$\textit{\S}1065.372$ \textbf{NDUV analyzer HC and H$_2$O interference verification.}

(a) Scope and frequency. If you measure NO\textsubscript{X} using an NDUV analyzer, verify the amount of H$_2$O and hydrocarbon interference after initial analyzer installation and after major maintenance.

(b) Measurement principles. Hydrocarbons and H$_2$O can positively interfere with an NDUV analyzer by causing a response similar to NO\textsubscript{X}. If the NDUV analyzer uses compensation algorithms that utilize measurements of other gases to meet this interference verification, simultaneously conduct such measurements to test the algorithms during the analyzer interference verification.

(c) System requirements. A NO\textsubscript{X} NDUV analyzer must have combined H$_2$O and HC interference within $\pm$2\% of the flow-weighted mean concentration of NO\textsubscript{X} expected at the standard, though we strongly recommend keeping interference within $\pm$1\%.

(d) Procedure. Perform the interference verification as follows:

(1) Start, operate, zero, and span the NO\textsubscript{X} NDUV analyzer according to the instrument manufacturer’s instructions.

(2) We recommend that you extract engine exhaust to perform this verification. Use a CLD that meets the specifications of subpart C of this part to quantify NO\textsubscript{X} in the exhaust. Use the CLD response as the reference value. Also measure HC in the exhaust with a FID analyzer that meets the specifications of subpart C of this part. Use the FID response as the reference hydrocarbon value.

(3) Upstream of any sample dryer, if one is used during testing, introduce the engine exhaust to the NDUV analyzer.

(4) Allow time for the analyzer response to stabilize. Stabilization time may include time to purge the transfer line and to account for analyzer response.

(5) While all analyzers measure the sample’s concentration, record 30 seconds of sampled data, and calculate the arithmetic means for the three analyzers.

(6) Subtract the CLD mean from the NDUV mean.

(7) Multiply this difference by the ratio of the flow-weighted mean HC concentration expected at the standard to the HC concentration measured during the verification. The analyzer meets the interference verification of this section if this result is within $\pm$2\% of the NO\textsubscript{X} concentration expected at the standard.

(e) Exceptions. The following exceptions apply:

(1) You may omit this verification if you can show by engineering analysis that for your NO\textsubscript{X} sampling system and your emission calculation procedures, the combined HC and H$_2$O interference for your NO\textsubscript{X} NDUV analyzer always affects your brake-specific NO\textsubscript{X} emission results by less than 0.5\% of the applicable NO\textsubscript{X} standard.

$\textit{\S}1065.375$ \textbf{Interference verification for N$_2$O analyzers.}

(a) Scope and frequency. See $\textit{\S}1065.275$ to determine whether you need to verify the amount of interference after initial analyzer installation and after major maintenance.

(b) Measurement principles. Interference gasses can positively interfere with certain analyzers by causing a response similar to N$_2$O. If the analyzer uses compensation algorithms that utilize measurements of other gases to meet this interference verification, simultaneously conduct these other measurements to test the compensation algorithms during the analyzer interference verification.