines are generally derived from on-highway engines. From a technical standpoint, US EPA felt the alternative approach had some advantages to the on-highway approach. EMA commented that the nonroad diesel manufacturers in the US were concerned with what happened when the nonroad engine in a piece of equipment operates at a light load for a long time and could not see how the EPA could establish a reasonable emission limit that would reflect / accommodate this situation but which would also be meaningful for other more highly loaded modes of operation.
- D. **Presentation by OICA.** OICA made a presentation on WNTE Factors. At the last plenary meeting in Geneva, OICA showed the differences between the current NTE approaches. In the current draft of the GTR, at 0.04PM there is a change in NTE factors, between 1.25 and 1.5 for PM. A multiplicative NTE factor cannot go down to zero, so there is a need to have a positive “y” intercept. One option is to have a 1.25 multiplicative factor up to 0.04 PM and 0.01 additive factor for PM below 0.04. The same concept would apply for NOx at 0.3 g/kW-hr have NTE factor that is different NTE factor for emissions above 0.8 g/kW-hr. If the group looks at this approach, with

a “y” intercept, factors would be different for all equations. If the group can agree on this general approach, OICA will further address the issue of having different factors for different emissions.

The Chairperson stated that in the US for 2007 and later, because of Averaging, Banking and Trading and the way rounding is allowed, manufacturers can only have 3 Family Emission Limits values for particulate matter: 0.00, 0.01 and 0.02 g/bhp-hr, or they can just meet the PM standard of 0.01 g/bhp-hr. How would the OICA concept work here? There would be several factors and the additive factor may be a problem because of rounding protocols. OICA stated that at a certain level the factor corresponds to 1.25 and the factor at the other levels depend on the “y” intercept. OICA tried at the right hand axis to be in line with 1.25 and at the y-axis it would have to be defined. This may depend on what the measurement procedure can do and is thus based on measurement accuracy and some technology considerations. EC stated that it may be easier to see this in a table format, before it can be considered further by the group. OICA agree to present the proposed factors in a table format.

#### **Agenda Item 4**

The Group reviewed the draft GTR.

**WNTÉ Compliance Statement.** At the last meeting in Geneva, The Netherlands made a presentation on a proposed WNTÉ Compliance Statement. Since that time, some further discussions have occurred within the EC, which wants it to be clear in the GTR that the Compliance Statement is part of the type approval process.

OICA believes that the OCE GTR should be for type approval only and that manufacturers have to have confidence in the process. The OCE GTR is a mix between type approval and in-use testing. It is OICA’s opinion that all things relating to in-use should be eliminated from the GTR and handled by the contracting parties themselves, because the focus has to be on type-approval.

OICA asked if the WNTÉ Compliance Statement, if applicable in the EU, will be part of the transposition document. EC stated that a document has been presented to the EC as to how the GTRs will be transitioned into EU Directives.

Germany stated that the OCE GTR should be a framework/tool for type-approval and the in-use requirements are separate. Therefore, the in-use elements should be eliminated from the GTR.

The Chairperson stated that in the US the certification process is not divorced from in-use. When a certificate is issued, a manufacturer is required to ensure that the engine will meet the standards for the useful life of that engine. Furthermore, this group has to be clear on what is meant by certification/type-approval and what is meant by in-use. Why is having a compliance statement in the GTR so different from what is being done today?

OICA stated that in the EU directives, there is no compliance statement.

The Netherlands stated that the proposal for inclusion of a WNTÉ Compliance Statement was made because in this GTR you do not have a fixed test requirement so how can a type-approval authority determine if an engine meets the requirements. In the EU, there is a type-approval process, and if an engine passes, certification is achieved. In the US, there is test procedure, a compliance statement and in-use. The EU has to establish this methodology, because a manufacturer can’t just get a certificate showing OCE compliance, without getting anything further from that manufacturer, therefore, the concept of a WNTÉ Compliance Statement has been proposed. Since there is no test that covers everything in the GTR, you have a combination of the two elements, manufacturer data delivered to the type approval authority that the OCE requirements are fulfilled and the Compliance Statement that the engine is designed to comply. Therefore a WNTÉ Compliance Statement is required. As to whether it is part of the GTR or part of the local requirements has to be determined.

OICA stated that the group has to take into consideration countries such as Korea and Japan, which may not allow a compliance statement, because they test every aspect of the engine today. Furthermore, what will happen to an engine manufacturer who makes the compliance statement in good faith, and subsequent testing shows that the engines do not comply? This is an issue which has to be addressed. It is clear that engine manufacturers have to comply in-use regardless of whether a statement is given at the time of certification.

The Chairperson stated that from the US perspective it is okay if there is no specific language spelled-out in the GTR for the Compliance Statement. The Chairperson would like to put forward, for consideration, that it would be helpful to have an example Compliance Statement in the GTR because it does provide guidance to contracting parties and manufacturers as well. The US is okay with the language proposed by the Netherlands in Section 10.1 of the GTR. The group should discuss a potential compliance statement and what an example of the data that will be acceptable.

OICA stated it can agree with this approach as long as it is just an example of a compliance statement.

EMA expressed concern with the last part of Section 10.1. It would be hard for manufacturers to comply with this requirement, and there would be an additional burden if a manufacturer wants to produce a harmonized product. If there are specific tests/procedures a manufacturer should know in advance, and should know that once they are satisfied can comply with all of the contracting parties. EMA stated that we need to strike a balance in the GTR and have some specificity as to what additional testing is needed. The Chairperson stated that in the US there are no plans to define a specific set of test points or duty-cycle which could be the sole-basis for a manufacturer to demonstrate compliance with the WNTE. The EC stated that the group should not put specific requirements in the GTR per the 1998 Agreement. OICA stated that if we can agree in principle on the test procedures and specify them in the GTR, then the regional authorities would pick what they want to use and each contracting party would select what it wants to enforce. The Netherlands stated the GTR should offer a common view, while at the same time ensuring that it does offer too many options, because we do not want to draft a GTR which has no meaning. OICA stated that the final check for WNTE compliance for most contracting parties will be in-use compliance testing.

EMA wanted to understand what was wrong with how the WNTE Compliance Statement is laid out currently in Section 10 and why can't this format work for all parties. EMA further stated that Sections 10.1 and 10.2 accommodate all interests and have some reasonably well defined information that is the basis for the statement and some of this information is in Section 7 already, so perhaps part of Section 7 can be moved into this Section.

OICA responded by saying that this procedure, without additional testing, does not work in the EU. Manufacturers need clear guidance of what is needed. OICA agreed that we can try to have a general framework in the GTR, but if can't agree on what this framework is, it has to be part of the EU Directive.

The EC recommended that rather than putting an actual statement in the GTR, we can put in as a suggestion as to what the statement should say, because putting in an example statement may be an infringement of regional procedures. In the EU Directives the policy is to leave the actual statements to be determined by the regional authorities.

EMA stated if we can come to an agreement on a compliance statement, it will be advantageous to have a common statement. The Netherlands suggested perhaps we can include an example of a statement in an Annex to the GTR, since this would not contravene type approval principles. The EC will explore this option with the EC lawyers to see if some other language/statement

would be acceptable, since this is an issue between self-certification and type approval procedures.

The Chairperson agreed that if we can include a statement, the commonality will be good for manufacturers, so the group needs to determine if the issue is with having a statement or with the language of the statement.

The group decided to leave the draft statement in the GTR for the time being and will continue to explore if a compliance statement is necessary and if so, if it can be included in the GTR.

The language in Section 10.2 was replaced with the proposed language from the January presentation by The Netherlands. EMA wanted to know why there was a reference to a vehicle in the section. OICA stated that in the EU the vehicle is certified, not the engine. The Chairperson added that we can have a Section 10.3 for type approval process, outlining the data has to be submitted and move 7.2.1. and 7.2.2 into this section. The Editorial Committee will make these changes in the GTR, but the group will have to have further discussion to ensure this is something that the group can live with.

## **Definitions.**

### **Defeat Strategy:**

The EC commented that from a legal perspective, requirements should not be included in the definition, but in the text of the GTR. OICA agreed that this is too long for a definition. All of the sub-bullet points should go into the text, similar to the language OICA proposed in Section 5 of the GTR.

The Chairperson felt that it was odd to have a definition and then change it in the text. EMA stated that the way the definition is currently written currently is a proper definition. The Chairperson stated that the US EPA cannot accept the EU approach because the Clean Air Act clearly states that an engine cannot have a defeat device, and thus the US cannot accept text which allows a defeat device, thus the concept of a legal defeat strategy is not allowed in the US. The US can support the definition the way it is written today, but perhaps there is another way to address this concern. The EC stated that perhaps more time outside of this meeting is needed to consider this issue, and the EC will think about this and come back with some proposed text which will satisfy everyone.

The EC stated that the sub-bullets are very similar to text in Section 5.1.3.5.

The Chairperson responded by stating that Section 5.1.3.5 is text proposed by OICA, which has been taken from the EU Directive. Neither the Plenary group nor the Editorial group has had an opportunity to discuss it in detail, but this represents the two different approaches we are discussing here. If the group decides to keep the definition as it is, Section 5.1.3.5. should be deleted.

The EC indicated that this definition is different from the EU definition, because the 1<sup>st</sup> bullet point of the definition in the GTR contains the word “substantially”, which is not included in the EU definition and there is no definition of what “substantially” means. The Chairperson responded that the word “substantially” is in the US EPA definition of defeat device, and the reason for including it is to prevent manufacturers from playing games in the certification process. It is acknowledged that use of the word has some discretion. For example, you may have a strategy that is used 2 or 3 seconds out of the 1800 second WHTC, and we may not want to give carte blanche to this, but allow the use of the strategy in-use if it results in a large increase in emissions. EMA did indicate that some manufacturers may have strategies that are not substantially included in the test procedures.

The Chairperson stated that he is still unclear about the last bullet of the definition, and what the trade-off is. OICA stated that in the existing EU Directive, you have to show that you are doing the minimum necessary and also show that the strategy has to be demonstrated and defined, similar to the process in the US. An example of where this trade-off is needed is in the case of white smoke. A manufacturer has to reduce HC and show a timing strategy that does this. The US EPA does not have this trade-off in its definition, but have allowed the use of the white smoke strategy under engine protection, provided the manufacturer has explained how it protects the engine.

EMA stated that base transient smoke control, advance timing, cold smoke have all been able to get approval under engine protection, but it is a contrived way to get approval and having the trade-off is an easier way to deal with this. The Chairperson stated that it may be helpful if companies can give some other examples to better understand this. OICA stated that we also have to look at ambient conditions, such as altitude and temperature in this context. The Chairperson stated that if the WNTE includes altitudes up to 1600m, and a manufacturer will have to make the tradeoffs, it can use strategies which will be substantially included in the WNTE. The group will have to look carefully at the trade-off because if it is primarily for white smoke, the group may have to make another allowance. EMA stated that once we get into aftertreatment-equipped engines, we do not necessarily know what conditions will be encountered, so this provision is like a place holder. The group has to keep in mind that manufacturers are still constrained by the WNTE and this prohibition is an additional requirement manufacturers have to comply with. OICA stated that maybe it is not correct to have a Defeat Strategy be called an AECS. EMA reminded the group to refer to the VENN diagram which was shared previously and which outlined the connection between the two. The Chairperson suggested that perhaps we can include it in the GTR as an illustrative aid, perhaps in Section 4.1.

The Chairperson reminded the group that this is still a draft definition. The US EPA has not bought into this definition yet and it is still open for discussion.

#### **Engine System:**

OICA commented at the last plenary meeting that the GTR does not have the same definition for Engine System as the OBD or WHDC GTRs. In this GTR there is a need to have a precise definition of engine system which is not contradictory to the OBD definition, though there is a difference in subpart (d) of the OBD definition, which would not make sense to include in this GTR's definition. The Chairperson said that some of the terms in OBD definition are captured in some of our other definitions, such as emission control strategy and element of design.

OICA agreed with this statement, but added that there are redundancies in the definitions. OICA asked if it will be possible for this group to adopt the OBD definition and just not include the final bullet, so that they are essentially the same definition, because the OBD definition is similar to the EU definition.

The Chairperson asked if we need to add a definition of Emission Control System. OICA proposed that we take the definition from the EU Directive because it would make sense to align the definitions in the 3 GTRs.

#### **WNTE Control Zone:**

The Chairperson stated that conceptually, the draft GTR talks about 25% cumulative frequency from WHTC. OICA's proposal is for 30% cumulative frequency for lower speed range and that distribution includes idle points. The EC will be looking at data to evaluate the control zone, and some results may be available for the Plenary meeting in June. What the EC will be doing is evaluating the current GTR and thus the group does not know if changes will be proposed. If this will result in some significant changes the group will require further analysis from all parties involved, but at this time the Commission is not proposing any changes to the draft definition of the WNTE Control Zone.

EMA commented that when discussing the lower torque boundary if the group looks at modifying the lower torque boundary, this will be a fundamental change and a substantial departure from where the GTR is today. The Netherlands stated that because the GTR is new, any proposal which results from the EC work really won't be a change, because we are still working on a draft GTR. The Chairperson stated that yes, it is a draft GTR, but it is also true that for the past 3 years, the general approach to the WNTE Control Zone has been defined within the draft the same, and if the Working Group receives a proposal for changes which are significantly different from the current draft, all parties will have to evaluate it, and that could incur substantial delays in the finalization of the OCE GTR.

**Ambient Conditions:**

The Chairperson stated that based on the discussions of the Plenary Group at the 12<sup>th</sup> meeting in Geneva, Option A will be eliminated from the GTR and all future group discussions will be based on Option B. The group, at this time, could not think of a good reason to keep two options, but this decision is open to future discussions.

The EC stated it will study both options and will provide a recommendation.

**WNTE Factors:**

The Chairperson stated that OICA presented a conceptual approach in which the WNTE limits are tied to the WHDC limits. Perhaps OICA can prepare a table with some representative values and provide some explanation on measurement accuracy and why they want to set the intercept at the point they recommended. What should the position be if there are extremely low emission values because coming up with a WNTE limit value for emission limits for 10 years from now is difficult, because we do not know what this will look like. The group will consider including the OICA approach in the GTR for discussion purposes.

**Other WNTE Sections.**

OICA stated that at Section 10.3 and 10.4 should be deleted because they refer to in-use testing and not type approval and because they are not technology neutral. If the contracting parties want to have deficiencies, they can specify them in their national regulations. This would simplify the document, since there will be no need to discuss deficiencies. TUV agreed that this should be left to the contracting parties.

The Chairperson stated that he was personally in favor of deleting these sections, but he wanted to know how OICA justify calling them in-use compliance provisions only? If a manufacturer knows up front that there was some part of the WNTE that could not be met, that manufacturer should address it during the certification or type-approval process, rather than have a manufacturer make a false compliance statement. Therefore, it is not only an in-use testing issue, there could be issues in the test cell and at the time of certification.

EMA stated that Sections 10.3 and 10.4 relate back to Sections 9.1 and 9.2, which are exclusions, therefore we should be able to agree to the elimination of Sections 10.3 and 10.4. because they ask a manufacturer to provide justification for exclusions that are granted automatically.

OICA stated that if the group goes to work windows approach, there is no need for a WNTE control zone and no need for these provisions. The Chairperson reminded the group that the only approach that has been proposed, and which we have been discussing for the past three years, is the WNTE control zone, and this must be the group's frame of reference. There is no other proposal on the table so how can we have a meaningful discussion if we do not know what it is.

OICA stated that when we look at the EU Directive, it is technology neutral, but this GTR is technology dependent. It cannot be accepted in this manner, because there are other



technologies which may require other exclusions. We can keep the WNTE control zone, if we keep it technology neutral, otherwise the EU will be hard pressed to accept it.

The Chairperson asked what will be a more neutral way to address the concerns raised regarding Sections 9.1, 9.2, 10.3, and 10.4 regarding the exclusions for EGR-equipped engines and engines with NOx catalysts? If the group believes having deficiencies is a better approach because it is more neutral, the US will be willing to consider eliminating Sections 9.1 and 9.2. However, we should also keep in mind that if there is a possibility manufacturers may not be able to comply with the WNTE limits as currently defined, we have to come up with a mechanism which will allow them to comply.

EMA stated that it would be a waste of time to require manufacturers to go through the process of asking for a deficiency when everyone knows the deficiency is needed for a known technology limitation. In the US the use of exclusions make sense and as technology changes, other exclusions may have to be added.

The Netherlands stated that this is a fundamental issue that has to be addressed and agrees with OICA that the GTR must be neutral, since it is a GTR which will be in place in the future. Fundamentally, we may not want deficiencies, but manufacturers may need them.

The Chairperson stated that the US EPA did not have exclusions when the NTE was introduced, but they arose as US EPA and the engine manufacturers became aware of technology limitations. The US NTE was first applied to non-EGR engines and the exclusions were added later as the emission standards became more stringent. If the group agrees, the GTR can say that a manufacturer can request deficiencies, but there will be evaluation criteria. Perhaps the group can examine the idea of a blanket deficiency.

OICA stated that in 2013 when the GTR will be in place, manufacturers have to select the technology to fulfill the requirements. From a technology point of view, compliance on the whole may not be possible. Manufacturers want to achieve the best emissions results and balance it with technology. Any deficiencies should be up to the contracting parties and not part of the GTR because then it may require a formal amendment. The GTR has to be simple and technology neutral.

The Chairperson stated that all of this has to do with the limits. In the absence of any emission limits, we would make the NTE the entire engine map, applicable for all temperatures, all altitudes and have strict limits, but this is not the reality of the world we live in. The draft GTR began as a draft which was reflective of the future 2010 emission limits which have been established in the US. In the US, the EPA has to decide what standard will be and ensure that there is a technical path to achieve compliance with the standard. NTE exclusions were included as a consideration that the technology was not known at that time for how the US NTE could be achieved without the exclusions. These decisions were made in calendar year 2000. US EPA would support having a concept which allows the contracting parties to decide what deficiencies to allow and what kind of exclusions, if necessary.

OICA stated that in the EU there would be a problem having a GTR with the EGR deficiencies only, because there are competitive technologies (EGR vs. SCR) and thus can't accept that EGR will have deficiencies, but SCR will not.

The Netherlands stated that some regulators do not want to have deficiencies in the regulation because it may create an un-level playing field between technologies. This is something that should not be allowed in the regulation. The group has to draft a good requirement/methodology for the WNTE and not allow deficiencies in the GTR, because this goes against the concept of being technology neutral.

The Chairperson stated that in the US deficiencies are used in limited circumstances, and are at the discretion of the type approval/certification authority and they are limited in time and number. Exclusions are permanent and there is no need to discuss them with manufacturers. Exclusions are technology based and deficiencies are time based. They have been included in the US regulations because of real world experience and the realization that manufacturers may be unable to achieve the standards without them.

EMA stated that deficiencies came about because manufacturers would find themselves far down a design path before realizing that they will not be able to fully comply with the NTE. Manufacturers still have to comply with the underlying emission standards and the defeat device prohibition even when a deficiency is granted. As we continue to bring new technologies online we will run into these situations. Without having fully mature technology there will be an ongoing need for deficiencies.

OICA stated if other stakeholders in the EU/Japan/US have no issue with this, OICA can agree to allow the deficiencies to remain.

The Chairperson will draft some language to include in the GTR that will be more general than the language in Sections 9.1 and 9.2. The way it is written now, these are blanket exclusions that are available automatically. Perhaps the language could be written so that a contracting party may want to consider allowing a permanent deficiency, and the GTR could provide general guidance on this issue. We do not want to say that a manufacturer can ask for a provision. We won't call it an exclusion, but a contracting party will have the discretion to give deficiencies in advance to all manufacturers and give examples of the criteria.

OICA stated that the engine manufacturers want to have a global engine, which can be sold world wide. An engine which is allowed to have a deficiency in one market may not have one in another market. We need a design rule that can be used worldwide, one type approval which can be used everywhere. In the long term we want to have the same emission framework.

OICA had also expressed concern about the 5% limited testing region in Section 10.6. The Chairperson stated that in the US approval of a manufacturer requested 5% limited testing region is part of the certification process. All manufacturers can make a request to use the 5% limited testing region. If the manufacturer has the required supporting data, then their request for a 5% limited testing region should be approved. The certification authority should approve the manufacturers request for a 5 percent limited testing provision if the manufacturer provides the required data.

OICA feels that this is clearly an in-use provision the way it is written in the GTR. Also, because it has nothing to do with type approval it should be removed. This will not help manufacturers if this provision is allowed in the US, but not allowed in the EU or other countries.

The Chairperson suggested that maybe we can write the GTR so if a manufacturer has data it has to be approved by the approval authority. Maybe others can provide an alternative proposal. Section 10.6 should remain in the GTR for now, but OICA has a concern if some type approval authorities will allow it, while others may not. This provision is not exclusion, but an amendment to the test procedure because manufacturers still have to meet the emission limits. The Chairperson agreed to draft language for consideration by the Editorial Committee that has the effect of removing the exclusion, putting the decision in the hands of the contracting party to grant permanent deficiencies. In the process of implementing the GTR the contracting party will have the right to apply them.

EMA felt that maybe the words in Section 10.6 can be rolled into the deficiency section, because it is not a carve-out, though it is perceived as such, and the contracting parties can elect to allow it or not allow it. The Chairperson said that the US can accept this, because it is only there to provide the manufacturers with some flexibility.

OICA asked the EC, with respect to Section 5.7 (WNTTE Provisions), if the EU is taking any steps to allow such alternatives as the "Work Window" approach and if there are any thoughts on how to handle this alternative procedure in the GTR. The EC stated that at this time, it is too premature to comment and more analysis is needed. The EC cannot put this concept on the table for discussion until all of the analysis/work is complete. The work has to be done first to see if this is a path the Commission believes should be considered within the OCE GTR.

OICA stated that if such a proposal is to be considered in this GTR, the timeline will have to be re-evaluated.

The Chairperson asked OICA if they were proposing that a general provision be included in the GTR to allow for an alternative to the WNTTE? If this is the case, it is contrary to the concept of global harmonization. The EC has not taken a position on this and has not offered any proposals. As such, the Working Group will work off the current draft GTR because there is no alternative proposal.

### **Agenda Item 6**

The group reviewed the timeline for the GTR.

The Chairperson stated that we have been asked by GRPE and A.C.-3 to develop this GTR in a timely manner. In the context of finalizing the EURO 6 Directive, is there interest in having the OCE GTR work completed in the near future?

The EC stated that EURO 6 would be an obvious stage for introducing this GTR.

The Chairperson stated that perhaps by the January 2007 GRPE, the group will be ready to make a formal proposal to GRPE. If there is a substantial change to the draft GTR, then the timeline will definitely shift.

The Chairperson stated that there will be an OCE Plenary Group meeting in the fall, probably somewhere in the US, unless another party is interested in hosting the meeting. At the June meeting we will discuss this further and attempt to have a decision on the fall meeting dates and location.

At the June meeting, the Chairperson will give an overview of the draft GTR to GRPE, and will update the presentation from June 2005, to include a more formal overview and written report so that there is a better understanding for GRPE of where the OCE working group is in the development of the GTR.

### **Agenda Item 7**

The Chairperson wanted to thank The Netherlands for their gracious and generous hospitality in hosting the Plenary and Editorial Committee meeting.

The next plenary meeting of the Off-Cycle Working Group and Editorial Committee will be held on the afternoon of 6 June 2006 at the Palais des Nations, Geneva, Switzerland.

Joanna Vardas, Secretariat  
Dated May 22, 2006

**Attachment: 13<sup>th</sup> Plenary Meeting Attendees**

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