CEMS Code Questions and Responses
October 13, 2020 Webinar – Posting of Revised CEMS Code Draft 2

Q#	Question / Comment	Alberta Environment and Parks (AEP) Response
1	Is the intent of a CGA to verify the analyzer and/or the sampling system (i.e. extractive system)?	A CGA tests the entire range of the analyzer, but is required to test the entire sampling system. A CGA does not test the analyzer directly. See Table 3 in the draft Code and clause 6.2-S for the CGA procedure which requires that test gas pass through all components. As well there is guidance below 6.2 G which says that test gas cannot be injected at the back of the analyzer for a calibration drift test If there is drift it may not be an issue with the analyzer but with the sampling system (be it the sampling line or another component).
2	If a CGA fails, subsequent corrective action is performed, and a second CGA is passed within the same day. Is the failed CGA needing to be notified in addition to submitting a failed CGA report to the ETS, or is the submission of the failed report sufficient?	The second draft makes it clear that any failed RATA or CGA must be reported immediately. So in this case, yes you would call in the failed CGA then move on to corrective action and repeat the test. The failed CGA needs to be reported, but it is not necessary to submit two reports. The failed and passed CGAs can be reported in one report.
3	Are PM CEMS covered by the Code?	Currently particulate matter (PM) analyzers are not covered in the Code. If needed, this is something that could be added in the future. For any parameter required by an approval that is not covered in the Code, the person responsible would work with the regulator on design/performance specifications, tests and QA/QC. See clause 1.2-D in the draft.
4	Where can I find the alternatives to gas for daily zero/span?	The following clauses in the draft allow the use of alternatives to flowing test gas for daily zero and span verifications: 6.2-H and 7.2-I. These include a sealed cell containing a known concentration of gas, reference spectra or calibrated filters, and are permitted for use when specified by the analyzer manufacturer.

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| 5 | Please restate the definition of % availability and valid hours as it pertains to monthly availability. | Availability is a measure of the analyzer's availability and we provide an allowance for preventative maintenance and QA testing that is required by the Code to keep the analyzer operating. These normal, routine tests and activities do not count as analyzer downtime, as they are preventative as opposed to reactive or corrective.

The 1998 Code paired valid hours with the calculation for percent availability. Valid hours are different, since valid hours are quality assured, reportable and represent emissions. Some of the tests that are being counted as analyzer uptime involve injection of test gases (CGAs, drift tests, adjustments) and that time period does not provide data that is representative of emissions and reportable. It is not valid for reporting but the analyzer is still in control, available and operating.

We are now decoupling valid hour from percent availability. Percent availability is now the relationship between the hours in the month that the analyzer was available, operating and in control, versus the hours in the month that the source was operating. So percent availability is basically the percent of time in the month that you are in control.

Industrial approvals require that you monitor emissions continuously. In order to gauge that, the measure of continual operation was chosen to be 90%, so analyzers must be operating at minimum 90% of the time in the month while the source is operating. This recognizes that things happen and leaves that 10% variance as a buffer. With percent availability as it is, with an allowance for QA and QC, is it possible to have 100% availability in any given month.

It is important that data be properly flagged (data flags and qualifiers), as per the CEMS User Manual, so that the regulator can ascertain the number of valid hours reported each month. |
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| 6 | I believe it was stated that time spent on RATAs/CGAs won't count as downtime when calculating analyzer percent availability. Can you confirm that this is correct and if so, when does this apply? | That is correct. The CEMS is operating during a RATA or CGA so those periods are not counted as analyzer downtime, and count towards percent availability. This is not new, however the 1998 Code did not make it clear.

Section 2.5.3 in the 1998 Code states "Time periods necessary for CEMS calibration, quality control checks or backpurging, shall not be considered as downtime when calculating T_a." Both RATAs and CGAs are considered quality control checks during which the analyzer is operational, and that is currently in effect.

We have added examples in draft 2 for percent availability and one example includes a CGA (see section 3.4.3).

There should not be downtime during a RATA or CGA, unless the test fails and data needs to be invalidated, or if a repeat test is required due to a failure. See section 7.6 for how to determine the start and end of an out-of-control period.

For other QA/QC activities that count towards uptime, see section 3.4.3. Any testing, maintenance or repairs that are corrective (required as a result of analyzer malfunction or failure) do count towards downtime. It is only the pre-planned, normal, routine QA/QC activities that are included as analyzer availability. |

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