**Guidance for calculating and reporting measurements less than detection levels
for the MACT boiler and CISWI emissions data collection (ICR) program**

- Identifying status of measured values relative to detection levels on the spreadsheet or in the ERT; for each reported emissions value, insert the appropriate flag (BDL, DLL, or ADL) in the *Note* line of Excel spreadsheet template (from the ERG website) or the *Comments* line of the Electronic Reporting Tool (ERT).

- o **BDL** (below detection level) – all analytical values used to calculate and report an in-stack emissions value are less than the laboratory's reported detection level(s);
- o **DLL** (detection level limited) – at least one but not all values used to calculate and report an in-stack emissions value are less than the laboratory's reported detection level(s); or
- o **ADL** (above detection level) - all analytical values used to calculate and report an in-stack emissions value are greater than the laboratory's reported detection level(s).
- Reporting and calculating individual test run data
  - o For analytical data reported from the lab as "nondetect" or "below detection level;"
    - ▪ Include a brief description of the procedures used to determine the analytical detection and in-stack detection levels:
      - In the *Note* line of Excel spreadsheet template; or
      - In the *Comments* line of Lab Data tab in the Run Data Details in the ERT.

- Describe these procedures completely in a separate attachment including the measurements made, the standards used, and the statistical procedures applied.
- Calculate in-stack emissions rate for any analytical measurement below detection level using the relevant detection level as the "real" value.
- Report the calculated emissions concentration or rate result:
  - As a bracketed "less than" detection level value (e.g., [<0.0105]) in the **Excel spreadsheet template** and include the appropriate flag in the Note line; or
  - As a "real" value in the **ERT** with the appropriate flag in the Comments line.
- Report as "real" values (i.e., no brackets or < symbol) any analytical data measured above the detection level including any data between the analytical detection level and a laboratory-specific reporting or quantification level (i.e., flag as ADL).
- Apply these reporting and calculation procedures to measurements made with **Method 23**:
  - Report data in the **Excel spreadsheet template** for each of the D/F congeners measured with Method 23 below the detection level as [< detection level]
  - Do **not report emissions as zero** as described in the method
- o For pollutant measurements composed of multiple components or fractions (e.g., Hg and other metals sampling trains) when the result for the value for any component is measured below the analytical detection level;
  - Calculate in-stack emissions rate or concentrations as outlined above for each component or fraction;
  - Sum the measured and detection level values as outlined above using the in-stack emissions rate or concentrations for all of the components or fractions; and
  - Report the sum of all components or fractions:
    - As a bracketed "less than" detection level value (e.g., [<0.0105]) in the **Excel spreadsheet template** and include the appropriate flag in the Note line; or
    - As a "real" value in the **ERT** with the appropriate flag in the Comments line.
  - Report also the individual component or fraction values for each run if the Excel spreadsheet template or ERT format allows; if not (i.e., the format allows reporting only a single sum value):
    - For the Excel spreadsheet template, next to the sum reported as above report in the *Notes* line the appropriate flag along with the values for the measured or detection level value for each component or fraction as used in the calculations (e.g., 0.036, [<0.069], 1.239, [<0.945] for a four fraction sample)
    - For the ERT, next to the sum reported as above, report on the *Comments* line the appropriate flag and the measured or detection level value for each component or fraction as used in the

             calculations (e.g., 0.036, [<0.069], 1.239, [<0.945] for a four fraction sample)

- o For measurements conducted using instrumental test methods (e.g., Methods 3A, 6C, 7E, 10, 25A)
    - ▪ Record gaseous concentration values **<u>as measured</u>** including negative values and flag as ADL; do not report as BDL
    - ▪ Calculate and report in-stack emissions rates using these measured values
    - ▪ Include relevant information relative to calibration gas values or other technical qualifiers for measured values in ***Comments*** line in the ERT

- Reporting and calculating average emissions rate or concentration for a test when some results are reported as BDL
    - o Sum all of the test run values including those indicated as BDL or DLL as "real" values
    - o Calculate the average emissions rate or concentration (e.g., divide the sum by 3 for a three-run test)
    - o Report the average emissions rate or concentration average:
        - As a bracketed "less than" detection level value (e.g., [<20.06]) in the **Excel spreadsheet template** and include the appropriate flag in the Note line
        - As a "real" value in the **ERT** and include the appropriate flag in the Comments line

- Identifying the appropriate reporting format – Excel spreadsheet template or ERT

Pollutant/Parameter	Report Results using ERT	Report Results using Excel Spreadsheet Templates
CO	if using EPA Method 10	>if using EPA Method 10A or 10B use CO tab on Emission Test Template >if using CO CEMS installed on the unit use "CEMS.xls" Template
Formaldehyde	if using RCRA Method 0011	> if using EPA Method 320, CARB Method 430, ASTM D6348, use Formaldehyde tab of Emission Test Template >if using FTIR with minute or hourly readings submit a site-specific spreadsheet (no template available)
HCl and HF	if using EPA Method 26A	if using EPA Method 26, or EPA Method 320
Hg	if using EPA Method 29 or 101A	if using ASTM-D6784-02, or EPA Method 30B
Metals	if using EPA Method 29	DO NOT use template
PM 2.5	if using OTM 27, 5 or 17	DO NOT use template
PM filterable	if using Method 5, 17, 26A, or 29	DO NOT use template
PM Condensable	if using OTM 28	DO NOT use template
Total Hydrocarbons	if using Method 25A	DO NOT use template
CH4	DO NOT USE ERT	if using EPA Method 18
Dioxin/Furans	DO NOT USE ERT	if using EPA Method 23
NOx	if using EPA Method 7E	>if using EPA Method 7, 7A, 7B, 7C, 7D use Emission Test Template >if using NOx CEMS installed on the unit use "CEMS.xls" Template
SO2	if using EPA Method 6C	>if using EPA Method 6, use Emission test template >if using SO2 CEMS installed on the unit use "CEMS.xls" Template
O2/CO2	if using EPA Method 3A	>report in Emission test template if test results for that train are reported in the template
Moisture	if using EPA Method 4 for correcting gaseous concentration measurements	>report in Emission test template if test results for that train are reported in the template
Fuel Analysis	DO NOT USE ERT	if conducting fuel analysis use "FuelAnalysis.xls" template

30-day CEMS Variability for CO/THC/Methane	DO NOT USE ERT	if selected to conduct 30-day variability monitoring use 30 day Variability testing, use "CoandHCMonitoringTemplate.xls" template
30-day Process Monitoring	DO NOT USE ERT	if selected to report process monitoring during, before and/or after stack testing, use "30DayProcessInformationTemplate.xls"