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INITIAL CERTIFICATION REPORT

CONTINUOUS OPACITY MONITORING SYSTEM (COMS)

CONSUMERS ENERGY
JHC-1 DUCT
WEST OLIVE, MI

Source Designation:

JHC-1 Duct
Consumers Energy
West Olive, Michigan

Concerning:

Teledyne Monitor Labs, Inc. 560 Opacity Monitor

Prepared by:

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April 27, 2016

Jamie Triplett
Regulatory Affairs Coordinator

Date

SECTION I – GENERAL INFORMATION

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Teledyne Monitor Labs, Inc. was contracted by Consumers Energy to certify a continuous opacity monitoring system (COMS) on the JHC-1 Duct at the facility in West Olive, Michigan. The COMS installed on the JHC-1 Duct consists of a Teledyne Monitor Labs 560 Opacity Monitor. COMS certification was performed in accordance with 40CFR60, Appendix B, Performance Specification 1.

The objective of the certification is to demonstrate the compliance status of the COMS installed to measure exhaust opacity from the JHC-1 Duct. Table I below provides information required by 40CFR60, Appendix B, Performance Specification 1.

Table I. General information about COMS.

Instrument Manufacturer:	Teledyne Monitor Labs Inc.
Instrument Model Number:	560
Instrument Serial Number:	5602838
Month Manufactured:	December 2015
Monitor Pathlength:	4.572 meters
Emission Outlet Pathlength:	5.791 meters
Full Scale, % Opacity:	100
Applicable Standard, % Opacity:	21.0
Pathlength Correction Factor:	1.267
Upscale Calibration Value, % Opacity:	25.4
Calibrated Attenuator Values, % Opacity:	
Low:	13.75
Mid:	22.81
High:	46.18
Responsible Person for Operational Test Period:	[1] Unknown

[1] Affiliated with Consumers Energy.

SECTION II – DESIGN SPECIFICATION TEST RESULTS

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As required by 40CFR60, Appendix B, Performance Specification 1, this instrument complies with the design specifications of Section 2. Table II below provides the design specification test results.

Table II. Design specification test results.

Peak Spectral Response:	520 nm
Mean Spectral Response:	525.3 nm
Response above 700 nm, % of Peak:	0.00
Response below 400 nm, % of Peak:	0.20
Angle of View: (horizontal / vertical)	2.37 / 1.89 degrees
Angle of Projection: (horizontal / vertical)	1.59 / 1.59 degrees
Results of Optical Alignment Sight Test:	Passed
Unit Actually Tested (serial number/date):	5602832 / 12/3/15

A Certificate of Conformance is provided in Appendix A that illustrates that the first analyzer randomly sampled from that month's production was tested according to 40CFR60, Appendix B, Performance Specification 1, and satisfactorily met all requirements of 40CFR60, Appendix B, Performance Specification 1, Section 2.1. The certificate of conformance includes the results of each test performed for the analyzer sampled during the month the analyzer installed was produced.

SECTION III – PERFORMANCE SPECIFICATION TEST RESULTS

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As required by 40CFR60, Appendix B, Performance Specification 1, this instrument complies with the performance specifications of Section 8. Table III below provides the performance specification test results.

Table III. Performance specification test results.

Optical Alignment	Passed
Calibration Error, Low Range, % Opacity:	0.16
Calibration Error, Mid Range, % Opacity:	0.12
Calibration Error, High Range, % Opacity:	0.62
Response Time, Upscale:	3.39 seconds
Response Time, Downscale:	2.73 seconds
24-Hour Zero Drift, % Opacity:	0.13
24-Hour Calibration Drift, % Opacity:	0.14
Averaging Period Check, Low Range Error, % Opacity:	0.05
Averaging Period Check, Mid Range Error, % Opacity:	0.11
Averaging Period Check, High Range Error, % Opacity:	0.48

The performance specification test results and raw data are in Appendix B. The analyzer was tested according to 40CFR60, Appendix B, Performance Specification 1, Section 8 and satisfactorily met all performance specification requirements.

Operational Test Period After completion of the preliminary field adjustments and field certification tests, the COMS was operated for a 168-hour period. The 168-hour operational test period occurred from March 31 – April 7, 2016. The COMS analyzed the effluent gas for opacity and produced a permanent record of the COMS output, except during times of instrument zero and upscale calibration checks. During this period, there was no unscheduled maintenance, repair, or adjustment. During the operational test period, the zero and calibration drift test procedures were performed.

SECTION V – CONCLUSION

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Analyzer 5602838, installed on the JHC-1 Duct, was tested according to 40CFR60, Appendix B, Performance Specification 1, and satisfactorily met all performance specification requirements. Certification testing, and the subsequent evaluation, was completed on April 27, 2016. Supporting documentation is included in this report.