**Reporting Template for
Tracking and Calculating Credits Under the
ABT Program for Heavy Duty Highway Diesel Engines**

I. Background

A major component of the final rule for heavy-duty highway diesel engines (signed on January 18, 2001; 66 FR 5002) is the averaging, banking and trading (ABT) program for NO_x and PM. This program overlaps during the phase-in years with the preceding ABT program for $NMHC+NO_x$ and PM. Manufacturers must track the implementation of these provisions based on the model year, engine family, and the $NO_x/NMHC + NO_x$, or PM level to which the engine family is certified. In order to help streamline and standardize the process by which manufacturers submit information related to credits or deficits under the ABT program, EPA has created an Excel-based template to assist manufacturers with the organization, presentation, and submittal of their data.

II. Reporting Template

The Excel file contains three worksheets: "Credit Calculations-Current MY," "Field Descriptions," and "Averaging and Summary," which are described below.

- **Current MY Credit Calculation:** This worksheet contains 15 fields, which apply to all of the information required to track credits or deficits for the heavy-duty highway diesel engine averaging sets. The first 9 columns are the fields that require data entry or input from the manufacturer. The subsequent five columns (highlighted in yellow or orange) are preset or calculated values based on the data entered and cannot be modified manually. The last column includes any relevant warning messages that apply given the data entered by the user (e.g., FEL cap exceedances). This worksheet only applies to current model year (MY) calculations. The current MY balances for each parameter are automatically calculated and displayed below the data entry rows. The phase-in percentage and the offset balances are also displayed below the current MY credit balances.

- **Field Descriptions:** This worksheet contains detailed notes on the fields in the first worksheet, including a description of the required data or information, how the data should be entered (for the first 9 columns), the existence of any drop-down menus, and any other information that would be relevant to that field (including whether the field is a calculated value based on preceding entries in the spreadsheet). As with the "Credit Calculations-Current MY" worksheet, all fields that are calculated (and thus, do not require any data entry) are highlighted in yellow or orange.

- **Averaging and Summary:** This worksheet provides an overall summary of the heavy-duty highway diesel $NO_x/NMHC+NO_x$ and PM credits that have been calculated from the first worksheet and allows the manufacturer to enter in credits

from previous model years so that banked credits can be properly applied and compared to current model year credits. This worksheet allows the manufacturer to outline how credits will be used to document compliance with the NO_x/$NMHC+NO_x$ and PM standards.

III. Entering Data for the Current Model Year

Before entering data, it is important to ensure that the Excel file is set up to automatically calculate the data. To ensure that the data are calculated immediately upon entry, go to the Tools menu and select Options. In the window that appears, select the Calculations tab. In this tab, the option "Automatic" should be selected. Also, note that the drag and drop option should not be used to copy or move data entered in the worksheet since doing so will change how the cells are referenced in the formulas and may lead to erroneous calculations. In order to prevent this from occurring inadvertently, go to the Tools menu and select Options. In the window that appears, select the "Edit" tab and remove the check mark from the "Allow cell drag and drop" box.

International users should ensure that the settings for number handling are consistent with the template. If your system is currently set up to use a comma for the decimal separator and a period for the thousands separator, you must temporarily modify the settings for number handling to avoid errors within the automatic calculations. To modify these settings, go to the Tools menu and select Options. In the window that appears, select the International tab. Within this tab, remove the check mark within the 'Use system separators' box within the section at the top entitled 'Number handling'. At this point, you may insert a period as the decimal separator and a comma as the thousands separator.

These worksheets are protected and as a result, you may navigate around the unlocked (i.e., data entry) cells using the arrow keys on your keyboard. However, to view the entire spreadsheet including the calculated cells and the credit totals below the data entry rows, you should navigate using the scroll bars at the bottom and right side of the worksheet. Using the scroll bars will allow you to view cells that cannot be selected.

Using the second worksheet ("Field Descriptions") as a guide, enter in the appropriate information for each data element in the first 9 columns of the "Current MY Credit Calculation" worksheet. There is no need to enter any values in the remaining columns, which are highlighted in yellow or orange, since these are calculated or preset values based on the information and data entered in the first 9 columns. Each engine family (or portion of each engine family) that is subject to a specific standard or averaging set, should have its own separate line item entry. Note that several fields have drop-down menus that provide a specific set of choices.

Based on the information you enter, the template will calculate the corresponding credit balances for the engine family. Below the data entry rows, the current model year

credit totals are summarized based on the averaging set and parameter. Note that as with the previous reporting template for these engines, the NMHC+NO$_x$ credit totals are divided into those associated with an FEL above 1.9 g/bhp-hr and those at or below this level. Banked or traded NMHC+NO$_x$ and PM credits that are associated with FELs above this threshold will be subject to an adjustment factor of 0.90 (i.e., a 10% discount). If an engine family is certified to the new NO$_x$ and PM standards, no trigger applies and as such, these credit totals will not be subject to a discount in any case.

Note that any extra rows that do not contain any data, can be left blank. If additional rows are needed, please contact EPA for a revised form and specify how many entries/rows will be required.

Below the summary of current MY credits for each parameter and averaging set, the Phase-in percent is displayed. This value shows the percentage of engines that are certified to the new, more stringent, NO$_x$ and PM standards and must exceed 50 percent for model years 2007, 2008 and 2009.

For engine families associated with the use of offsets, an indication can be made in the column requesting whether offsets are being used for compliance purposes. For these entries, there will be no corresponding credit calculation since offsets are considered separately from the ABT program. The reconciliation of offset balances is displayed in the rows below the credit totals and phase-in percentage. The number of offsets that have been accrued prior to model year 2007 can be entered in the first row. This value should reflect the actual number of engines that have generated offsets, since the total number of offsets that can be used to avoid compliance with the new standards will be reflected in the total. The second and third rows are automatically populated with the number of offsets used in the current MY and the total offsets, respectively. The total offset balance will automatically reflect the benefit that applies (i.e., the 2:3 ratio) when accrued offsets are used for compliance purposes in MY 2007, 2008 or 2009.

IV. Averaging and Summary

The "Averaging and Summary" worksheet contains a summary of all NO$_x$, NMHC+NO$_x$ and PM credits and deficits (both banked and current year) and allows for the application of these credits to current model year balances. The initial step requires the entry of carryover or traded credit balances. The application and averaging of these existing credits with current model year credits is summarized in the second step. In this worksheet, any cells that are highlighted in yellow or orange will be automatically populated based on information in the "Credit Calculations-Current MY" worksheet or from other data in this summary worksheet. Note that the first row will show any current model year deficit balances. If there is a positive credit balance for the current model year, the value or "deficit" shown will be zero.

Step 1: **Credit Balances Before Averaging:** In the second and third rows of this section, enter carryover credit balances from prior years and credits acquired

through trading, respectively.

Step 2: **Credit Usage and Averaging:** Using existing carryover (banked), traded, or current model year credits (as included in the "Credit Balances before Averaging" section), indicate the number of credits that should be applied to the overall current model year credit balance. Ensure that credits are applied within the corresponding averaging set. If possible, apply all $NMHC+NO_x$ credits associated with an FEL above the trigger in order to avoid the application of the 10 percent discount, which is applied if these credits are banked. These credits can be applied to the NO_x balances but are then subject to a 20 percent discount, which is automatically calculated and reflected in the credit totals after those credits are applied.

The "Credit Summary after Averaging" section of the worksheet is automatically populated with the credit balances based on the application of NO_x, $NMHC+NO_x$ and PM credits in the preceding rows. The final credit totals include traded, banked, and current MY credit and deficit balances and are shown for each parameter and averaging set. Note that deficits are not shown for the NO_x standards since there is no trigger and thus, no need to account specifically for that subset of credits that is associated with an FEL above the trigger but below the standard. If any credits associated with an $NMHC+NO_x$ FEL above the trigger remain after Step 2, the 10 percent discount is applied. The "Total Credit Balance after Averaging" reflects the grand total for each averaging set, taking into account all credit as well as deficit balances.