

CeDAR Monitor Codes & Process Codes

CeDAR Monitor Codes

Monitor codes indicate the validity of a data point.

These monitor codes are defined in CeDAR.

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| 00 | Valid Data: Normal |
| 01-10 | Reserved |
| 11 | Invalid Data: Pollutant Monitor Out Of Control |
| 12 | Invalid Data: Diluent Monitor Out Of Control |
| 13 | Down Data: Process Down |
| 14 | Invalid Data: CEMS in calibration |
| 15 | Invalid Data: Preventative Maintenance (MCs 15 and 20 are interchangeable, except in PA) |
| 16 | Invalid Data: Pollutant Analyzer Malfunction |
| 17 | Invalid Data: Diluent Analyzer Malfunction |
| 18 | Invalid Data: DAHS Malfunction (also used as the default code for invalid values) |
| 19 | Invalid Data: Sample Handling System Malfunction (dryer fault, etc.) |
| 20 | Invalid Data: Corrective Maintenance (MCs 15 and 20 are interchangeable, except in PA) |
| 21 | Invalid Data: Other |
| 22 | Invalid Data: I/O Communications Problem (DAHS is functioning properly) |
| 23 | Down Data: Sample Point Not Selected (timeshare) |
| 24 | Invalid Data: Sample Point Not Selected and Other Point in Calibration (timeshare; associated CEMS is in cal) |
| 25 | Invalid Data: Backflush |
| 26 | Valid Data: Value is calculated or derived from substituted data |
| 27 | Invalid Data: ODBC Data Not Available (data missing in an external database) |
| 28 | Invalid Data: Formula Input Value Out-Of-Range |
| 29 | Down Data: CEMS in calibration |
| 30 | Invalid Data: Sample Point Not Selected (timeshare) |
| 31 | Invalid Data: Value Out-Of-Range |
| 32 | Down Data: Value Out-Of-Range And Down |
| 33 | Invalid Data: Data Not QA (used when 26 hours have passed without a calibration check, or data is invalidated because other QA requirements have not been met) |
| 34 | Invalid Data: Not Sufficient Data (used when there is insufficient data to create an average, but creating an invalid MC would be difficult or irrelevant; example: subpart Da and Db 30-operating-day averages) |
| 35 | Valid Data: (40CFR75) Measured value has been replaced with 200% of Maximum Potential Concentration (MPC) or 200% of full scale range |

- 36 Valid Data: (40CFR75) Measured value has been replaced with 200% of Maximum Potential Concentration (MPC) or 200% of full scale range (data generated by PLC or other non-CeDAR source)
- 37 Invalid Data: generated by PLC or other non-CeDAR source
- 38 Valid Data: generated by PLC or other non-CeDAR source
- 39 Down Data: generated by PLC or other non-CeDAR source
- 40 Substituted Data: average of hour before and hour after
- 41 Substituted Data: average of X hours before and X hours after, where the missing data period is X hours (Alberta: average of 24 hours before + average of 24 hours after divided by 2)
- 42 Substituted Data: max value in the previous 30 days
- 43 Substituted Data: max value in the previous 365 days
- 44 Substituted Data: max value since CEMS certification date
- 45 Substituted Data: other method
- 46 Substituted Data: 40CFR75 initial data substitution
- 47 Substituted Data: 40CFR75 average of lookback period
- 48 Substituted Data: 40CFR75 95th percentile
- 49 Substituted Data: 40CFR75 90th percentile
- 50 Substituted Data: 40CFR75 maximum in lookback period
- 51 Substituted Data: 40CFR75 maximum potential value (MPC, MPF, or MER)
- 52 Substituted Data: manual; not overwritten by recalculation
- 53 Valid Data: process down (SCAQMD)
- 54 Valid Data: process down; value below 5% of range replaced with zero (SCAQMD Rule 2012 - NO_x)
- 55 Valid Data: value below 10% of range (SCAQMD)
- 56 Valid Data: value below 10% of range; replaced with 10% of range (SCAQMD)
- 57 Valid Data: value above 95% of range; replaced with 10% of next certified range (SCAQMD)
- 58 Invalid Data: value above 95% of highest certified range (SCAQMD)
- 59 Invalid Data: flagged by user; this MC is never overwritten by HDR
- 60 Down Data: data is not applicable (N/A); used for special averaging requirements
- 61 Valid Data: diluent cap used in formula
- 62 Invalid Data: process down and CEMS in maintenance (SCAQMD)
- 63 Invalid Data: too many partial CEMS maintenance hours in day (SCAQMD Rule 2012 – NO_x; Alberta)
- 64 Down Data: process down; CEMS in maintenance
- 65 Down Data: process down; backflush
- 66 Invalid Data: value below 10% of range but is not fully quality assured; data will be valid once it is replaced with 10% of range and MC 56 (SCAQMD)
- 67 Invalid Data: no sample available; typically used with gas chromatograph data

- 68 Down Data: data is not applicable (N/A); used for special averaging requirements; may be redefined/renamed for site-specific requirements
- 70 Invalid Data: realtime data is unavailable
- 71 Invalid Data: realtime data is expired/outdated
- 72 Invalid Data: data does not exist in database
- 73 Valid Data: data does not exist in database (used for parameters that do not store monitor codes)
- 74 Invalid Data: Monitor Out Of Control Part 60 4x Performance Spec
- 75 Valid Data: Hour is valid but one or two 15-minute periods are invalid due to calibration or maintenance
- 77 Invalid Data: No value for constant
- 78 Invalid Data: Manual data substitution needed
- 79 Invalid Data: Calibration or Maintenance (generated by PLC or other non-CeDAR source)
- 80 Substituted Data: 40CFR75 maximum controlled value (MCR or MEC)
- 81 Substituted Data: Maximum in lookback period times 1.25
- 82 Valid Data: Value above 95% of highest certified range; replaced with 95% of range (SCAQMD)
- 83 Substituted Data: Average in this period
- 84 Substituted Data: Average in lookback period
- 90-99 Reserved

Monitor Codes for Substituted Data

The monitor codes that indicate substituted data are generally considered valid throughout CeDAR. The exception is that a substituted data MC indicates CEMS downtime.

Combining Monitor Codes

When two monitor codes are combined (for example, when a calculation is performed in a formula), the higher-priority monitor code is selected according to the following orders. Down monitor codes have priority over invalid monitor codes. Invalid monitor codes have priority over valid monitor codes.

Down (Unit Offline) Monitor Codes

When a down monitor code is combined with any other monitor code, the down MC has priority. When two down MCs are combined, the higher-priority monitor code is selected according to the following order. MC 60 has the highest priority, and MC 13 has the lowest.

60-68-64-65-39-32-29-23-13

Invalid Monitor Codes

When an invalid monitor code is combined with a valid monitor code, the invalid MC has priority. When two invalid MCs are combined, the higher-priority MC is selected according to the following order. MC 78 has the highest priority, and MC 18 has the lowest.

78-59-24-30-15-20-25-14-79-74-11-12-16-17-19-37-27-33-58-66-62-63-31-67-34-21-28-22-72-77-71-70-18

Valid Monitor Codes

When two valid monitor codes are combined, the higher-priority MC is selected according to the following order. MC 26 has the highest priority, and MC 00 has the lowest.

26-52-51-81-80-50-48-49-47-46-44-43-42-84-83-41-40-45-82-35-36-57-56-55-53-54-75-61-38-73-00

CeDAR Process Codes

Process codes indicate the state of the plant process relative to permit requirements and exemptions.

These are the default process codes defined in CeDAR. All process codes, except 08 and 13, can be redefined on a per-facility basis.

01	Changing Fuels
02	Control Equipment Malfunction
03	Startup
04	Shutdown
05	Changing Operating Level
06	Cleaning Process Equipment
07	Cleaning Emission Control Equipment
08	Normal (no special permit conditions/exemptions are in effect); this code does not indicate whether the process is online or offline
09	Other
13	Process Down (defined by CeDAR, not PADEP)
90	Other
91	Other
92	Other
93	Other
94	Other
95	Other
96	Other
97	Other
98	Other
99	Other (Alberta only: Bypass)

Combining Process Codes

When two process codes are combined (for example, when determining the 1-minute process code based on 10-second readings), the higher-priority process code is selected. Lower-numbered process codes have higher priority. PC 01 has the highest priority, and PC 13 has the lowest priority.

01-02-03-04-05-06-07-90-91-92-93-94-95-96-97-98-99-08-09-13