 SSM-D-1	Continuous Monitoring System Quality Control Program	Release Date: 6/23/04 Revised: 7/25/13 Page No: 1 of 15
Quality Control Plan		DMS #230

1. INTRODUCTION

This document identifies the Continuous Monitoring System (CMS) Quality Control Program the Quinnesec Mill follows to meet requirements of 40 CFR 63.8 (d)(2), 40 CFR 63.453, and 40 CFR 63.864 of the Pulp and Paper NESHAP.

This program addresses the following requirements pursuant to 40 CFR 63(d)(2).

- Initial and subsequent calibration,
- Determination and adjustment of calibration drift,
- Preventative maintenance (including spare parts inventory),
- Data recording, calculations and reporting,
- Accuracy audits including sampling and analysis methods, and
- Correcting malfunctioning CMSs.

The following MACT regulated emitting units have CMS equipment that are covered under this program (See Appendix A for CMS equipment details):

- Bleaching System (40 CFR 63.445)
- Kraft Pulping Condensates (40 CFR 63.446)
- Recovery Furnace (40 CFR 63.862(A))
- Smelt Dissolving Tank (40 CFR 63.862(A))
- Lime Kiln (40 CFR 63.862(C))

The intent of this plan is to define CMS quality control practices and provide a means of communicating expectations to mill personnel that ensure continued compliance. Generally speaking, this plan defines those activities performed to ensure CMS equipment is providing accurate process information.

2. CMS QUALITY CONTROL ACTIVITIES

Oversight of Activities

- Maintenance personnel are under the direction of the area maintenance supervisor for inspection, maintenance and repair.
- Inspection, maintenance and repair of CMS equipment within the mill is performed by qualified mill employees or contract personnel only.


 <p>VERSO QUINNESEC MILL SSM-D-1</p>	<p>Continuous Monitoring System Quality Control Program</p>	<p>Release Date: 6/23/04 Revised: 7/25/13 Page No: 2 of 15</p>
<p>Quality Control Plan</p>		<p>DMS #230</p>

Identification of Equipment

- CMS equipment is provided with an identification number that minimizes potential for error to occur when performing maintenance.
- CMS equipment is provided with field tags to ensure proper field identification of the equipment when maintenance tasks are performed.
- CMS equipment is identified in the mill maintenance computer system to provide a means of maintaining schedules and records of preventive maintenance practices.
- Spare parts for CMS equipment are identified in the mill maintenance computer system according to the equipment number to ensure proper inventory of spare parts are maintained on site.
- Documentation for various CMS equipment calibration and range settings are identified on loop sheets or specifications sheets carrying the same identifier as the equipment.

Calibration and Maintenance Practices

- Initial calibration of CMS equipment was performed during installation and setup.
- Test and calibration intervals along with drift adjustment determinations have been chosen using best judgment based on previous application experience and/or manufactures recommendation, considering component type and service characteristics, but should not exceed 1 year (See Appendix A for CMS Specifications and Maintenance Schedule).
- CMS equipment that cannot be practically calibrated (i.e., mag. tube flow meters) will be inspected on a periodic basis to ensure their continued operation.
- COMS equipment calibration and drift determination is performed in accordance with requirements detailed in 40 CFR Part 60 Appendix F and the Quinnesec Mill CEMS Quality Control Program.
- The mill employs both predictive and preventative maintenance practices to minimize the potential for a malfunction to occur.
- Maintenance, calibration and testing are to be scheduled and performed in a manner that does not create an unsafe condition in the process, or result in a permit exceedance.
- Maintenance records are maintained in the mill's computer database systems.

 <p>VERSO QUINNESEC MILL SSM-D-1</p>	<p>Continuous Monitoring System Quality Control Program</p>	<p>Release Date: 6/23/04 Revised: 7/25/13 Page No: 3 of 15</p>
<p>Quality Control Plan</p>		<p>DMS #230</p>


- Records of calibration and tests shall include:
 - Inspectors name
 - Date performed
 - As found/as left condition (calibration), or general condition (satisfactory or deficiencies)
 - Corrective maintenance performed
- Maintenance records are reviewed periodically for completeness and accuracy.
- Maintenance records are maintained on-site for a minimum of (5) five years.

Data Recording, Calculations, and Reporting

- A computer-based system (Proficy) is used to record and report CMS information. The data link from the CMS's to Proficy is monitored continuously to insure that proper communication is taking place (CMS Record keeping & Reporting System information is included in Appendix B).
- The Proficy computer system is capable of providing a number of summary and detailed reports for regulatory submittal as required by 40 CFR 63.6(e)(iii); 63.10(b); 63.10(d)(5)(i); 63.10(e).
- More detailed information regarding reporting and reporting can be found in section SSM – 4 of the SSM plan (See Proficy Design documents in Appendix F of SSM Plan for detailed CMS calculation information.).

Accuracy Audits

- For completeness and accuracy of CMS and COMS data the following Accuracy Audits are conducted:
 - Routine review of CMS and COMS operations through computer display trending
 - Review of record keeping systems (Proficy database)

 <p>VERSO QUINNESEC MILL SSM-D-1</p>	<p>Continuous Monitoring System Quality Control Program</p>	<p>Release Date: 6/23/04 Revised: 7/25/13 Page No: 4 of 15</p>
<p>Quality Control Plan</p>		<p>DMS #230</p>

Correcting Malfunctioning CMSs

- Operating personnel have primary responsibility to ensure CMS equipment is operating properly.
- Maintenance is responsible for providing prompt response in the event of CMS malfunction. All reasonable efforts are taken to restore the CMS monitoring equipment to normal status. If the servicing must be performed under operating conditions, work should be scheduled to minimize the amount of time a device is off line.
- Operator actions taken during an excess emission or CMS malfunction event are tracked by the Proficy computer system (corrective actions for excess emission events and for malfunctioning CMS events are detailed in the mill’s Startup, Shutdown, and Malfunction Plan).

3. RESPONSIBILITIES

- Maintenance is responsible to ensure proper scheduling and completion of maintenance, repair, calibration and tests.
- Maintenance is responsible for ensuring records are retained for equipment maintenance.
- Operating departments are responsible for providing appropriate access to conduct necessary equipment maintenance, including scheduling of outages.
- Information Technology department is responsible for maintenance of the Proficy system.
- Environmental Department is responsible for CMS compliance reports.

APPENDIX A – CMS Specification and Maintenance Schedule


Bleach Plant

CMS	Location	Manufacturer/ Model No./ Equipment No.	Accuracy (Manufacturer's Spec.)	Calibration /Inspection Frequency	Daily Indicator of CMS Response	Zero & Span Drift Limit	Point of Corrective Action (for drift)
Flow meter (3)	D100 scrubber recirculation line, D1/D2 scrubber recirculation lines	Rosemount/ 8712 Eq. No. D100 – 48FT316 D1/D2 North – 48FT315 D1/D2 South – 48FT314	In accordance with Manufactures specifications ± 0.25% of rate	Annually	DCS/PI/Proficy watchdog timer	± 2%	± 2%
pH meter (2) <i>Backup: grab sample</i>	D100 scrubber effluent, D1/D2 scrubber effluent	ABB/TB82 Eq. No. D100 – 48AT311 D1/D2 – 48AT310	In accordance with Manufactures specifications ± 0.01 pH units	Weekly	DCS/PI/Proficy watchdog timer	In accordance with Manufactures specifications, or previous application experience	In accordance with Manufactures specifications, or previous application experience
Fan speed (2) Switch	D100 scrubber fan, D1/D2 scrubber fan	AI-Tek/ 70085-1010-002/001 Eq. No. D100 – 48SS022 D1/D2 – 48SS021	In accordance with Manufactures specifications ± 0.1%	Annually	DCS/PI/Proficy watchdog timer	On/Off	On/Off

APPENDIX A – CMS Specification and Maintenance Schedule

Condensate Collection and Treatment

CMS	Location	Manufacturer/Model No. /Equipment No.	Accuracy (Manufacturer's Spec.)	Calibration / Frequency Calibration	Daily Indicator of CMS Response	Zero & Span Drift Limit	Point of Corrective Action (for drift)
Flow meter	Condensate collection tank pump discharge	Rosemount/ 1151DP5E22B3 Eq. No. 30FI096	In accordance with manufactures specifications (± 0.2% of calibrated span)	Annual	DCS/PI/Proficy watchdog timer	± 1%	± 1%
Pulp flow meter	Inlet to No. 1 post O2 washer	Krohne SC100LD Eq. No. 42FT217	In accordance with manufactures specifications	Annual	DCS/PI/Proficy watchdog timer	± 3%	± 3%
Pulp consistency meter	Inlet to No. 1 post O2 washer	Valmet Pulp EL/ LS2W Eq. No. 42CT1215	In accordance with manufactures specifications (0.02% consistency)	Annual	DCS/PI/Proficy watchdog timer	± 10%	± 10%
Steam flow meter	Steam Stripper	Rosemount/ 1151DP4E22B3 Eq. No. 30FI145	In accordance with manufactures specifications (± 0.2% of calibrated span)	Annual	DCS/PI/Proficy watchdog timer	± 5%	± 5%
Condensate temperature meter	Steam Stripper	Foxboro/PR1US065WLTTA 22 Eq. No. 30TI099A	In accordance with manufactures specifications (±0.25 + 0.0042(T)°C, where T = °C temperature, absolute value)	Annual	DCS/PI/Proficy watchdog timer	In accordance with manufactures specifications, or previous application experience	In accordance with manufactures specifications, or previous application experience

 SSM-D-1	Continuous Monitoring System Quality Control Program	Release Date: 6/23/04 Revised: 7/25/13 Page No: 7 of 15
Quality Control Plan		DMS #230


APPENDIX A – CMS Specification and Maintenance Schedule

Lime Kiln

CMS	Location	Manufacturer/ Model No./ Equipment No.	Accuracy (Manufacturer's Spec.)	Calibration /Inspection Frequency	Daily Indicator of CMS Response	Zero & Span Drift Limit	Point of Corrective Action (for drift)
Flow Meter	Venturi scrubber recirculation line	Rosemount/ 8712 Eq. No. 45FI079	In accordance with CFR 40 63.864 (a)(1)(i-ii), (± 0.25% of rate)	Annually	DCS/PI/Proficy watchdog timer	± 2%	± 2%
Differential pressure guage (2)	Venturi scrubber body	Rosemount/ 3051 Eq. No. Inlet - 44PT077A Outlet – 45PT077B	In accordance with CFR 40 63.864 (a)(1)(i-ii), (±0.035% of span)	Annually	DCS/PI/Proficy watchdog timer	± 5%	± 5%

Recovery Furnace

CMS	Location	Manufacturer/ Model No./ Equipment No.	Accuracy (Manufacturer's Spec.)	Calibration/ Inspection Frequency	Daily Indicator of CMS Response	Zero & Span Drift Limit	Point of Corrective Action (for drift)
Opacity monitor	Recovery furnace flue gas breeching	SICK/Dusthunter T200 Eq. No. 44AI210	In accordance with Manufactures specifications (± 2%)	Daily and Quarterly – In accordance with 40 CFR 60 Appendix F	DCS/PI/Proficy watchdog timer	In accordance with 40 CFR 60 Appendix F	In accordance with 40 CFR 60 Appendix F

 SSM-D-1	Continuous Monitoring System Quality Control Program	Release Date: 6/23/04 Revised: 7/25/13 Page No: 8 of 15
Quality Control Plan		DMS #230

APPENDIX A – CMS Specification and Maintenance Schedule

Smelt Dissolving Tank

CMS	Location	Manufacturer/ Model No./ Equipment No.	Accuracy (Manufacturer's Spec.)	Calibration /Inspection Frequency	Daily Indicator of CMS Response	Zero & Span Drift Limit	Point of Corrective Action (for drift)
Flow meter (2)	Scrubber liquid feed line	Rosemount/ 8712/8705 Eq. No. East – 44FI598 West – 44FI597	In accordance with CFR 40 63.864 (a)(1)(i-ii) (± 0.25% of rate)	Annually	DCS/PI/Proficy watchdog timer	± 2%	± 2%
Fan amps	Scrubber fan motor	Rochester Instruments Systems/ CCC-1B-C5- XA-F60-Z0-A1-G0 Eq. No. 44M00015	In accordance with Manufactures specifications (± 0.20% of rated output)	Annually	DCS/PI/Proficy watchdog timer	In accordance with Manufactures specifications, or previous application experience	In accordance with Manufactures specifications, or previous application experience

APPENDIX B - CMS Record Keeping & Reporting System


Bleach Plant

CMS	CMS Downtime Event (automatically generated by Proficy unless otherwise indicated)	Good data quality is defined as ...	Data Record Location	Frequency of Data Collection	Data Averaging Period	Daily Indicator of PI/Proficy System Response
Flow meter	Failure to meet 50% good data quality for each 15 minute period while the source is operating: <ul style="list-style-type: none"> ▪ Creates 15 minute CMS downtime event. 	Instrument reading is within the range of the instrument, +/- the drift tolerance of the device, or the standard deviation of the raw tag for the past 3-hrs is greater than zero.	Proficy	Once per minute	15 minutes	DCS/PI/Proficy watchdog timer
pH meter <i>backup: grab sample</i>	Failure to meet 50% good data quality for each 15 minute period while the source is operating (w/o backup): <ul style="list-style-type: none"> ▪ Creates 15 minute CMS downtime event. 	Instrument reading is within the range of the instrument, +/- the drift tolerance of the device, or the standard deviation of the raw tag for the past 3-hrs is greater than zero.	Proficy	Once per minute	15 minutes	
Fan speed	Failure to operate within range during source operating time: <ul style="list-style-type: none"> ▪ Creates instantaneous CMS downtime event. 	Instrument reading is within the range of the instrument	Proficy	Once per minute	instantaneous	

APPENDIX B - CMS Recordkeeping & Reporting System

Condensate Collection and Treatment

CMS	CMS Downtime Event (automatically generated by Proficy unless otherwise indicated)*	Good data quality is defined as ...	Data Record Location	Frequency of Data Collection	Data Averaging Period	Daily Indicator of PI/Proficy System Response
Flow meter	Failure to meet 80% good data quality per source operating time (w/o backup): <ul style="list-style-type: none"> ▪ Creates 24 hr CMS downtime event (manually generated event), ▪ Omits day from 15-day average calculation. 	Instrument reading is within the range of the instrument, +/- the drift tolerance of the device, or the standard deviation of the raw tag for the past 3-hrs is greater than zero.	Proficy	Once per minute	Daily totalizer	DCS/PI/Proficy watchdog timer
Pulp consistency meter	Failure to meet 80% good data quality per source operating time (w/o backup): <ul style="list-style-type: none"> ▪ Creates 24 hr CMS downtime event (manually generated event), ▪ Omits day from 15-day average calculation. 	Instrument reading is within the range of the instrument, +/- the drift tolerance of the device, or the standard deviation of the raw tag for the past 3-hrs is greater than zero.	Proficy	Once per minute	Daily totalizer	
Pulp flow meter	Failure to meet 80% good data quality per source operating time (w/o backup): <ul style="list-style-type: none"> ▪ Creates 24 hr CMS downtime event (manually generated event), ▪ Omits day from 15-day average calculation. 	Instrument reading is within the range of the instrument, +/- the drift tolerance of the device, or the standard deviation of the raw tag for the past 3-hrs is greater than zero.	Proficy	Once per minute	Daily totalizer	
Steam flow meter	Failure to meet 80% good data quality per source operating time (w/o backup): <ul style="list-style-type: none"> ▪ Creates CMS downtime event 	Instrument reading is within the range of the instrument, +/- the drift tolerance of the device, or the standard deviation of the raw tag for the past 3-hrs is greater than zero.	Proficy	Once per minute	Continuous	
Condensate temperature meter	Failure to meet 80% good data quality per source operating time (w/o backup): <ul style="list-style-type: none"> ▪ Creates CMS downtime event 	Instrument reading is within the range of the instrument, +/- the drift tolerance of the device, or the standard deviation of the raw tag for the past 3-hrs is greater than zero.	Proficy	Once per minute	Continuous	
* When two or more CMS devices fail on the same 24 hr period, only one (1) day of CMS downtime is recorded. The determination of which device to assign the CMS downtime to is a manual input.						

 SSM-D-1	Continuous Monitoring System Quality Control Program	Release Date: 6/23/04 Revised: 7/25/13 Page No: 11 of 15
Quality Control Plan		DMS #230

APPENDIX B - CMS Recordkeeping & Reporting System

SDT Scrubber and Lime Kiln Scrubber Flow Meters

CMS	CMS Downtime Event (automatically generated by Proficy unless otherwise indicated)	Data Record Location	Frequency of Data Collection and Averaging Period	Daily Indicator of System Response
Magnetic flow meter	Failure to obtain at least 4 data points in an hour while the source is operating, except for those conditions where two data points are acceptable, i.e.: <ol style="list-style-type: none"> 1) During calibration, QA, or maintenance activities or; 2) The source operates for less than one hour following the PTE criteria for a 1-hour average. <ul style="list-style-type: none"> ▪ Creates 1 hr CMS downtime event 	Proficy	Compute 15 min, 1-hour and 3-hour averages <u>15-min. average</u> Obtain at least one valid data point during each 15-minute block period during the source operating time. <u>1-hour average</u> A valid hourly average must have at least 4 equally spaced values for the hour. The one-hour average may be computed from less than four-15 minute values if the source operations for less than an hour. <u>3-hour average</u> Compute 3-hour rolling average as the arithmetic average of the previous 3 operating hours.	DCS/PI/Proficy watchdog timer



Continuous Monitoring System Quality Control Program

Release Date: 6/23/04
 Revised: 7/25/13
 Page No: 12 of 15


Quality Control Plan

DMS #230

APPENDIX B - CMS Recordkeeping & Reporting System

Lime Kiln Scrubber Differential Pressure Gauges

CMS	CMS Downtime Event (automatically generated by Proficy unless otherwise indicated)	Data Record Location	Frequency of Data Collection and Averaging Period	Daily Indicator of CMS System Response
Differential Pressure Gauge	Failure to obtain at least 4 data points in an hour while the source is operating, except for those conditions where two data points are acceptable, i.e.: 1) during calibration, QA, or maintenance activities or 1) the source operates for less than one hour following the PTE criteria for a 1-hour average. ▪ Creates 1 hr CMS downtime event	Proficy	Compute 15 min, 1-hour and 3-hour averages <u>15-min. average</u> Obtain at least one valid data point during each 15-minute block period during the source operating time. <u>1-hour average</u> A valid hourly average must have at least 4 equally spaced values for the hour. The one-hour average may be computed from less than four-15 minute values if the source operations for less than an hour. <u>3-hour average</u> Compute 3-hour rolling average as the arithmetic average of the previous 3 operating hours.	DCS/PI/Proficy watchdog timer

 SSM-D-1	Continuous Monitoring System Quality Control Program	Release Date: 6/23/04 Revised: 7/25/13 Page No: 13 of 15
Quality Control Plan		DMS #230

APPENDIX B - CMS Recordkeeping & Reporting System

Smelt Dissolving Tank Scrubber Fan Amperage Gauge

CMS	CMS Downtime Event (automatically generated by Proficy unless otherwise indicated)	Data Record Location	Frequency of Data Collection and Averaging Period	Daily Indicator of CMS System Response
Fan Amperage Gauge	Failure to obtain at least 4 data points in an hour while the source is operating, except for those conditions where two data points are acceptable, i.e.: <ol style="list-style-type: none"> 1) during calibration, QA, or maintenance activities or 2) the source operates for less than one hour following the PTE criteria for a 1-hour average. <ul style="list-style-type: none"> ▪ Creates 1 hr CMS downtime event 	Proficy	Compute 15 min, 1-hour and 3-hour averages <u>15-min. average</u> Obtain at least one valid data point during each 15-minute block period during the source operating time. <u>1-hour average</u> A valid hourly average must have at least 4 equally spaced values for the hour. The one-hour average may be computed from less than four-15 minute values if the source operations for less than an hour. <u>3-hour average</u> Compute 3-hour rolling average as the arithmetic average of the previous 3 operating hours.	DCS/PI/Proficy watchdog timer



Continuous Monitoring System Quality Control Program

Release Date: 6/23/04
 Revised: 7/25/13
 Page No: 14 of 15

Quality Control Plan

DMS #230

APPENDIX B - CMS Recordkeeping & Reporting System

Recovery Furnace Opacity Monitor

CMS	CMS Downtime Event (automatically generated by Proficy unless otherwise indicated)*	Data Record Location	Frequency of Data Collection and Averaging Period	Daily Indicator of CMS System Response
Opacity Monitor	<p>Failure to obtain a 6-minute opacity value from the COMS DAS while the source is operating. This will be recorded as 6-minute CMS downtime event by the COM DAS or other intermediate device.</p> <p>The zero or span daily drift is two times the calibration drift (CD) referenced in the applicable performance specification (i.e., daily drift is $\geq 4\%$) which equates to the COMS being out-of-control while the source is operating. Downtime will be equivalent to the time the source is considered out-of-control.</p> <p>*Failure of any quarterly QA/QC test i.e., optical alignment, zero compensation, calibration error would be considered CMS downtime since the last test was passed.</p> <p>*Failure of annual zero alignment will be considered out-of-control and CMS downtime since the last test was passed.</p>	Proficy	<p>Each 10-seconds</p> <p>Discreet 6-minutes</p> <p>Calculate average from 36 or more data points equally spaced over a 6-minute period</p>	DCS/PI/Proficy watchdog timer



SSM-D-1

**Continuous Monitoring System Quality
Control Program**

Release Date: 6/23/04

Revised: 7/25/13

Page No: 15 of 15

Quality Control Plan

DMS #230

Revisions History

Date	Section/Page	Revision	Reviser
10/16/17	Appendix A	Updated instrumentation manufacturer and model information; added manufacturer's accuracy specifications, zero and span drift limits, point of corrective action values.	P. LaFleur