MATS CALCULATIONS AND EDR REPRORTING

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KEY REQUIREMENTS

- Definition of MATS boiler operating day
- Exclusion of startup/shutdown data
- Diluent Capping
- Default electrical load
- Minimum Stack Flow
- High Replacement Values
- Differences in a single sorbent trap systems

TIME ON LINE CONSIDERATIONS

- Report all on-line hours.
- Semi-annual percent monitor availability. (Based on all on-line hours.)
- *Boiler operating day* means a 24-hour period that begins at midnight and ends the following midnight during which any fuel is combusted at any time in the EGU, excluding startup periods or shutdown periods.


TIME ON LINE CONSIDERATIONS

- The OPTIME parameter for parameter group 0 (STACK) that is associated with other Part 75 parameters would typically be used to cover the first two conditions. In order to properly determine the 30 day rolling period a second time on-line parameter is needed and should be setup as follows:

- MATSOPHR
  - Parameter
    - Parameter Group = MATS (Setup via Parameters Group, Type = UNIT, Name = MATS)
    - QA: Yes
    - Code: OPTIME
  - Channel
    - Multi-Conditional Time On-Line
    - Condition A – FLAME/BOILER ON AND Condition B – LOAD GT "*minimum load*"
    - Set minimum load to a value equal to 2% of max load so that analog drift will not give a false indication of electricity being generated. (Typical)
  - Condition Manager (See Startup/Shutdown Section)
    - Set to 0 if Startup/Shutdown Hour
    - Set to 60 if hour is determined to be a non-startup/shutdown hour.
      - Corrects for periods where startup has ended and load drops to 0 MW but then electricity is generated without fuel combustion ending.


TIME ON LINE CONSIDERATIONS

Date/Time	UNITOPHR	MATSOPHR	
		Data Controller	Processed
1/1/2015 0:00	0	0	0
1/1/2015 1:00	0	0	0
1/1/2015 2:00	15	0	0
1/1/2015 3:00	60	0	0
1/1/2015 4:00	60	0	0
1/1/2015 5:00	60	45	0
1/1/2015 6:00	60	60	60
1/1/2015 7:00	60	60	60
1/1/2015 8:00	60	60	60
1/1/2015 9:00	60	60	60
1/1/2015 10:00	60	60	60
1/1/2015 11:00	60	60	60
1/1/2015 12:00	60	60	60
1/1/2015 13:00	60	60	60
1/1/2015 14:00	15	15	0
1/1/2015 15:00	0	0	0
Boiler started operating at 1:45 am.			
Boiler started generating electricity at 5:15am			
Boiler shutdown at 2:15 pm.			

TYPICAL EQUATIONS

- HGRH (lbs / trillion BTU)
  - HG CEMS with CO2 Diluent
    - 6.24E-5 X HGC X FUELFACT_C X 100 / CO2C
  - Sorbent Trap with CO2 Diluent
    - 6.24E-5 X HGC X ((100-H2O%)/100) X FUELFACT_C X 100 / CO2C
  - HG CEMS with O2 Diluent
    - 6.24E-5 X HGC X FUELFACT_D X 20.9 / (20.9 – O2C)
- HGRE (lbs / GWh)
  - HG CEMS with CO2 or O2 Diluent
    - Calculate HG lbs/hour: 6.24E-11 X HGC X STACK FLOW
    - Calculate HG lbs/GWh: HG lbs per Hour X 1000 / MATSLOAD
  - Sorbent Trap with CO2 Diluent
    - Calculate HG lbs/hour: 6.24E-11 X HGC X ((100-H2O%)/100) X STACK FLOW
    - Calculate HG lbs/GWh: HG lbs per Hour X 1000 / MATSLOAD
- PM lbs/mmBTU
  - PM CEMS with CO2 Diluent
    - 6.24E-08 X PM_MG/WSCM X FUELFACT_C X 100 / CO2C
  - PM CEMS with O2 Diluent
    - 6.24E-08 X PM_MG/WSCM X FUELFACT_D X 20.9 / (20.9 – O2C)
- PM lbs/MWh
  - PM CEMS with CO2 or O2 Diluent
    - Calculate PM lbs/hour - 6.24E-08 X PM_MG/WSCM X STACK FLOW
    - Calculate PM lbs/MWh – PMLBS per Hour / LOADMW

ROUNDING

- The EDR reporting instructions state the following:
- ***Rounding Conventions for Reporting Emissions Values***
  - *Each emissions value that is reported must be rounded to a specified precision (e.g., a certain number of decimal places or significant digits).*
- ***Use of Rounded and Unrounded Values in Emissions Calculations***
  - *When performing calculations using any value that is reported in the XML, use the value as it is reported. In other words, use the rounded value in the calculation. However, any value that is calculated in an intermediate equation but is not reported should not be rounded before using it in a subsequent equation.*

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CALCULATIONS - ROUNDING

- For heat based emission calculations this would dictate rounding the diluent (CO2 or O2) to one decimal place with HGC rounded to three significant digits.
- For output based emission calculations it is dictated that the lb/hr calculation be determined first. The mass rate (lb/hr) should be calculated using the appropriate rounding for each constituent. Then lb/MW or lb/GW would be calculated using unrounded lb/hr with load in megawatts rounded to 0 decimal places. (This would be the only method that would allow for ECMPS calculations to match.)

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ROUNDING – EDR

Parameter Code	Description	Rounding
HourLoad	Load (MW)	0 Decimal Place
MATSHourLoad	Load (MW)	0 Decimal Place
FcFactor	Carbon based Fuel Factor	1 Decimal Place
SO2C	SO2 Concentration (PPM)	1 Decimal Place
CO2C	CO2 Concentration (%)	1 Decimal Place
H2O	Mositure (%)	1 Decimal Place
O2C	O2 Concentration (%)	1 Decimal Place
FLOW	Stack Flow (scfh)	Nearest 1000
HGC	HG Concentration (ug/scm)	3 Significant Digits
HCLC	HCL Concentration (PPM)	3 Significant Digits
HFC	HF Concentration (PPM)	3 Significant Digits
	PM Concentration (mg/scm)	NOT SPECIFIED *

TYPICAL EQUATIONS

- EXAMPLES:
- HGRH = 6.24E-5 * (HGC~(3-(1+TRUNC(LOG(ABS(HGC>0.00000001)))))) * FFACT_C~1 * 100 / CO2C~1
- HGLB/HR = 6.24E-11 * (HGC~(3-(1+TRUNC(LOG(ABS(HGC>0.00000001))))))) * (FLOWSCH~(0-3))
- HGRE = HGLBHR / MATSLOAD~0
- New Math Operator in SV 4.5 – SIGX(parameter)
  - HGRH = 6.24E-5 * SIG3(HGC) * FFACT_C~1 * 100 / CO2C~1
- Keep the following in mind:
  - The equation(s) should account for rounding the constituent data as needed.
  - The XML EDR generation tool will round data as needed so it is correctly reported in the EDR (significant digits, scientific notation).

PERCENT MONITOR AVAILABILTY

- *Emissions Reporting Instructions (MATS Monitor Hourly Value Data)*
- *You must calculate and report the percent monitor data availability (PMA) for Hg, HCl, or HF concentration (as applicable) according to §75.32.*

- For the reported HGC, HCLS, and HFC parameters configure the following:
  - EPA System ID: Value from Monitoring Plan
  - EPA Component ID: Value from Monitoring Plan
  - Parameter Daily Record: YES
  - PMA Enabled: YES

METHOD OF DETERMINATION CODE

- Method codes will be reported in the EDR based upon the value in the hourly database.
-
- HGC, HCLC, HFC
  - Method Code (Default) = 01
  - For missing/invalid data apply MODC Code = 34 via Condition Manager
    - Except for sorbent trap HGC
  - For unmonitored bypass hours apply MODC = 35 via Condition Manager.
- HGRE,HGRH,HCLRE,HCLRH,HFRE,HFRE,HFRH,SO2RE,SO2RH
  - Method Code (Default) = 36
  - For missing/invalid data apply MODC Code = 38 via Condition Manager
  - For heat input emission rates only (HGRE, HCLRH, HFRH, SO2RH) apply method code = 37 for startup/shutdown hours where diluent cap values are used.
- Sorbent Trap Considerations
  - Method Codes of 32, 33, 34, 41, and 42 for HGC will be applied by the SORBENTTRAP ProcessNow task.
  - For periods where a sorbent trap sample was not collected.
    - If the HGC parameter is setup with a default equation of 0 set the default Method Code = 00. Use condition manager AFTER the SORBENTTRAP ProcessNow to set HGC missing/invalid/MC=34 if the Method Code = 00.
    - If the HGC parameter is not setup with a default equation of 0 use condition manager AFTER the SORBENTTRAP ProcessNow to set HGC missing/invalid/MC=34 if the HGC is missing/invalid.

STARTUP/SHUTDOWN

- There are two definitions for startup under the MATS rule (§63.10042)
- *(1) Either the first-ever firing of fuel in a boiler for the purpose of producing electricity, or the firing of fuel in a boiler after a shutdown event for any purpose. Startup ends when any of the steam from the boiler is used to generate electricity for sale over the grid or for any other purpose (including on-site use). Any fraction of an hour in which startup occurs constitutes a full hour of startup; or*
- *(2) The period in which operation of an EGU is initiated for any purpose. Startup begins with either the firing of any fuel in an EGU for the purpose of producing electricity or useful thermal energy (such as heat or steam) for industrial, commercial, heating, or cooling purposes (other than the first-ever firing of fuel in a boiler following construction of the boiler) or for any other purpose after a shutdown event. Startup ends 4 hours after the EGU generates electricity that is sold or used for any other purpose (including on site use), or 4 hours after the EGU makes useful thermal energy (such as heat or steam) for industrial, commercial, heating, or cooling purposes (16 U.S.C. 796(18)(A) and 18 CFR 292.202(c)), whichever is earlier. Any fraction of an hour in which startup occurs constitutes a full hour of startup.*

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STARTUP/SHUTDOWN

- *Shutdown means the period in which cessation of operation of an EGU is initiated for any purpose. Shutdown begins when the EGU no longer generates electricity or makes useful thermal energy (such as heat or steam) for industrial, commercial, heating, or cooling purposes or when no coal, liquid oil, syngas, or solid oil-derived fuel is being fired in the EGU, whichever is earlier. Shutdown ends when the EGU no longer generates electricity or makes useful thermal energy (such as steam or heat) for industrial, commercial, heating, or cooling purposes, and no fuel is being fired in the EGU. Any fraction of an hour in which shutdown occurs constitutes a full hour of shutdown.*

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STARTUP/SHUTDOWN

- Initially data could be flagged as startup/shutdown using various methodologies.
  - The MATSOPHR time on line channel sets an output (MATS ON-LINE) which is used to set a custom flag (VWXYZ) on the emission rate data. The custom flag is set to apply the central mask of startup/shutdown via Flag Validation Default or Override settings.
  - Condition Manager checks for hourly data where UNITOPHR is greater than 0 and MATSOPHR is less than 60. If true MATS emission calculations are flagged as startup/shutdown.
- The above methods will handle startup definition 1 but will not address periods where the load drops to 0 and then picks back up without fuel combustion stopping.


STARTUP/SHUTDOWN

- In order to handle shutdowns properly and to address startup definition 2 the following practice is recommended.
- System Resources
  - STARTUP_FUEL_TOL_<site> = UNITOPHR (Parameter Group 0 QA Operating Time Parameter)
  - STARTUP_SYNC_TOL_<site> = MATSOPHR (Parameter Group "MATS" QA Operating Time Parameter)
  - STARTUP_MINS_<site> = 0 for definition 1 and 121 for definition 2.
  - SHUTDOWN_FUEL_TOL_<site> = UNITOPHR (Parameter Group 0 QA Operating Time Parameter)
    SHUTDOWN_SYNC_TOL_<site> = MATSOPHR (Parameter Group "MATS" QA Operating Time Parameter)
  - SHUTDOWN_MINS_<site> = 0
  - Verify that neither system resources or Startup/Shutdown settings are already setup for the sites that are MATS affected. If so the above settings would need to be applied to a separate "MATS" site.
- ProcessNow
  - Run task STARTSHUT on the MATS emission calculations
    - Use –M switch to ensure that the hourly data is not recalculated.
  - Condition Manager
    - If MATSOPHR GT 0 and Emission Calculations are flagged startup/shutdown set MATSOPHR = 0
      - It is not necessary to check each MATS emission rate calculation. Select one that the Startup/Shutdown Utility is ran on.
    - If UNITOPHR LT 60 set MATSOPHR = 0.
      - This will address shutdown hours where fuel combustion ends without load dropping to 0.
-
- The startup/shutdown utility will flag minute data as startup/shutdown and then propagate that to the hourly data if any minute data is flagged startup or shutdown. This will meet the EPA definition that any fraction of an hour in startup or shutdown is considered a full hour of startup or shutdown.


DILUENT CAPPING

- *Part 63, Subpart UUUUU, Appendix A, 6.2.1.2:*
- *Also, for startup and shutdown hours, you may calculate the Hg emission rate using the applicable diluent cap value specified in section 3.3.4.1 of appendix F to part 75 of this chapter, provided that the diluent gas monitor is not out-of-control and the hourly average O2 concentration is above 14.0% O2 (19.0% for an IGCC) or the hourly average CO2 concentration is below 5.0% CO2 (1.0% for an IGCC), as applicable.*
- *63.10007*
- *(f) If you elect to (or are required to) use CEMS to continuously monitor Hg, HCl, HF, SO_2, or PM emissions (or, if applicable, sorbent trap monitoring systems to continuously collect Hg emissions data), the following default values are available for use in the emission rate calculations during startup periods or shutdown periods (as defined in §63.10042). For the purposes of this subpart, these default values are not considered to be substitute data.*
- *(1) Diluent cap values. If you use CEMS (or, if applicable, sorbent trap monitoring systems) to comply with a heat input-based emission rate limit, you may use the following diluent cap values for a startup or shutdown hour in which the measured CO_2 concentration is below the cap value or the measured O_2 concentration is above the cap value:*
  - *(i) For an IGCC EGU, you may use 1% for CO_2 or 19% for O_2.*
  - *(ii) For all other EGUs, you may use 5% for CO_2 or 14% for O_2.*

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DILUENT CAPPING

- Replace CO2 in equations with the following:
  - ((CO2 > (5*(UNITOPHR#1-MATSOPHR#1))) + (CO2*0))
- For one hour data use Condition Manager to set Method Code to 37 for SO2RH or HGRH if all of the following are true.
  - UNITOPHR > 0 (Unit is On-Line)
  - MATSOPHR = 0 (Startup or Shutdown Hour)
  - CO2 < 5 AND Valid
- Replace O2 in equations with the following:
  - ((O2 > (14*(UNITOPHR#1-MATSOPHR#1))) + (O2*0))
- For one hour data use Condition Manager to set Method Code to 37 for SO2RH or HGRH if all of the following are true.
  - UNITOPHR > 0 (Unit is On-Line)
  - MATSOPHR = 0 (Startup or Shutdown Hour)
  - O2 > 5 AND Valid
- Adjust for IGCC as appropriate

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DEFAULT ELECTRICAL LOAD (lb/MW or lb/GW)

- *63.10007(f)(2) If you use CEMS to continuously monitor Hg, HCl, HF, SO_2, or PM emissions (or, if applicable, sorbent trap monitoring systems to continuously collect Hg emissions data), the following default value is available for use in the emission rate calculations during startup periods or shutdown periods (as defined in §63.10042). For the purposes of this subpart, this default value is not considered to be substitute data. For a startup or shutdown hour in which there is heat input to an affected EGU but zero electrical load, you must calculate the pollutant emission rate using a value equivalent to 5% of the maximum sustainable electrical output, expressed in megawatts, as defined in section 6.5.2.1(a)(1) of Appendix A to part 75 of this chapter.*

DEFAULT ELECTRICAL LOAD (lb/MW or lb/GW)

- *The MATS workgroup also received the following direction:*
- *MW is only required for output based standard. SRA will make sure the reporting instructions clearly state that MW value in the MATS load record is expected for all output based reporting even if source a source is already reporting for megawatts, with the understanding that this may be the same number in two places.*
- *Based on this if complying with output based emissions a second load parameter should be setup as follows:*
- MATSLOAD
  - Parameter
    - Parameter Group = STACK
    - QA: Yes
    - Use the MATSLOAD parameter in the output based emissions calcualtions.
  - EQUATION
    - (LOADMW~0 + ((1-TRUNC((LOADMW+0.5)^0.01)) * *5%MaxLoad*) * (UNITOPHR#1-MATSOPHR#1))=

HIGH REPLACEMENT VALUES (200% of MPC)

- Per the ECMPS reporting instruction:
-
- *"For the purposes of the MATS rule, the hourly SO2 emission rate (lb/mmBtu or lb/MWh) must not be calculated for any operating hour in which SO2 concentration exceeds the low range of a dual-range SO2 monitor and the high range is unable to provide quality-assured data, due to an expired linearity check or an expired daily calibration error test. Whereas the Acid Rain Program and other programs that use Part 75 to monitor SO2 mass emissions require a substitute data value (specifically, the maximum potential SO2 concentration (MPC)) to be reported and used in the emissions calculations for such hours, the MATS rule prohibits Part 75 substitute data values from being used to calculate hourly pollutant emission rates."*

HIGH REPLACEMENT VALUES (200% of MPC)

- From SRA:
- *"When SO2 data is measured on a monitor utilizing a high range default, P75 instructs the owner or operator to report a default SO2 concentration of 200 percent of MPC (Appendix A 2.1.1.4(f)). When a quality assured high range is exceeded P75 instructs the owner or operator to report 200.0 percent of the current full-scale range in place of the hourly measured value and make adjustments as appropriate (Appendix A 2.1.1.5(b)(1)). Method of Determination Codes "19" or "20" are reported respectively in the event that a default high range value or a high range exceedance occurs. The ECMPS instructions instruct reporters to use these values as quality assured values for purposes of P75. Nothing with respect to P75 changes.*
- *With respect to MATS compliance and reporting the use of a high range default value or a high range exceedance should be treated as follows:*
- *SO2 default high range values and high range exceedances, where 200.0 percent of the full-scale range is applied, should not be used to determine a MATS hourly emission rate but rather should be treated the same way as a missing data value. Furthermore, for MATS purposes include these instances of default high range values and high range exceedances as missing data hours in the semi-annual compliance report (CMS performance summary) found in 40 CFR 63.10(e)(3)(iv)(J) required to be submitted per40 CFR 63.10031(c)(1). So the total CMS downtime during the reporting period would include these periods (range exceedances) as missing data (along with all the other hours of missing data) and the total hours of missing data in a given six month period would be found in the semiannual compliance report."*

HIGH REPLACEMENT VALUES (200% of MPC)

- Based on this hours' with Full Scale Range Exceedances (Method Code 20) will be treated as missing/invalid. The same approach would also be used for stack flow.
-
- For one hour data use Condition Manager to determine if the Part 75 reported Stack Flow Rate or SO2PPM used provisions for full scale exceedance of default high range value.
  - SO2RH (Heat Input Based SO2 Emission Rate, lb/mmBTU)
    - If SO2PPM Method Code = 19 or 20
    - Set missing, invalid, and Method Code = 38
  - SO2RE (Output Based SO2 Emission Rate, lb/MWh)
    - If SO2PPM Method Code = 19 or 20
    - Set missing, invalid, and Method Code = 38
    - If Stack Flow Method Code = 20
    - Set missing, invalid, and Method Code = 38
  - HGRE (Output Based HG Emission Rate, lb/GWh)
    - If Stack Flow Method Code = 20
    - Set missing, invalid, and Method Code = 38
  - PM (Output Based HG Emission Rate, lb/MWh)
    - If Stack Flow Method Code = 20
    - Set missing and invalid.


30 DAY ROLLING AVERAGES (SINGLE UNIT/SINGLE STACK)

- Create a second set of MATS emission rate calculations
  - Server Only Channels
  - Set Parameter Group to "MATS".
  - Condition Manager
    - Run at 1 hour level
    - Use ASSIGN to copy value, flags, codes, etc to the secondary hourly data.
- The redundant parameters/hourly data are needed as they must be associated with the Parameter Group "MATS" which determines the appropriate 30 day rolling window.
- Server channels
  - Two Entries
    - Entry 1
      - Average Interval: 1 Day
      - Channel Type: Block Average
      - Percent Valid Required: 0
      - Time Weight: N
      - Round Constituents: N
      - Use Hourly Data for Validation: N
    - Entry 2
      - Average Interval: 30 Day
      - Channel Type: Rolling Average
      - Percent Valid Required: 0
      - Time Weight: Y
      - Round Constituents: N
      - Use Hourly Data for Validation: Y


30 DAY ROLLING AVERAGES (SINGLE UNIT/SINGLE STACK)

- System Resources
  - By default daily rolling averages are based on operating days.
  - Check for any resources using the CALENDAR_DAY_AVGS settings. If present adjust system as necessary to ensure existing calculations are maintained as they are configured.
- ProcessNow
  - By default when the daily rolling average utility is executed missing substituted data is not included in the average.
  - Ensure that the task DAYROLAVG used for MATS data does not include the "-M" switch in the Other Arguments. (If necessary add additional DAYROLAVG tasks and ensure that the MATS 30 day averages are calculated without the –M switch.)

30 Boiler-Operating Day Rolling Averages

Single Unit - 30 Day Average is the average of the one hour data over the 30 op days.

$$Boiler\ operating\ day\ average = \frac{\sum_{i=1}^{n} Her_i}{n} \quad (Eq.\ 8)$$

Emissions Average Group - 30 Day average is the 30 Day total mass divided by the 30 Day Total Heat or Load

$$WAER_m = \frac{\left[\sum_{j=1}^{p} Herm_j \times Rmm_j\right] + \sum_{k=1}^{m} Ter_k \times Rmt_k}{\left(\sum_{j=1}^{p} Rmm_j\right) + \sum_{k=1}^{m} Rmt_k} \quad (Eq.\ 1a)$$

SORBENT TRAP CONSIDERATIONS

- *§63.10000(vi)(A) You may choose to use one sorbent trap monitoring system to demonstrate compliance with the mercury emissions limit at all times (including startup periods and shutdown periods) and to report average mercury concentration. You must follow the startup or shutdown requirements that follow and as given in Table 3 to this subpart for each coal-fired, liquid oil-fired, or solid oil-derived fuel-fired EGU.*

MOISTURE

- Five moisture correction options for sorbent traps and Hg CEMS that provide a "dry" measurement for concentration.
  - Continuous moisture monitor to get hourly %H2O
  - Wet/Dry O2 monitoring system used to calculate %H2O
  - Stack temperature sensor & a lookup table for %H2O (only saturated gas streams)
  - Site-specific moisture default value approved by petition under §75.66
  - Fuel-specific moisture default under §75.11(b)(1) or §75.12(b)
- Use of a calculated %H20 is used instead of the psychometric chart as that is not practical in the DAS/data controller. This typically results in a higher moisture than the default and therefore reduces emission calculations. There is no EPA equation for this but we have used a few variations.
- Possible options would be as follows:
  - Use Excel and the lookup table to derive a polynomial.
  - Calculate the saturation vapor pressure using the NOAA equation and then calculate moisture.
    - s.v.p. = 0.1804*10^((4.1667*Tf-133.3)/(5/9*Tf+219.9))
    - At Saturation, %H2O = s.v.p./absolute stack pressure
  - Use Antoine equation
    - % Moisture = EXP(18.3036-(3816.44/(5/9*(Ts-32)+273.15-46.13)))/25.4/Ps*100
      - Ts is the stack temperature in degrees F
      - Ps is the absolute stack pressure in inches Hg

MOISTURE

- *6.5.2.1(a)(1) of Appendix A to part 75 of this chapter*
- *The upper boundary of the range of operation of a unit shall be the maximum sustainable load. The "maximum sustainable load" is the higher of either: the nameplate or rated capacity of the unit, less any physical or regulatory limitations or other deratings; or the highest sustainable load, based on at least four quarters of representative historical operating data.*
- ECMPS Monitoring Plan Instructions
- *For boilers and simple cycle turbines (including units with multiple stack exhaust configurations), this value is based on one of the following: (1) the nameplate capacity; (2) the nameplate capacity as derated; or (3) a value higher than nameplate, if the unit or stack historically operates at levels exceeding nameplate.*
- Based on the above use the maximum load in the monitoring plan unless other specified by the client.


EMISSION AVERAGING GROUP

- Hourly Calculation
  - HGLBS
    - ((((HG#/T:UNIT01)~(3-(1+TRUNC(LOG(ABS((HG#/T:UNIT01)>0.00000001)))))) * HEATIN:UNIT01~1 * MATSOPHR:UNIT01#1) ? (ZERO:FACILITY)) + (((((HG#/T:UNIT02)~(3-(1+TRUNC(LOG(ABS((HG#/T:UNIT02)>0.00000001)))))) * HEATIN:UNIT02~1 * MATSOPHR:UNIT02#1) ? (ZERO:FACILITY))
  - HGHEAT
    - (((HEATIN:UNIT01~1 * MATSOPHR:UNIT01#1) + (HG#/T:UNIT01 * 0)) ? (ZERO:FACILITY)) + (((HEATIN:UNIT02~1 * MATSOPHR:UNIT02#1) + (HG#/T:UNIT02 * 0)) ? (ZERO:FACILITY))


EMISSION AVERAGING GROUP

- Processing
  - Daily rolling average utility - Total HGLBS and HGHEAT for the 30 or 90 days.
  - Mathpack - Calculate the 30 or 90 day HG#/T.

MATS Averages – Hourly on Emissions EDR

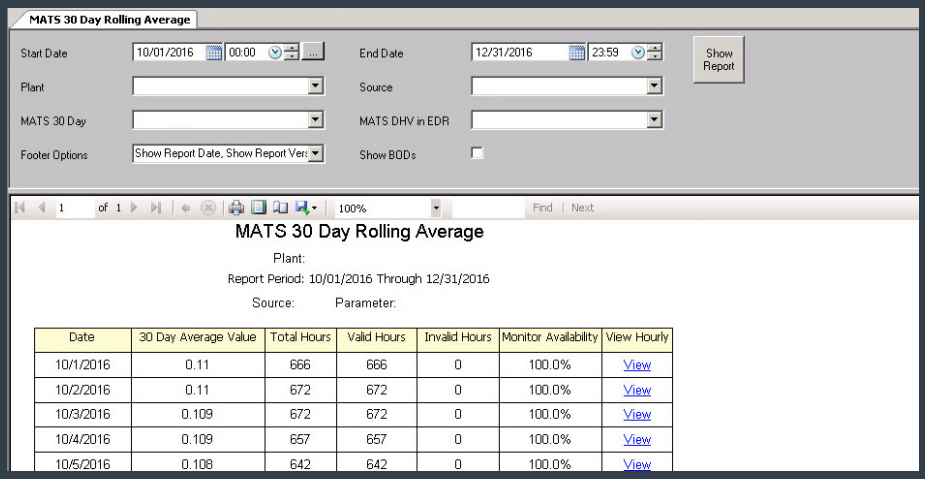
Table 22: Parameter Codes and Descriptions for the MMHV Data Record

Code	Description
HGC	Hg Concentration (µg/scm)
HCLC	HCl concentration (ppm)
HFC	HF concentration (ppm)

Table 30: Parameter Codes and Descriptions for the MDHV Data Record

Code	Description
SO2RE	Electrical Output-Based Hourly SO2 Emission Rate (lb/MWh)
SO2RH	Heat Input-Based Hourly SO2 Emission Rate (lb/mmBtu)
HGRE	Hg Electrical Output Based Emissions Rate (lb/GWh)
HGRH	Hg Heat Input Based Emissions Rate (lb/TBtu)
HCLRE	HCl Electrical Output Based Emissions Rate (lb/MWh)
HCLRH	HCl Heat Input Based Emissions Rate (lb/mmBtu)
HFRE	HF Electrical Output Based Emissions Rate (lb/MWh)
HFRH	HF Heat Input Based Emissions Rate (lb/mmBtu)

MATS Reports – 30-Day Rolling Average



Date	30 Day Average Value	Total Hours	Valid Hours	Invalid Hours	Monitor Availability	View Hourly
10/1/2016	0.11	666	666	0	100.0%	View
10/2/2016	0.11	672	672	0	100.0%	View
10/3/2016	0.109	672	672	0	100.0%	View
10/4/2016	0.109	657	657	0	100.0%	View
10/5/2016	0.108	642	642	0	100.0%	View

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QUESTIONS?