

## **Reporting Template for Tracking and Calculating Averaging, Banking, and Trading (ABT) Credits (MY 2009+) for Nonroad CI ABT Program**

### **I. Background**

A major component of the final rule for nonroad diesel engines is the averaging, banking, and trading (ABT) program for NO<sub>x</sub>, NMHC + NO<sub>x</sub>, and PM. Manufacturers must track the implementation of these provisions based on the model year, engine family, and the NO<sub>x</sub>, NMHC + NO<sub>x</sub>, 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 annual reports for Model Year (MY) 2009 and beyond. This reporting template covers engine families subject to the ABT reporting requirements under 40 CFR Part 89 (Tier 2 and 3) as well as 40 CFR Part 1039 (Tier 4).

### **II. Reporting Template**

The Excel file contains seven worksheets: "Current MY Credit Calc," "Current MY Credit Calc – MANUAL," "Field Descriptions," "Credit Transfers – Tier 2 & 3" "Credit Transfers – Tier 4," "Summary – NMHC + NO<sub>x</sub>," and "Summary – PM."

- **Current MY Credit Calc:** This worksheet contains 23 fields, which apply to all of the information required to calculate credits for each engine family and track the overall credit balances for each nonroad averaging set. The first 15 columns are the fields that require data entry or input from the manufacturer. The next seven columns (highlighted in light green) are preset or calculated values based on the data entered and cannot be modified manually. One of these columns (Messages) indicates whether the data entered are inconsistent with the program requirements or limitations. There is one additional column to the right of these seven columns. This column (Comments) allows for the entry of any additional comments or notes that may apply to the data or credit calculation associated with the engine family. This worksheet only applies to calculations for the model year selected (2009 and beyond). There are filters for each column that can be used to filter or sort by clicking on the arrow within the column header.
- **Current MY Credit Calc – MANUAL:** This worksheet contains the same fields and format as the Current MY Credit Calc worksheet, but incorporates automatic calculations or preset values for only three of the fields. This worksheet should be used only when there are unique circumstances (e.g., split engine families, alternative compliance options, etc.) that the automatic calculations in the Current MY Credit Calc worksheet are unable to process accurately. In this worksheet, with the exception of the parameter-specific credit totals and the Messages column, all columns allow for data entry or input from the user. The totals in the summary section below the data entry cells are

automatically calculated by average set and parameter. The totals within this worksheet will be automatically reflected in the corresponding Summary sheet totals for both NMHC + NO<sub>x</sub> and PM. Note that as with the Current MY Credit Calc worksheet, filters may be used within each column by clicking on the arrow within the column header.

- **Field Descriptions:** This worksheet contains detailed notes on each of the 23 fields in the first two worksheets, including a description of the required data or information, how the data should be entered, 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).
- **Credit Transfers – Tier 2 & 3:** This worksheet summarizes any credit transfers for Tier 2 and Tier 3 that have occurred between manufacturers. The use of this worksheet will not be necessary in cases where the manufacturer has not transferred any credits to a separate entity.
- **Credit Transfers – Tier 4:** This worksheet summarizes any credit transfers for Tier 4 that have occurred between manufacturers. The use of this worksheet will not be necessary in cases where the manufacturer has not transferred any credits to a separate entity.
- **Summary – NMHC + NO<sub>x</sub>:** This worksheet provides an overall summary of the nonroad NMHC + NO<sub>x</sub> and NO<sub>x</sub> credits that are reflected within the Current MY worksheets and/or the Credit Transfers worksheets and allows the manufacturer to enter in credits from previous model years so that banked credits may be properly applied and compared to Current MY credits. This worksheet allows the manufacturer to outline how credits will be used to document compliance with the NMHC + NO<sub>x</sub> standards. The Credit Usage and Averaging section to the right of the Summary of Credit Balances (both before and after averaging), should be used to apply credits from one Tier or Averaging Set to another. If the data entered in the Credit Usage and Averaging section is inconsistent with program requirements or limitations, a note will appear within the Messages column. For example, there are limitations on the application of previously banked Tier 1 NO<sub>x</sub> credits, which may not be applied to (i.e., averaged with) credits or deficits associated with Tier 4. In addition, Tier 2 or 3 credits that are applied to Tier 4 balances are subject to a 20 percent discount. Any discounts or limitations are integrated into the Summary of Credit Balances and Final Credit Balances sections.
- **Summary – PM:** This worksheet provides an overall summary of the nonroad PM credits that have been calculated from the first worksheet or entered into the second 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. The same approach described above for the Summary – NMHC + NO<sub>x</sub> worksheet also applies to this worksheet.

### 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. In Excel 2007, this is found by clicking the "Microsoft Office" button, then clicking the "Excel Options" button. Select the Formulas category and verify that the "Automatic" radio button is selected under the Calculation Options: Workbook Calculation section.

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. In Excel 2007, this option is found by clicking the "Microsoft Office" button, then clicking the "Excel Options" button. Select the Advanced category and remove the check mark from the "Enable fill handle and cell drag-and-drop" box under the Editing Options section.

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. In Excel 2007, this option is found by clicking the "Microsoft Office" button, then clicking the "Excel Options" button. Select the Advanced category and remove the check mark from the "Use system separators" box under the Editing Options section. At this point, you may insert a period as the Decimal separator and a comma as the Thousands separator.

Please note the distinction between the drop-down menus and the filters. Several fields have drop-down menus within the data entry cells. These menus provide a specific set of choices and using this list, you may select the applicable option for each line item entry. The arrow for the drop-down menu is displayed within each cell. Filters are also available and allow you to view a specific subset of data (e.g., Tier 2 entries only). The filters can be used by clicking the arrow within the header. Note that when you filter on specific criteria, the credit totals displayed below the data entry cells will not be affected. As a result, these totals will reflect data entered regardless of whether it is displayed or hidden due to the use of the filter function.

These worksheets are protected and as a result, you may navigate around the cells using the arrow keys on your keyboard. However, although you may select the locked cells, you may only modify the contents of the unlocked (i.e., data entry) cells.

**Step 1:** Using the third worksheet ("Field Descriptions") as a guide, enter in the appropriate information for each data element in the first 15 columns of the "Current MY Credit Calc" worksheet. The next seven columns in this worksheet (highlighted in light green) are calculated or preset values based on the information and data entered in the first 15 columns. If special circumstances require additional flexibility for the credit calculations (e.g., split engine families), enter in relevant data for the fields within the "Current MY Credit Calc – MANUAL" worksheet (the totals will be automatically reflected in the appropriate Summary worksheet).

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. Ensure that the Tier, Average Power Rating, Averaging Set, and FEL are compatible for each entry. Within both the automatic and manual worksheets, a note will appear in the "Message" column if data and/or field selections are inconsistent with program requirements or limitations. For example, if Tier 1 and NO<sub>x</sub> are selected, but the Average Power Rating is at or below 560 kW, a note will appear in the "Message" column that highlights the incompatibility of the averaging set and power rating.

Based on the information you enter, the "Current MY Credit Calc" worksheet 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 Tier, averaging set, and parameter.

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.

**Step 2:** If any transfer of credits/deficits have occurred with another manufacturer, enter all relevant information into the fields listed in the appropriate "Credit Transfer" (Tiers 2 & 3 or Tier 4) worksheet.

#### **IV. Summary of NO<sub>x</sub> and NMHC + NO<sub>x</sub> Credits**

The "Summary – NMHC + NO<sub>x</sub>" worksheet contains a summary of all NO<sub>x</sub> and NMHC + NO<sub>x</sub> 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 and deficit balances. The process of applying and averaging these existing credits with current model year credits is summarized in the second step below. In this worksheet, any cells that are highlighted with a color will be automatically populated based on information in the "Current MY Credit Calc," "Current MY Credit Calc – MANUAL," "Credit Transfers – Tier 2 & 3," or "Credit Transfers – Tier 4" worksheets or from other data in this summary worksheet. Any cell that is gray indicates that data entry is not applicable or required.

**Step 1: Credit Balances Before Averaging:** Enter any carryover credit balances from prior years. Note that current model year credits and credits acquired or sold through trading activity are automatically populated in this summary sheet based on data entered and calculated within the "Current MY Credit Calc," "Current MY Credit Calc – MANUAL," "Credit Transfers – Tier 2 & 3," or "Credit Transfers – Tier 4" worksheets, respectively.

**Step 2: Credit Usage and Averaging:** Using the existing balances (as included in the "Credit Balances before Averaging" section), indicate the number of traded, banked, or current model year credits that should be applied to the current model year credit balances. Each line item in this section specifies the type of credits being used as well as the Tier to which the credits will be applied. Ensure that credits are applied to a compatible averaging set.

Since indirect fuel injection credits for engines at or above 19 kW cannot be traded, the credit balances for these engines are maintained separately for both banked and current MY credits. Note that credits from Tiers 2 and 3 averaging sets at or above 19 kW should only be applied to the Tier 4 averaging set above 560 kW if the engine families from which credits are being applied are rated above 560 kW. For Tiers 2 and 3, credits in the marine diesel averaging sets may be used to cover a shortfall in the corresponding non-marine averaging set (see 40 CFR 89.204(c)(3) and (4)).

The Messages column is automatically populated with an error message if an invalid selection has been made. The number of credits to be subtracted from the selected Tier and averaging set category as well as the number of credits to be added to the selected current model year Tier and averaging set category are displayed in the two right-hand columns. These values are automatically calculated and will reflect the 20 percent reduction if applicable. Note that if there is an error in the Messages column, the Credits Subtracted and Credits Added columns will not be calculated.

The Summary of Credit Balances section of the worksheet is automatically populated with the credit balances based on the application of NO<sub>x</sub> and NMHC + NO<sub>x</sub> credits in the preceding sections. The "Final Credit Balances" totals include traded, banked, and current MY credit balances and are shown for NO<sub>x</sub> and NMHC + NO<sub>x</sub>. Note that credit balances for indirect fuel injection are not available for trading.

## **V. Summary of PM Credits**

The "PM Summary" worksheet contains a summary of all PM credits (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 PM credit balances. The application and averaging of these existing PM credits with current model year PM credits is summarized in the second step. As with other worksheets, any cells that are highlighted with a color will be automatically populated based on information in the "Current MY Credit Calc," "Current MY

Credit Calc – MANUAL," "Credit Transfers – Tier 2 & 3," or "Credit Transfers – Tier 4" worksheets or from other data in this worksheet. Any cell that is gray indicates that data entry is not applicable or required.

**Step 1: Credit Balances Before Averaging:** Enter any carryover credit balances from prior years in the appropriate averaging set. Note that current model year credits and credits acquired or sold through trading activity are automatically populated in this summary sheet based on data entered and calculated within the "Current MY Credit Calc," "Current MY Credit Calc – MANUAL," "Credit Transfers – Tier 2 & 3," or "Credit Transfers – Tier 4" worksheets, respectively.

**Step 2: Credit Usage and Averaging:** Using existing carryover or current model year credits (as included in the Credit Balances before Averaging section), indicate the number of credits that should be applied/averaged to the current model year credit balance. Ensure that credits are applied within the corresponding averaging set and maintain separate balances for indirect fuel injection.

The program elements that apply to PM regarding the transfer of marine credits and the limitations on trading associated with indirect fuel injection credits are consistent with those for NMHC + NO<sub>x</sub>. Credit balances for indirect fuel injection are not available for trading. For Tier 2 and 3, marine diesel credits can be transferred within the final credit balances section to a corresponding nonmarine averaging set, if desired.

The Messages column is automatically populated with an error message if an invalid selection has been made. The number of credits to be subtracted from the selected Tier and averaging set category as well as the number of credits to be added to the selected current model year, Tier, and averaging set category are displayed in the two right-hand columns. These values are automatically calculated and will reflect the 20 percent reduction, if applicable. Note that if there is an error in the Messages column, the Credits Subtracted and Credits Added columns will not be calculated.

The Summary of Credit Balances section of the worksheet is automatically populated with the credit balances based on the application of PM credits in the preceding rows. The "Final Credit Balances" totals include traded, banked, and current MY credit balances and are combined into the overall PM averaging sets.