CeDAR Monitor Codes & Process Codes

CeDAR Monitor Codes

Monitor codes indicate the validity of a data point.

These monitor process codes are defined in CeDAR.

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 calendar days
43	Substituted Data: max value in the previous 365 calendar 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
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 2012 - NOx)
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 2012 – NOx; 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)
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.

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

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