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Notification of Compliance Status (NOCS) Report

40 CFR 63 Subpart ZZZZ:

National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

Submittal Date: May 27, 2016

Section I: General Information

A. Identification of Applicable Subparts

40 CFR Part 63, Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. This NOCS is being submitted in accordance with §§63.6645(h).

B. Affected Sources

Identify each affected source covered in the submission:

Environmental Operations at Dow Michigan Operations in Midland, Michigan.

C. Facility Information

Print or type the following information for each facility for which you are making notification of compliance status:

Operating Permit Number		Facility I.D. Number	
MI-ROP-A4033		**N/A**	
Responsible Official Name / Title		Phone or Fax number of Owner	
Scott Bemis / Responsible Care Leader		**989-636-2646**	
Street Address of Owner or Operator			
1790 Building			
City	State	ZIP Code	
Midland	**Michigan**	**48674**	
Facility Name			
The Dow Chemical Company			
Facility Local Contact Name	Title		Phone
Kayla Peacock	**Environmental Specialist**		**989-638-1482**
City	State	ZIP Code	
Midland	**MI**	**48667**	

Section II: Notification of Compliance Status

Introduction	The Notification of Compliance Status is submitted within 60 days following the completion of the performance test ['63.6645(h)(2)]. The Notification of Compliance Status certifies that the stationary RICE is meeting the emission limitations and operating limitations; identifies the option(s) used to demonstrate initial compliance, summarizes the data and calculations supporting the compliance demonstration, and describes how continuous compliance will be demonstrated.
Report Content	The Notification of Compliance Status must contain the information ['63.9(h)(2)(i)]:
§63.9(h)(2)(i)(A) Method used to demonstrate initial compliance	A performance test is required to demonstrate initial compliance according to §63.6630(c) and §63.6645(h). This facility is subject to Table 5, condition 2(a)(i)-(iii) of Subpart ZZZZ.
§63.9(h)(2)(i)(B) Performance Test Results	The performance test results are summarized in the table below which is extracted from the Performance Test Report in Attachment 1. The calibration results for the CPMS are located in Attachment 2.

Summary of Results for
RICE Diversion Diesel pump engines A & B (D-200A/B)
– Initial Compliance Test

Table 2.1- Test Summary

Engine	SAMPLE TYPE	TEST METHOD	*ACTUAL EMISSION RATE	ALLOWABLE EMISSION RATE
Diesel Engine A	CO Emissions (ppmv@15%O2)	EPA Method 10	10.7 ppmv@15%O2	23 ppmv@15%O2
Diesel Engine B	CO Emissions (ppmv@15%O2)	EPA Method 10	8.3 ppmv@15%O2	23 ppmv@15%O2

* Average over three one-hour runs.

Table 2.2- Test Run Data

PARAMETER	RUN 1	RUN 2	RUN 3	AVERAGE
Diesel Engine A				
Sample Date	03/29/16	03/29/16	03/29/16	n/a
Sample Times (start/end)	1115/1215	1300/1400	1430/1530	n/a
Outlet CO (ppmv)	13.5	12.5	12.3	12.8
Outlet O2 (%)	13.9	13.9	13.9	13.9
Outlet CO (ppmv@15%O2)	**11.3**	**10.6**	**10.3**	**10.7**
Diesel Engine B				
Sample Date	03/30/16	03/30/16	03/30/16	n/a
Sample Times (start/end)	1015/1115	1225/1325	1350/1450	n/a
Outlet CO (ppmv)	14.0	15.4	15.0	14.8
Outlet O2 (%)	10.5	10.4	10.4	10.4
Outlet CO (ppmv@15%O2)	**7.9**	**8.6**	**8.4**	**8.3**

Section II: Notification of Compliance Status, continued

Table 2.3- PROCESS DATA

PARAMETER	RUN 1	RUN 2	RUN 3	AVERAGE
Diesel Engine A				
Sample Date	03/29/16	03/29/16	03/29/16	n/a
Sample Times (start/end)	1115/1215	1300/1400	1430/1530	n/a
Engine RPM (RPM)	1798	1797	1796	1797
Pump Discharge Pressure (psig)	37.6	37.6	37.6	37.6
Amount Diesel Used (Gal)	25.1	18.3	22.1	21.9
HapGuard Temp (°F)	612	613	609	611
HapGuard Δp (inches water)	1.71	1.57	1.53	1.60
Diesel Engine B				
Sample Date	03/30/16	03/30/16	03/30/16	n/a
Sample Times (start/end)	1015/1115	1225/1325	1350/1450	n/a
Engine RPM (RPM)	1780	1812	1835	1809
Pump Discharge Pressure (psig)	44.4	45.8	47.0	45.7
Amount Diesel Used (Gal)	34.2	37.9	37.5	36.5
HapGuard Temp (°F)	779	789	795	788
HapGuard Δp (inches water)	0.88	0.82	0.89	0.86

§63.9(h)(2)(i)(C) Methods used to demonstrate continuous compliance

MACT Subpart ZZZZ and its referenced Table 6, condition (10) has the following requirements:

(i) conduct performance tests every 8,760 hours or 3 years, whichever comes first, for CO or formaldehyde, as appropriate, to demonstrate that the required CO or formaldehyde, as appropriate, percent reduction is achieved or that your emissions remain at or below the CO or formaldehyde concentration limit; and

(ii) collect the catalyst inlet temperature data according to §63.6625(b); and

(iii) reduce these data to 4-hour rolling averages; and

(iv) maintain the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and

(v) measure the pressure drop across the catalyst once per month and demonstrate that the pressure drop across the catalyst is within the operating limitation established during the performance test.

Table 2.4- Summary of Continuous Compliance Parameters:

	Temperature	Catalyst Pressure Drop
Diesel Engine A	Exhaust (catalyst inlet temperature) maintained such that 450°F ≤ catalyst inlet temperature ≤ 1350°F.	1.6" H_2O** +/- 2" H_2O
Diesel Engine B		0.86" H_2O** +/- 2" H_2O

**Established during performance test, reference Table 2.3 above

Section II: Notification of Compliance Status, continued

§63.9(h)(2)(i)(D) Type and Quantity of HAP (or Surrogate)	Less than 11ppmv CO @15%O_2 per engine. CO is measured as a surrogate for Formaldehyde as allowed for in the RICE MACT.
§63.9(h)(2)(i)(E) Source Type	The affected source is located at a major source of HAPs.
§63.9(h)(2)(i)(F) Air Pollution Control Equipment	The two Diversion Diesel pump engines A & B (D-200A/B) each use a diesel particulate filter and non-selective catalytic reduction (NSCR) to control CO emissions. Johnson Matthey supplied two Industrial Diesel Oxidation catalysts with internal silencers designed to meet RICE emission limits. Catalyst body is constructed of stainless steel with carbon steel flanges. Johnson Matthey also provided two Hapguard monitoring systems for continuous parametric monitoring.
§63.9(h)(2)(i)(G) Compliance Statement	With the exception of any deviations reported on the semiannual compliance report, the two Diversion Diesel pump engines A & B (D-200A/B) are operating in compliance with 40 CFR 63 Subpart ZZZZ.

Section III: Additional Performance Test Information

§63.6620(i) Engine Operation Information

The following information must be determined during the performance test and submitted with the NOCS. See attached performance test report.

Engine Description

The following information applies to Diversion Diesel pump engines A & B (D-200A/B):

the engine model number;	KTA-38P
the year of purchase;	1986
the manufacturer's site-rated brake horsepower;	1,050
the total displacement;	37.8 Liters (12 cylinders)
the engine manufacturer;	Cummins

Ambient Test Conditions

The following information includes the average ambient conditions at the Jack Barstow Airport in Midland, Michigan.

PARAMETER	RUN 1	RUN 2	RUN 3	AVERAGE
Diesel Engine A				
Ambient Temperature (deg F)	41	43	48	44
Ambient Pressure (in)	30.35	30.33	30.3	30.33
Ambient Humidity (%)	41	41	38	40
Diesel Engine B				
Ambient Temperature (deg F)	45	52	53	50
Ambient Pressure (in)	30.00	29.92	29.88	29.93
Ambient Humidity (%)	52	46	45	48

Section III: Additional Performance Test Information, continued

Average percent Load Determination

Based on EPA's April 2013 Implementation Q&A document, Subpart ZZZZ does not specify that performance testing must be conducted at 100% load ±10% for existing non-emergency CI engines above 500 HP at major sources of HAP. Instead testing must be conducted according to 40 CFR 63.7(e). Performance testing was conducted based on representative performance (i.e. performance based on normal operating conditions) of the affected source.

The Diversion Diesel pump engines A & B (D-200A/B) rotations per minute (rpm) values during the three runs were recorded via process control data collection from a field mounted tachometer for each engine. The readings were taken once per minute for the duration of each run. The per-run average of these readings is presented above. The engine RPM ranges are listed in the following table:

Parameter	Design Max. RPM	Actual Max. RPM	Normal RPM	Actual RPM During Test
Engine RPM	2100	2100	1000-1800	Approx. 1800

Section IV: CPMS Evaluation

Introduction	A continuous parameter monitoring system is required by §63.6625(b) and Table 5. The parameter designated is the inlet temperature of the catalytic converter which is measured by a single thermocouple.
§63.6600(d) Standard	Existing non-emergency stationary CI RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions must comply with the emission limitations in Table 2c to this subpart and the operating limitations in Table 2b to this subpart which apply.