

### **Attachment 3: Revised Used Vehicle Analysis for the In-Use Off-Road Diesel Vehicle Regulation**

When ARB staff estimated the number of off-road used vehicles that are available for purchase for the Technical Support Document: Proposed Regulation for In-Use Off-road Diesel Vehicles (ARB, April 2007), staff inadvertently made a number of errors and omissions, as described below:

- ARB staff double counted vehicles that were listed on two on-line auction sites;
- ARB staff included some vehicles that would not be subject to the in-use off-road diesel vehicle regulation (regulation);
- ARB staff used only worldwide vehicle inventory and did not record how many vehicles are available for purchase in the United States;
- ARB staff saved only summaries of the auction data used, rather than the data itself.

ARB staff has now redone the analysis using publicly available data collected on February 21, 2008. Using this data, staff corrected the errors described above, and has saved and attached all the auction data used for this analysis. Despite the errors and omissions in the earlier analysis, the results of staff's most recent evaluation confirm that the conclusion reached in the Technical Support Document (TSD) was correct in that there will be sufficient numbers of used vehicles available to fleets to comply with the regulation.

The methodology used by staff and results of the analysis are discussed further below.

#### **Methodology**

##### **Double Counting Vehicles**

In the original analysis of the used vehicles that were available for purchase, ARB staff utilized two on-line auction databases that contain the majority of the off-road equipment available for purchase. The two auction sites utilized by ARB staff were Ritchie Brothers (<http://www.rbauction.com/index.jsp>) and Machinery Trader (<http://www.machinerytrader.com>). Some of the vehicles that were listed on Ritchie Brothers were also listed on Machinery Trader, so staff inadvertently counted some vehicles twice. While staff does not believe that every vehicle listed on Ritchie Brothers' site is also listed on Machinery Trader's site, when the analysis was re-done, to be conservative, staff only looked at vehicles that were listed on Machinery Trader. Staff is now confident that no vehicles were double counted.

## **Equipment Types Not Subject to the In-Use Off-road Diesel Vehicle Regulation**

The previous search was done by manufacturer, and some equipment types that should not have been counted, such as portable equipment, were inadvertently included in the total vehicle count. When the data was reanalyzed, ARB staff sorted the equipment by type rather than by manufacturer. By sorting the equipment by type only those types of equipment that will be subject to the off-road regulation were counted. The vehicle types counted are combination, landfill, padfoot, pneumatic and smooth drum compaction equipment, carry deck, conventional truck, crawler and rough terrain cranes, crawler loaders, crawler and wheel dozers, horizontal and vertical drills, dumpers, crawler, mini and wheel excavators, mast and telescopic forklifts, boom and scissor lifts, loader backhoes, motor graders, pipelayers, scrap processing and demolition equipment, skid steers, skip loaders, off-highway trucks and wheel loaders.

To be conservative, ARB staff did not count the following equipment types: asphalt, paving and concrete equipment, all terrain, tower and hydraulic cranes, forestry equipment, scrapers, sweepers and broom equipment, trencher and boring equipment, water equipment, and all vehicles listed under the other category. It is important to note that these categories do contain some mobile diesel vehicles that would be subject to the regulation, but also some portable equipment or attachments that would not be subject to the regulation. In taking this approach, staff is likely underestimating the number of vehicles that will be available to fleets to comply with the regulation. In total, there were over 7,000 such pieces of equipment that were not included in staff's analysis. Staff is now confident that all vehicle types included in staff's analysis are of the type that would be subject to the regulation.

## **Worldwide Versus United States Availability**

Staff's previous analysis only looked at worldwide availability of used vehicles. The previous analysis did not differentiate between vehicles available in the United States and those available in other countries. Stakeholders made the argument that it is more likely that vehicles that are currently in the United States would be purchased than vehicles in other countries. Therefore, when redoing the analysis, staff looked both at worldwide and United States availability.

## **Records of All Auction Data Used**

Attachment 3-A is a spreadsheet summarizing all of the data that was collected for the staff's revised analysis. Attachment 3-B contains the actual screen shots of all of the searches and the results from those searches that were generated when ARB staff reanalyzed the pieces of equipment that were currently for sale. Attachment 3-B is available for public inspection at ARB's Internet website at the following address: <http://www.arb.ca.gov/regact/2007/ordiesl07/ordiesl07.htm>, or

by contacting Amy Whiting, Regulations Coordinator at (916) 322-6533, 1001 "I" Street, 23rd floor, Sacramento, California 95814.

## Results

The table below shows the total number of vehicles available for purchase.

<b>Previous Analysis: TSD (Worldwide)</b>		<b>New Analysis: Worldwide</b>		<b>New Analysis: United States Only</b>	
<b>Total</b>	<b>2003 +</b>	<b>Total</b>	<b>2003 +</b>	<b>Total</b>	<b>2003+</b>
80,000	30,000	72,594	32,587	60,057	28,850

The TSD reported that there were 80,000 vehicles available to comply with the regulation and that 30,000 of these were likely Tier 2 or higher (vehicles that were model year 2003 or newer were assumed to be at least Tier 2). The new analysis showed over 72,000 vehicles available to comply with the regulation and that over 32,000 vehicles were likely Tier 2 or higher. The total number of vehicles available in staff's revised analysis was within 10 percent of the original number stated in the TSD, and the number of vehicles that were model year 2003 or newer and likely Tier 2 or better was actually 9 percent higher than the previous figures stated in the TSD.

Staff believes that this 9 percent increase in the number of 2003 or newer vehicles available for purchase strengthens staff's original conclusion that by the time that the first requirements for accelerated turnover take effect in 2010, there is likely to be an even greater number of Tier 2 or better used vehicles available.

The data also showed that in the United States there are presently over 60,000 pieces of equipment available for purchase and that almost 29,000 of them are likely Tier 2 or newer. While the overall number of pieces of equipment for sale in the United States is approximately 25 percent less than the worldwide total of 80,000 estimated in the TSD, staff remains confident that there are sufficient numbers of vehicles available for purchase. This is because while the total number of vehicles available in the United States is significantly less than what staff previously estimated, the number of 2003 or newer vehicles currently available for purchase is within 4 percent of the 30,000 vehicles identified in the TSD. This means that the number of vehicles presently available for purchase in the United States alone is virtually identical to the number that was estimated in the TSD to be available worldwide.

In conclusion, staff feels that there will be an adequate supply of used vehicles on the market to meet the needs of fleets during the compliance periods in the regulation. Because these used vehicles cost significantly less than new vehicles, and in most cases can be retrofitted to help fleets meet their particulate matter and oxides of nitrogen targets, they represent a lower cost compliance option. Staff also believes, as indicated by the 9 percent increase in 2003 or newer equipment over the past year, that in the years to come even more used equipment will become available for purchase by fleets to comply with the regulation.

**Attachment 3-A**  
**Summary of Machinery Trader Vehicle Listings on 21 Feb, 2008**

**Attachment 3-B**  
**Screen Shots of Machinery Trader Vehicle Listings on 21 Feb, 2008**

The actual screen shots of all of the searches and the results from those searches that were generated when ARB staff reanalyzed the pieces of equipment that were currently for sale are available public inspection at ARB's Internet website at the following address:

<http://www.arb.ca.gov/regact/2007/ordiesl07/ordiesl07.htm>,

or by contacting Amy Whiting, Regulations Coordinator at (916) 322-6533, 1001 "I" Street, 23rd floor, Sacramento, California 95814.