

Compilation of State and Local Air Agencies' Responses to STAPPA and ALAPCO's Request for Top 5 I/M Issues

May 2005

Request:

To: STAPPA and ALAPCO Air Directors
cc: STAPPA/ALAPCO Mobile Sources and Fuels Committee
Date: May 9, 2005

In an effort to build its support for state and local I/M programs and, at the same time, focus its resources most efficiently, EPA OTAQ is seeking to develop a prioritized national list of state/local I/M issues and needs. STAPPA and ALAPCO, therefore, are soliciting from each interested state and local air agency a list of your top 5 I/M-OBD issues warranting EPA's attention and action so that we can provide your lists to EPA for consideration. While EPA is primarily interested in identifying and prioritizing OBD technical issues, you are invited to include on your agency's top-5 list any I/M issue (OBD or tailpipe; compliance or implementation; technical or policy) for which you need EPA's leadership and assistance. If your agency operates or is planning an I/M program, your response to this request is encouraged. Please provide your air agency's top-5 list (in order of priority) to me (nkruger@4cleanair.org) by no later than Tuesday, May 17. Thanks.

Responses:

Alaska DEC – Cindy Heil

Alaska Priorities for EPA Assistance (in order of need):

Tampering assistance; aftermarket defeat devices are prolific and readily available. What can be done to 1) make it harder for tampering to occur, make it harder to sell or buy defeat devices, make it easier to detect defeat devices, and/or make it easier to prosecute the sale or use of defeat devices?

High mileage OBD vehicles (EPA's in-use study); is the cost of repairs for older OBD vehicles reasonable compared with non-OBD vehicles and do those repairs that are required to turn off the MIL provide an emissions benefit?

CAN non-communicating vehicles; it would be useful to provide a tracking log of non-communicating vehicles from various programs and includes reasons for communication problem with found and also the fixes when they are found.

Arizona DEQ– Nancy Wrona

1. The longevity of OBD testing in relationship to the cost of repairs. In older OBD tested vehicles we need some idea of how long will these vehicles will be able to pass the OBD test without continuously exceeding the maximum cost repair waiver limit. Waiver of a large number of vehicles with our once in a lifetime waiver will cause us lots of problems.
2. If the longevity of OBD tested vehicles is still within the model years required by the program to be tested will an alternate tailpipe test be allowed or some type of restricted OBD test (limited trouble codes) and will we receive guidance and assistance from the EPA to implement alternative or restricted testing?
3. OBD testing of medium and heavy duty vehicles (all fuels). All medium duty vehicles were required to be OBD compliant by 2004. Were there sufficient numbers of these vehicles in compliance before 2004 to make testing them worth including them in the OBD tested vehicles? Same question for the heavy duty vehicles.
4. On-Road testing for fleet characterization using Remote Sensing. Since number of available commercial contractors has been reduced to one, vehicles are getting extremely clean with required OBD testing, and the tailpipe emissions may be getting below the readable range for the equipment used by RSD. The EPA should look at removing this option from the enhanced program requirements.

Sacramento Metropolitan Air Quality Management District, California – Larry Greene

1. Durability of repairs continues to rise to the top as a major problem with almost all I/M programs. Studies indicate that repairs are not holding emissions down for more than six months and that many technicians still do not know how to repair late-model vehicles.
2. Smoking vehicles are still on the road and should never pass an emissions test. The I/M technicians should fail a vehicle if there are any visible emissions at all. Programs should include all light- and medium-duty gasoline and diesel powered vehicles 1965 and newer.
3. All of the programs need to be made to be equivalent to a state-operated centralized program like Oregon, in terms of identifying failures, and there needs to be better overt and covert enforcement against technicians and garages that perform fraudulent tests and against motorists who both avoid being tested or try to bribe technicians for a passing certificate. Remote sensing and random roadside testing should be required in every program. There need to be dedicated enforcement staff and prosecutors in the States Attorney Generals offices.
4. There need to be uniform program requirements to ensure that vehicles in one state will pass an I/M test in another. For example, all vehicles newer than 1965 should be required to undergo at least an biennial an I/M test. Older vehicles and vehicles driven more than 25,000 miles per year should be tested more frequently, on an annual basis.
5. The federal Mobile emissions model should be based on real driving patterns, not theoretical.

South Coast Air Quality Management District, California – Dean Saito

I've been asked to respond to your recent inquiry regarding the Enhanced Smog Check Program for the South Coast Air Quality Management District. In the most recent State Implementation Plan Update for the South Coast AQMD we identified several potential smog check improvements for which we believe could result in additional emission reductions for the region. Many of our top five issues associated with I/M-OBD are connected to these potential improvements to the Enhanced Smog Check Program in the South Coast. They are as follows:

1. With growing numbers of SUVs on the road has there been any development by equipment vendors to conduct loaded mode testing for all-wheel or four-wheel drive vehicles. In Southern California, we believe that referee stations, operated under contract by the State of California, can perform testing on such vehicles if such equipment is available. This class of vehicle typically have higher emission rates than passenger vehicles.
2. In California where diesel particulate has been listed as a toxic air contaminant, it seems to make sense to include diesel passenger and medium duty vehicles into the Smog Check Program. Is USEPA aware of other state or programs in other countries which include diesel vehicles into its Smog Check Program?
3. Recently, the Governing Board of the SCAQMD has approved funding for a high emitter repair/scrappage program for light and medium duty vehicles utilizing remote sensing technology. The program will offer incentive funding for vehicle repair and scrappage. Does USEPA have any methodology which states or regions can follow to take additional SIP credits for such programs?
4. How much analysis has been performed in comparing OBD monitoring data versus Smog Check Testing data. Does such analysis warrant placing more or less reliability on OBD monitoring versus Smog Check Testing. We understand there to be conflicting information on this matter.
5. In the South Coast region where there is much idling time due to congestion, it seems to make sense that an Enhanced I/M inspection should also include two-speed idle testing. Recently, during several clean car-care events where the District arranged for free smog test testing for consumers it appeared that there were several instances where the vehicle failed a two-speed idle test however passed a loaded mode test. Since analyzers operating in Enhanced Areas have software to handle both loaded mode testing and two-speed idle testing and the fact that a two speed idle test would add only seconds to the overall test, it seems reasonable to add this component to the smog check testing in regions with significant congestion. Has USEPA given any thoughts to such a suggestion?

City of Fort Collins Natural Resources Department, Colorado* - Lucinda Smith

The City of Fort Collins has been exploring the possibility of a non-SIP emissions program for some time. We have looked mostly toward a remote sensing high-emitter program, but have also discussed a "limited code only" OBD program, and an expanded two-speed idle program to provide more HC reductions. For years the City has participated in an "Inspection/Maintenance

Committee of the NFR MPO, and we are also participating in a recently formed Colorado Front Range committee to study ways to mitigate impacts of termination of the state-run two speed idle test in our area. (see http://www.ppacg.org/Envir/Air/IM%20Transition_cmte.htm)

From the City of Fort Collins perspective, we offer these suggestions:

OBD-related issues:

- Guidance on "select Code-only" OBD program (only fail for certain codes such as evap, O2 sensor, cat, etc.)

Other I/M issues we are facing:

- Assistance in addressing statutory and enforcement issues of a non-SIP based (non-state) I/M program
- Guidance/support in developing a "repair assistance" fund
- Technical recommendations on modifications to I/M Program (TSI) to reduce HC emissions
- Guidance on use of a High Emitter Index
- Ways to reduce False Failure on remote sensing high-emitter identification

**Identical issues were raised by Pikes Peak Area (Colorado Springs, Colorado) Council of Governments – Rich Muzzy.*

Connecticut – Paul Farrell

1. How should states evaluate OBDII I/M programs?
2. What is EPA doing to thwart the use of sensor simulators and other means to get a tampered vehicle to pass an OBDII inspection?
3. It's clear there are additional benefits from combining OBDII and tailpipe tests, especially for older vehicles. How can states claim these benefits?
4. How does EPA enforce manufacturer compliance with OBDII requirements? Is there a difference for Cal LEV states vs. Tier 2 states?
5. What does the future hold for I/M programs?

DC – Don Wambsgans

1. EPA released a draft updated version of the OBDII guidance that was never finalized. It would be useful for EPA to continue to update this guidance so that current recommendations and information on known issues (as provided for in the appendices) are provided on a regular basis. The outcomes of items discussed on the state calls should be integrated. Examples of useful information to add includes:

- a. How to test hybrids
 - b. How to test keyless ignition vehicles
 - c. Known specific P-code problems
 - d. Known readiness issues
 - e. Manufacturer feedback on discovered problems
 - f. Information on cheating devices (O2 sensor simulators, chips, etc.) Ideally, this data would be sent out to the jurisdictions automatically when updated, however, as an alternative at least the guidance document and appendices could be kept up to date and made available via the web.
2. There is a strong potential for old OBDII vehicles to fail at very high rates since the onboard failure criteria cannot be loosened; as these vehicles age and accumulate mileage they are likely to incur an increasing number of defects that cause the MIL to be illuminated. Although it is too early to tell how severe this problem will be or when it will begin to occur, programs need to be ready to address it before it reaches crisis levels. Given this background, how should aging OBDII vehicles be treated since repairing them to an OBDII standard may not be cost effective? Is there an alternative to no cost waivers for older vehicle OBDII repairs as EPA has proposed?
 3. Programs are starting to evaluate new delivery systems for OBDII testing such as remote monitoring (“OBDIII”) which would reduce motorist inconvenience and at the same time catch problems sooner than at the regular vehicle test. Will states receive different credit (more or less than 100%) for using these types of technologies? Will EPA provide guidance on the implementation of these ideas?
 4. 40 CFR 51.353 (c) requires all enhanced I/M programs to conduct and submit the results of biennial evaluations to EPA. The EPA has been moving away from support of I/M tailpipe testing in favor of OBDII-only (no tailpipe) testing, but no guidance has been provided on how programs are supposed to conduct the biennial evaluations in the absence of tailpipe testing capability. Does EPA intend to develop and provide guidance on how program evaluations should be conducted for OBDII-only programs and for the OBDII element of the other programs that continue to perform tailpipe tests on pre-1996 vehicles?
 5. Under current EPA guidance, OBDII vehicles are allowed to have 1 or 2 readiness monitors (depending on model year) unset, because the onboard tests for these systems have not been completed, and still be tested. This policy potentially masks OBDII failures that would otherwise be identified. Therefore, should the policy be changed to one in which (a) OBDII vehicles must have all their readiness monitors set to ready before they can receive an initial test, and (b) monitors for those systems that fail must be ready on retests? A related secondary question is whether a program should get more SIP credit if stricter readiness criteria than the current 1/2 allowed not ready monitors are implemented?

Illinois EPA – James R. Matheny

Listed below are the Top 5 issues as identified by IEPA I/M program Technical and Administrative Staff:

- 1) Continued Support for OBD communication issues. Illinois has made steady progress in this area due in large part to the OBD call and the assistance provided by participating state/local program administrators, Weber State and EPA. As we move toward CAN implementation, problems will undoubtedly surface that will need to be addressed.
- 2) Support with OBD repair effectiveness and readiness issues. Illinois continues to experience excessive rates of vehicles not running OBD monitors (particularly after repairs) leading to subsequent rejects. IEPA requests EPA assistance in dealing with this issue.
- 3) Removing Program Optimization Impediments. The annual loss in I/M credits and overall program cost-effectiveness during periods of funding uncertainties and unwillingness of elected officials to raise taxes/fees is putting considerable pressure on states to optimize current/future programs. EPA needs to update the I/M rule beyond the current amendments to allow states to eliminate ineffective and unnecessary program elements (remote sensing, program evaluation testing, etc.)
- 4) Greater Manufacturer Accountability for producing vehicles in compliance with OBD requirements and emissions warranty issues. Exception management is becoming a problem.
- 5) Continued Technical Support for Lookup Tables and Locator Guides. Implementation of effective and cost-efficient OBD test systems requires a high degree of automation to ensure test quality.

Maryland Department of the Environment – Marcia Ways

1. OBD CAN: Issues identified during vehicle certification need to be communicated to the state promptly, before these issues show up in the I/M lanes.
2. Aging/High Mileage OBD Vehicles: Provide guidance on the effects of high mileage and age on OBD systems, monitor readiness, reparability of certain DTCs, etc.
3. OBD Guidance Document: Need to update and maintain current information in the OBD guidance for I/M.
4. OBD Clearinghouse/OBD Technical Workgroup: Need to get the Weber State website updates finalized as soon as possible, and maintain funding and technical support over time; need to provide support for the I/M Solutions OBD Technical Work Group proposal.
5. MOVES Model: Need to address the implications of the MOVES model on the future of I/M programs.

Massachusetts DEP – Nancy Seidman

1. Maintain list of OBD problem vehicles (like Appendix D of current EPA OBD Guidance Document). Issues: readiness, communication with scan tools
2. Resolve OBD problem vehicles with manufacturers (i.e., force a recall, TSB, or exempt from EPA I&M OBD requirements)
3. Maintain OBD Vehicle Lookup Table (VLT) for all states to use (include comm. protocol to aide states in detecting inspection fraud)
4. OBD tampering/defeat devices – maintain list, evaluate devices, initiate enforcement actions as needed
5. Perform studies for future I&M OBD program guidance
 - Continue the High Mileage OBD vehicle study
 - Evaluate costs and effectiveness of repairs to old OBD vehicles with MIL on
 - Readiness issues – is allowing 1 or 2 monitors Not Ready okay?
 - KOEO/KOER, is this worth doing?

(Note – KOEO is the Key-On-Engine-Off check, basically a visual check that the "check engine" light bulb works. The KOER is Key-On-Engine-Running)

Nevada DEP – Sigurd Jaunarajs

1. The use of programmers on OBD vehicles. These devices download the factory programming for storage in a hand held device and then upload a performance program. The vehicle runs on this performance program until time for an emission test at which time the owner plugs the device back into the OBD port and downloads and stores the performance program and uploads the factory programming. This was called to our attention by a customer who's monitors were unset. When we asked if the battery had been disconnected prior to the emission test he advised us that the only thing that had been done was the program change. I found several websites offering these devices. No mention is made of any compliance or lack of compliance with any emission regulation.
2. The use of OBD simulators. These devices simulate a normal signal, lets say from an O2 sensor, that a PCM would like to see. These O2 sensors monitor catalyst efficiency. The problem is the device, usually a catalytic converter, has been removed. Since we do not do a visual inspection on OBD vehicles this goes undetected. These devices are available on the internet and at Summit Performance Parts.
3. We would like some guidance from the EPA on how to deal with model year 1996 and 1997 vehicles that have OBD testability issues. For example a 1996 Mitsubishi that resets its monitors to incomplete whenever we do a bulb check. Mitsubishi has been less then helpful. After talking to the dealer and a factory rep we still have no response or repair. This problem also seems to occur with Kia, Hyundai and Subaru.
4. We need guidance on how to test hybrid vehicles. Honda Insight and Civic Hybrids do not seem to pose any unusual problems. We have not tested any hybrid Accords yet. The 2004 Prius has been tested and did not continue to run until the test was complete. After 45

minutes of trying to complete a test the batteries were finally weak enough for the engine to run long enough to complete the test. We have received a service tip from Lexus advising that if we put the ignition key in the on position then depress the accelerator pedal 2 times with the shifter in park, then depress the accelerator 2 times with the shifter in neutral, then depress the accelerator 2 times with the shifter in park once again and turn the ignition key to start all within 60 seconds we will be in the emission test mode. If all the manufacturers have different means of putting the hybrid vehicles they produce into an emission test mode how are the states and inspectors going to keep up?

5. Clearing codes and retesting the vehicle before the monitor that has tripped the code has had an opportunity to run. This results in a vehicle passing that should have failed and been repaired. Inspectors in the field say they do this because they feel bad for the customer or they do not want to try to repair a system that they do not understand or they feel it would take too much time to diagnose and repair the problem correctly. They feel this may result in the loss of a customer.

In addition to technical issues, NDEP has questions about the future of I/M-OBDII from a larger, programmatic perspective. Does EPA envision a continued, major role for I/M-OBDII programs in the control of mobile source emissions in non-attainment areas? Does EPA value test and repair programs and will they continue to support state implementation efforts? States are under increasing pressure from local interests to eliminate or water down I/M programs and air quality planners want to be certain that EPA continues to view I/M programs as central to keeping vehicles in good repair and running clean.

New Hampshire DES – Becky Ohler

1. The FACA policy committee's final report made several recommendations that NH feels should be carried out. In particular we feel it is important that their direction to EPA to expand the high-mileage study to assess at least 100 vehicles per year (about twice the number of vehicles assessed in 2002) be carried out. As described in the Policy Workgroup report, this assessment should continue for at least the next five to ten years. The study should look at both chronologically aging vehicles, and newer vehicles as they reach over 100,000 miles. The Policy Workgroup suggested both EPA and the OBD Technical Workgroup should continue to review additional data from EPA the high-mileage studies and from operating state OBD I/M programs and EPA should share the results of this ongoing assessment with the States annually.

The assumption of the OBD Policy workgroup was that the OBD Technical Workgroup would continue to exist and operate as an EPA led workgroup. While certain tasks could be contracted out to the private sector, notably the National OBD Clearinghouse, EPA must retain responsibility for the continued efforts to address the recommendations of the OBD FACA. The concern is that EPA will contract out all responsibility now, and in a couple of years may or may not continue to support that contract financially.

2. Continued technical support in identifying problem vehicles, and suggested solutions. In other words, continually update Appendix D and relay the information to states.
3. EPA must continue to strictly enforce OEM OBD requirements. We have been hearing of requests by OEMs to have states adjust their programs to allow for minor OEM non-compliance. This should not be requested of the states.
4. Outreach. EPA has done a good job developing outreach materials for use by the states. As the OBD program matures additional outreach materials will be needed, in particular outreach to mechanics and dealers. We need them to be well informed not only about how to do the repairs, but also about the benefits of those repairs to the consumer so that their message to their customers is a positive one. When states are all using a common set of outreach materials the message is relayed more effectively. The only way this can continue to occur is if the core outreach materials continue to be developed and made available by EPA.
5. Since #1 was so long and involved we'll skip this one!

New Jersey DEP – Rob Schell

Motor vehicle manufacturer accountability and enforcement:

Hold vehicle manufacturers accountable. We need vehicle manufacturer recalls for vehicles with manufacturer defects that otherwise leave motorists and state testing programs without a solution for these problem vehicles. Also address and foster resolution of issues where vehicle manufacturer changes or designs render vehicles incompatible with existing inspection equipment or methods (e.g., Honda gas caps, BMW DLC covers).

National leadership of OBD issues:

Place a much higher and sustained priority on supporting state/local I/M efforts – policy and technical – and provide strong national leadership for this program. The states need ongoing operational support for a complex technological program. This should include reinstating vehicle look-up table updates (including enhancements for OBD information) and updating OBD implementation documents on a continuous basis.

Future OBD inspection:

Lead efforts to look ahead to the future of OBD (e.g., how to make it more customer friendly, OBD-only systems, self inspection kiosks, keyless ignition, etc.). Explain how to deal with new OBDIII specs (CARB rate-based monitors, etc.). Foster development of diesel OBD (including non-road), especially in light of new engine requirements.

OBD tampering and repair issues:

Engage in enforcement efforts against manufacture and sale of OBD defeat devices. Advise states on what to look for to detect such devices. As more OBD vehicles age and are out of warranty,

increased tampering, plus used and aftermarket part usage, is becoming more prevalent. OBD failure rates are climbing for aging and high mileage OBD vehicles. Advise states on problems and direct them toward training to fix more difficult OBD repairs. Advise states on repair assistance programs.

Program evaluation and SIP credits:

Are IM240 to OBD comparisons valid or irrelevant? With tailpipe testing phasing down or out in many programs, the availability of quantitative emissions measurements for program evaluation is becoming more limited. Is RSD the most practical alternative or are there other options for quantitative program evaluation? The diminishing SIP credits in current/future EPA models for I/M programs represent that some programs may not be cost effective. As the cost effectiveness of I/M programs diminish, will I/M disappear as a mobile source emission reduction strategy? How might EPA handle backsliding on I/M commitments in light of reduced effectiveness? The states and EPA need to better understand theory versus reality in terms of what a practical I/M program should look like and how we can measure its effectiveness.

New York DEC – Dave Shaw

In response to your request for a list of New York's top I/M-OBD issues warranting EPA's attention and action, I would like to offer the following, in order of priority:

1. How I/M and OBD are handled in the upcoming MOVES model. We know how difficult the transition to MOBILE 6 was particularly regarding I/M, and the early discussions of I/M relative to MOVES are not reassuring. This needs to be a high priority, and timely discussion item.
2. EPA Support of the OBD program. There are a number of technical issues still out there on OBD, such as keyless ignitions, communications, Technical Service Bulletins and recalls, etc, as well as end of life issues. We need continued support by EPA on these issues. They have recently disbanded the FACA workgroup that was dealing with these type of issues, and it is not clear that they are planning on having technical support of this program be a high priority.
3. Serious discussions about the appropriate levels of SIP credits for OBD, and a review of what happens to the tailpipe programs in the near future relative to the SIP.
4. We should think about whether we want to start to have discussions on Heavy Duty OBD.

North Carolina DENR – Keith Overcash

Our biggest problem has turned out to be dealing with federal vehicles on military bases and also the vehicles being driven by the soldiers that are stationed on these bases. For more info on this, please contact Brian Phillips of my staff.

Ohio EPA – Glenn Luksik

1. Reassign reduction values of I/M and Certification in Mobile6 (and MOVES). Certification should only receive the amount of reductions it does, if and only if an I/M program exists. The motoring public will not maintain their vehicles without an I/M program in place. When this occurs, the certification amount is false.
2. USEPA should fund the Sierra tables for all states (or charge us a pro-rated amount) and keep it current.
3. Better oversight and coordination of the central information point (in this case the OBD Clearinghouse). All things OBD should reside there, with USEPA oversight. For example the exemption list for readiness and comm issues, CAN, problem cars in setting readiness, etc.
4. Mandate more functions of I/M programs. Waivers, exemptions, extensions and repair caps are allowed to be manipulated by the states. This leads to too great of variance and bastardized of programs. As an example; repair waiver amounts vary from none to whatever it takes to repair the vehicle.
5. Greater state input on the functionality of MOVES. Some of the simplification and streamlining may be so for the programmers, but not the modelers or administrators using it.

Regional Air Pollution Control Agency, Dayton, Ohio – Bruno Maier

We were interested if USEPA could identify solutions to the following program areas. EPA may be aware of how these issues have been dealt with in other locales. These are the major concerns raised in our area:

- * The failure rate on younger vehicles is extremely low. Many vehicles are being tested that don't need to be. Vehicles 10 years old and younger should be exempted from the program, keeping in the testing program those vehicles with higher fail rates; and
- * The testing fee in a jurisdiction is burdensome to the local residents. A state-wide charge for license plates should be implemented sufficient to pay for the testing in the appropriate counties, with no further charge to the residents;
- * A state-wide charge for license plates provide funding for a program to assist low income families that own vehicles in need of emissions controls repair.

Basically our I/M priority for USEPA would be to develop I/M guidance or leadership that would address the above issues.

Oregon DEQ– Andy Ginsburg

1. EPA should coordinate with states that conduct enhanced emissions tests (IM240, BAR31, and ASM) to perform back to back testing of the enhanced emissions test and OBD to

determine which the vehicle classes commonly pass the OBD test and also fail the enhanced emissions test.

2. EPA should conduct studies of the vehicle classes identified in item 1 above to determine if there is a manufacture's defect in the vehicles. If there is a defect EPA should initiate recall on those vehicles which do not meet OBD requirements for emissions detection.
3. EPA should make available to all IM programs the full description of vehicle class and OBD defects found in items 1 and 2 above.
4. EPA should act as a clearing house for any information about individuals or businesses that are selling means to defeat the OBD test. EPA should investigate this fraud, impose penalties and distribute this information to all IM programs.
5. EPA should act as a clearinghouse for any OBD testing problems and should continue to make recommendations to IM programs regarding testing process for these special vehicles and for general testing procedures.

Pennsylvania DEP – Arleen Shulman

Here are a couple from us and PENNDOT, our implementing agency:

* EPA muscle on automakers for fixes to their OBD systems when states discover problems and EPA muscle on OBD defeat devices.

* Ensuring EPA and CARB work together, and work with the OEMS. The specific issue mentioned was CAN protocols, and that some connectors differ in the number of pins they have, making it difficult for inspection stations to just buy one piece of equipment to read them.

* A perennial issue (which I've been hearing for years and years) – EPA support for VRT tables, which are lists of exceptional vehicles (failure to connect, etc.). EPA used to support this (contract with Sierra Research) but hasn't for a while. States can't seem to get together to figure out a joint state funding mechanism.

Texas CEQ – Bobby Wierzowiecki

1. Acceleration Simulation Mode (ASM) Test Standards

Emissions test standards are needed for model year 2003 and newer vehicles. EPA issued the last Vehicle Lookup Table (VLT) in 1999 through Sierra Research which included vehicle test standards and vehicle specification up to model year 1999 vehicles. With the onset of On Board Diagnostic testing, EPA no longer provides the VLT but informed states that they could acquire updates from Sierra Research independently. The VLT is needed to provide the proper ASM emissions test standards for vehicles unable to test using OBD and transition to a tailpipe test.

2. Vehicle Information

For model year 2003 and newer vehicles, vehicle specifications such as make, model, model year, engine size, number of cylinders, transmission type, vehicle

type, and body type are needed. The information is necessary to standardize data entry for the lane inspectors to conduct emissions tests in the program.

3. On Board Diagnostics (OBD) Data

OBD information for model year 1996 and newer vehicles is needed to identify which readiness monitors are supported, Parameter Identification (PID) Count, Powertrain Control Module (PCM) data, and communications protocol. This information is used to detect potential fraudulent OBD emissions inspections.

4. Program Evaluation

Need EPA to finalize the "Draft Guidance on Use of In-Program Data for Evaluation of I/M Program Performance" dated August 2001. In meeting program evaluation requirements, EPA staff suggests that I/M programs follow one or more of the three available guidance documents. However, the most preferred guidance of the three is still in draft.

5. Improved Technical Guidance

A knowledgeable EPA I/M specialist should be designated that can confer with I/M program administrators on unique testing issues (i.e. keyless ignition vehicles, hybrid vehicles, and future technology advances on vehicles).

Vermont DEC – Tom Moyer

1. Updating/maintaining OBD IM Implementation Guidance on an on- going basis. That will also address many of the "detail" issues that have been raised (keyless ignition, hybrids, Canadian vehicles, revising readiness guidance to close certain existing loopholes, etc.)
2. Create and support a group or forum that includes EPA, CARB, vehicle and equipment manufacturers, I/M contractors, and I/M state people to help resolve technical issues and provide guidance to EPA and states.
3. CARB included a number of requirements in their last amendment of the OBDII reg designed to make OBD more useful for IM purposes. Vehicles are now providing data like:
 - number of warm-up cycles since codes cleared,
 - distance since codes cleared,
 - distance traveled since MIL illuminated,
 - VIN, CAL ID, CVN

Provide guidance on the use of this data to help improve our OBD IM programs.

4. OBD IM for medium (and perhaps even eventually heavy) duty vehicles.
5. Enforcement efforts for tamper devices.

Following are a couple of additional concerns that I didn't include in my list of 5, as they are arguably outside the scope of what was requested:

1. One of the things at the heart of the problem of lack of leadership and responsiveness from EPA is that I think EPA needs a primary contact person who is technically up to speed, but also has the ability and authority to bring together the technical folks and the policy folks in order to bring these issues to resolution.
2. Data from IM programs is theoretically an invaluable resource in terms of helping EPA and/or CARB identify problems and determine if manufacturers are complying with emissions requirements. When IM programs were tailpipe based, the value of the data overall was less than ideal because programs used different test methods, cut-points, had different levels of quality control, etc. However, with OBD based programs, most of those issues go away, and the data overall is much more reliable and consistent. EPA should place a high priority on getting this data from IM programs and using it to help IM programs identify and resolve problems, and to help with in-use compliance.

Virginia DEQ – Rich Olin

1. Virginia DEQ has analyzer software provisions to require a tailpipe test as well as an OBD test on pre-selected 1996+ OBDII vehicles. California is currently performing dual testing (OBDII and ASM) on all 1996+ OBDII vehicles and has proposed that there should be additional SIP credit for this. Can EPA work with CA, VA and other states to quantify the benefits of such dual testing?
2. Virginia DEQ understands that the new MOVES mobile model will not differentiate emissions benefits between the various tailpipe tests available to IM programs. It will be difficult to justify continuation of enhance tailpipe testing programs based on EPA modeled credits. Since pre-OBD vehicles may represent the majority of the “excess emissions” available for some years to come, this situation will certainly have adverse air quality impacts. In lieu of EPA establishing such credits in the mobile model, states will need clear guidance on how to quantify emissions benefits from non-OBD testing methods, or from variations from the “recommended” OBD procedures such as tightening readiness requirements.
3. Although EPA has abolished the OBD Technical Work Group that functioned under the FACA Mobile Sources Technical Review Subcommittee, it appears that EPA intends to continue the forum and support functions that the work group provided to I/M programs through a combination of existing EPA staff and possible expansion of the role of the Weber State OBD clearinghouse (subject to additional EPA funding). Virginia DEQ supports this plan and hopes that EPA can provide the necessary funding to Weber State.
4. Virginia DEQ is concerned what will happen when OBD vehicles become very old, as opposed to having high mileage. It is possible that tailpipe testing could be more appropriate for such vehicles. State programs will need advice on evaluating options.
5. OBD-specific guidance is needed on how to conduct and submit the results of biennial evaluations to EPA 40 as required by CFR 51.353 (c) for all enhanced I/M programs.

Wisconsin DNR – Muhammed Islam

I/M-OBD Issues Warranting EPA's Attention:

1. Higher sustained priority on supporting state/local I/M efforts (policy and technical) by:
 - Providing strong national leadership for this program through a central workgroup and clearinghouse as proposed by Weber State University and presented to the USEPA at the recent I/M solutions conference in San Antonio, Texas.
2. Identify a "go-to" person for I/M questions and issues
3. Lead efforts to look ahead to the future of OBD (I/M) testing, including:
 - The impact of MOVES model
 - OBD program evaluation
 - Updating OBD/IM implementation guidance document on a continuous basis
4. Improve the EPA facilitated state/local I/M calls and ensure timely follow-up on all issues and questions raised.
5. Hold vehicle manufacturers accountable

Georgia EPD – Kent Pierce

MEMORANDUM

To: Nancy Kruger
STAPPA/ALAPCO

From: Kent Pierce
Mobile and Area Sources Program

Subject: Top 5 I/M needs from EPA

On the May 4, 2005, EPA national OBD conference call with all state and local jurisdictions a request was made for I/M program administrators to submit their top five I/M related issues where guidance and leadership is needed from EPA. The main focus was OBD issues, but the request was not limited to OBD as other I/M issues can be included as well.

In GA the foremost issue would be EPA's commitment to supporting I/M programs and taking a strong leadership role to address issues and problems encountered by I/M program across the US. They need to be proactive on many issues to investigate and head-off problems before they become problems in the test lanes, and in other areas they need to be more responsive and diligent to follow-through on currently identified problems and issues. This was voiced very clearly by all

representatives at the 2004 Clean Air Conference in Colorado at an impromptu meeting with Merrylin Zaw-Mon. Tom Cackette with CARB was very out spoken on these issues, as were many I/M program administrators. Also, attached is a document supplied by Sierra Research that captures many of the issues raised at that meeting, which are still outstanding and related to this request.

1. The OBD Implementation Guidance document needs to be updated on a regular basis. It is understood by all stakeholders that this document would need to be revised from time to time* to address future unknowns and issues. Thus, formal finalization of the guidance may not be needed, or the best thing to do. However, it must be an active living document from which EPA and I/M program managers work to continually develop. This guidance document needs to be of a quality such that it is the main source for which OBD programs are developed, operated and perfected.

- a. Update appendix D. Over the past 2 to 3 years, other vehicles have been identified as having difficulty with testing (readiness, communication, DTCs, MIL, etc.). EPA needs a person to devote their time to interfacing with I/M program managers to build a list of these proposed vehicles and query each program as to how they are handled. In some case, what's found needs to be taken to the OEMs for consideration of development of TSBs to correct problems found in the field by I/M programs.
- b. EPA needs to revisit the readiness monitor exemption criteria (1 not-ready for ≤ 2001 , 2 for >2001). With several years experience in OBD testing, EPA needs to investigate if this criteria is still sound. Some issues have been raised on whether or not a monitor associated with a DTC and subsequent repair should be allowed as an exempt monitor. Some have suggested that the CAT monitor should never be allowed as an exempt monitor.
- c. EPA needs to develop a list of vehicles that have known OBD communication issues and prescribe the remedy or the procedures to handle those vehicles. It should be noted that some of these issues would be related to section 3. below, but the guidance needs to address when it is a true vehicle issue and when it has been found to be a OBD software or scan tool issue perhaps with a particular equipment vendor.
- d. EPA needs to develop a list of vehicles that are prone to having DTCs set, but yet the MIL is not commanded ON. Or develop criteria or guidelines for avoiding this situation (i.e., prescribe software that doesn't query for DTCs unless the MIL is commanded ON).
- e. Guidance needs to be developed on how to properly OBD test "hybrid" vehicles (those where the inspector can't make the engine run in the test bay).
- f. Guidance needs to be developed on how to properly OBD test vehicles with keyless ignitions.

contaminating the CAT). Remote sensing in non-I/M areas indicates that many repairs are only pursued by the owner because of I/M programs. EPA needs to continue to conduct and fund studies to ensure situations are clearly understood before determinations are made, or policies are set.

5. Tampering and defeat devices. This is a very important and disturbing issue, but is listed last because it is handled by EPA's Office of Enforcement and Compliance Assurance (OECA). The first four issues are things that fall under the oversight of OTAQ, and are things that OTAQ (or their predecessor) have performed or provided in the past to I/M programs.

- a. OBD defeat devices such as O2 simulators do more than allow the owner to override the system. Often these devices are used when an owner has added "performance" components that were intended only for off-road use. This undoubtedly causes excess emissions and the defeat device is used to mask the problem. However, there is a greater risk associated with the marketing of these devices. That is when the less than honest repair shops are not able to make effective repairs or when a used car dealers tries to sell a vehicle with the MIL on. As OBD vehicles get older and more difficult to repair, or the cost to properly repair them is no longer economical compared to the resale value of the vehicle, then these defeat devices are a very attractive workaround. OECA needs to do more than just send out a "208" letter. Until an example is made by pursuing an actual enforcement case against manufacturers of these devices, the devices will remain on the market with increased availability.
- b. Inferior after-market replacement catalytic converters are also of great concern to nonattainment areas. Many OEM CATs are replaced as a first effort to extinguish a MIL or when a vehicle fails the OBD I/M test. Typically, replacement CATs are vastly inferior to the robust OEM CATs. OECA needs to provide more oversight of the after-market manufacturers of emissions equipment to ensure effective replacement parts are being supplied by non-OEM vendors. A vehicle equipped with an inferior CAT and O2 simulators is a combination that will lead to very high excess emissions. And, the problems will be totally transparent to the OBD system, the motorist/buyer, and the OBD I/M test.

Attachment to Georgia's response memo – Questions for EPA about OBDII testing from Sierra

1. EPA has abolished the OBD Technical Work Group that functioned under the FACA Mobile Sources Technical Review Subcommittee. It appears that EPA's intent is that the forum and support functions that the work group provided to I/M programs will be taken over by a combination of existing EPA staff and possible expansion of the role of the Weber State OBD clearinghouse (subject to additional EPA funding). However, the OBD clearinghouse is not set up for this type of support—it posts information provided by others that can be viewed by the programs but does not research or investigate any problems—so how it would do this if additional funds are provided is unclear. In addition,

relatively little funding and a low priority within EPA for I/M program support has limited EPA staff's ability to provide responsive answers to OBD technical issues raised during state/EPA calls over the last couple of years. Unless they have a lot of internal resources or have hired a technical support contractor for this purpose, this has led many I/M programs to struggle and/or duplicate efforts in addressing technical issues that have arisen. More such issues will arise in the future with the implementation of CAN OBDII communications on all vehicles, due to the issues discussed under Items 3 and 4 below etc. We believe EPA needs to help the I/M programs get quick and effective answers to our technical questions and issues, and we don't think using either existing EPA staff or Weber State will adequately address this problem. What does EPA intend to do about the problem?

2. EPA released a draft updated version of the OBDII guidance that was never finalized. It would be useful for EPA to continue to update this guidance so that current recommendations and information on known issues (as provided for in the appendices) are provided on a regular basis. The outcomes of items discussed on the state calls should be integrated. Examples of useful information to add includes:
 - a. How to test hybrids
 - b. How to KOEO test keyless ignition vehicles
 - c. Known specific P-code problems
 - d. Known readiness issues
 - e. Manufacturer feedback on discovered problems
 - f. Information on triggers
 - g. Information on cheating devices (O2 sensor simulators, chips, etc.)

In addition, the items discussed below (3 through 7) should be added to the guidance document when they are resolved.

Ideally, this data would be set out to the states automatically when updated, however, as an alternative at least the guidance document and appendices could be kept up to date and made available via the web. Can EPA keep this document up to date?

3. Under current EPA guidance, OBDII vehicles are allowed to have 1 or 2 readiness monitors (depending on model year) unset, because the onboard tests for these systems have not been completed, and still be tested. This policy potentially masks OBDII failures that would otherwise be identified. Therefore, should the policy be changed to one in which (a) OBDII vehicles must have all their readiness monitors set to ready before they can receive an initial test, and (b) monitors for those systems that fail must be ready on retests? A related secondary question is whether a program should get more SIP credit if stricter readiness criteria than the current 1/2 allowed not ready monitors are implemented?
4. There is a strong potential for old OBDII vehicles to fail at very high rates since the onboard failure criteria cannot be loosened; as these vehicles age and accumulate mileage

they are likely to incur an increasing number of defects that cause the MIL to be illuminated. Although it is too early to tell how severe this problem will be or when it will begin to occur, programs need to be ready to address it before it reaches crisis levels. Given this background, how should aging OBDII vehicles be treated since repairing them to an OBDII standard may not be cost effective? Can programs revert to tailpipe testing these vehicles? Should this be based on age or on mileage? What is the recommended process? Should they first be required to fail an OBDII test and have an attempt made to repair them to an OBDII standard first, and then receive a tailpipe test if they fail the OBDII retest? As opposed to having no cost waiver for OBDII repairs as EPA has proposed, is this an acceptable alternative?

5. California is performing dual testing (OBDII and ASM) on all 1996+ OBDII-compliant vehicles and has proposed that there should be additional SIP credit for this. Since the OBDII test is already given full (100%) credit in MOBILE6, how will this be dealt with?
6. Programs are starting to evaluate new delivery systems for OBDII testing such as remote monitoring (“OBDIII”) which would reduce motorist inconvenience and at the same time catch problems sooner than at the regular smog check. Another idea is to allow motorists to test their vehicles themselves (the ultimate decentralized testing). Will states receive different credit (more or less than 100%) for using these types of technologies? CAN EPA provide guidance on the implementation of these ideas?
7. 40 CFR 51.353 (c) requires all enhanced I/M programs to conduct and submit the results of biennial evaluations to EPA. The NRC report on Evaluating Vehicle Emissions Inspection and Maintenance Programs criticized EPA for not supporting and helping ensure that these evaluations are completed and submitted. Despite this criticism, there has been little change since the publication of the NRC report. In addition, EPA has been moving away from support of I/M tailpipe testing in favor of OBDII-only (no tailpipe) testing, but no guidance has been provided on how programs are supposed to conduct the biennial evaluations in the absence of tailpipe testing capability. Does EPA intend to develop and provide guidance on how program evaluations should be conducted for OBDII-only programs and for the OBDII element of other programs that continue to perform tailpipe tests on pre-1996 vehicles?