STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF THE DIRECTOR

In the matter of administrative proceedings against **FORD MOTOR COMPANY**, a corporation organized under the laws of the State of Delaware and doing business at 3001 Miller Road, City of Dearborn, County of Wayne, State of Michigan	AQD No. 19-2017 SRN: A8648

STIPULATION FOR ENTRY OF FINAL ORDER
BY CONSENT

This proceeding resulted from allegations by the Michigan Department of Environmental Quality (MDEQ) Air Quality Division (AQD) against Ford Motor Company (Company), a Delaware corporation doing business at 3001 Miller Road, Dearborn, Michigan, with State Registration Number (SRN) A8648. The MDEQ alleges that the Company is in violation of Renewable Operating Permit (ROP) MI-ROP-A8648-2015. Specifically, the MDEQ alleges that the Company operated EU-TOPCOAT when required air pollution control equipment was not operational, failed to maintain the air pollution control equipment for EU-GUIDECOAT, failed to maintain replacement parts required by the Operation and Maintenance Plan for FG-CONTROLS, and failed to maintain FG-CONTROLS in a satisfactory manner, as cited herein and in the Violation Notice dated October 14, 2016. The Company and MDEQ stipulate to the termination of this proceeding by entry of this Stipulation for Entry of a Final Order by Consent (Consent Order).

The Company and MDEQ stipulate as follows:

1. The Natural Resources and Environmental Protection Act, 1994 PA 451 (Act 451), MCL 324.101 *et seq.* is an act that controls pollution to protect the environment and natural resources in this State.

2. Article II, Pollution Control, Part 55 of Act 451 (Part 55), MCL 324.5501 *et seq.* provides for air pollution control regulations in this State.

3. The MDEQ was created as a principal department within the Executive Branch of the State of Michigan pursuant to Executive Order 2011-1 and has all statutory authority, powers, duties, functions and responsibilities to administer and enforce all provisions of Part 55.

4. The Director has delegated authority to the Director of the AQD (AQD Director) to enter into this Consent Order.

5. The termination of this matter by a Consent Order pursuant to Section 5528 of Part 55 is proper and acceptable.

6. The Company and the MDEQ agree that the signing of this Consent Order is for settlement purposes only and does not constitute an admission by the Company that the law has been violated.

7. This Consent Order becomes effective on the date of execution (effective date of this Consent Order) by the AQD Director.

8. The Company shall achieve compliance with the aforementioned regulations in accordance with the requirements contained in this Consent Order.

COMPLIANCE PROGRAM AND IMPLEMENTATION SCHEDULE

9. Monitoring and Recordkeeping

a. On August 17, 2017, the Company submitted to the AQD Detroit District Supervisor a revised operation and maintenance plan (OMP) for FG-CONTROLS and received MDEQ approval on August 31, 2017.

b. On and after the effective date of this Consent Order, the Company shall submit FG-CONTROLS maintenance and repair records in accordance with the requirements of the OMP to the AQD Detroit District Supervisor within 30 days after the end of each calendar quarter.

c. On August 17, 2017, the Company submitted to the AQD Detroit District Supervisor a Malfunction Abatement Plan (MAP) which meets the requirements of Mich Admin Code, R 336.1911(2) (Rule 911) and received MDEQ approval on August 31, 2017.

d. On and after the effective date of this consent order, the Company shall implement the OMP and MAP. The OMP and MAP and any subsequent revisions approved by the AQD Detroit District Supervisor, shall be attached hereto as Exhibit A of this Consent Order.

GENERAL PROVISIONS

10. This Consent Order in no way affects the Company's responsibility to comply with any other applicable state and federal, or local laws or regulations, including without limitation, any amendments to the federal Clean Air Act, 42 USC 7401 *et seq.*, Act 451, Part 55 or their rules and regulations, or to the State Implementation Plan.

11. This Consent Order constitutes a civil settlement and satisfaction as to the resolution of the violations specifically addressed herein; however, it does not resolve any criminal action that may result from these same violations.

12. Within thirty (30) days after the effective date of this Consent Order, the Company shall pay to the General Fund of the State of Michigan, in the form of a check made payable to the "State of Michigan" and mailed to the Michigan Department of Environmental Quality, Accounting Services Division, Cashier's Office, P.O. Box 30657, Lansing, Michigan 48909-8157, a settlement amount of $31,000.00, which includes AQD costs for investigation and enforcement. This total settlement amount shall be paid within thirty (30) days of the effective date of this Consent Order. To ensure proper credit, all payments made pursuant to this Consent Order shall include the "Payment Identification Number AQD40178" on the front of the check and/or in the cover letter with the payment. This settlement amount is in addition to any fees, taxes, or other fines that may be imposed on the Company by law.

13. On and after the effective date of this Consent Order, if the Company fails to comply with paragraph 9.b or 9.d of this Consent Order, the Company is subject to a stipulated fine of up to $3,500.00 per violation per day. The amount of the stipulated fines imposed pursuant to this paragraph shall be within the discretion of the MDEQ. Stipulated fines submitted under this Consent Order shall be by check, payable to the State of Michigan within thirty (30) days of written demand and shall be mailed to the Michigan Department of Environmental Quality, Accounting Services Division, Cashier's Office, P.O. Box 30657, Lansing, Michigan 48909-8157. To ensure proper credit, all payments shall include the "Payment Identification Number AQD40178-S" on the front of the check and/or in the cover letter with the payment. Payment of stipulated fines shall not alter or modify in any way the Company's obligation to comply with the terms and conditions of this Consent Order.

14. The AQD, at its discretion, may seek stipulated fines or statutory fines for any violation of this Consent Order which is also a violation of any provision of applicable federal and state law, rule, regulation, permit, or MDEQ administrative order. However, the AQD is precluded from seeking both a stipulated fine under this Consent Order and a statutory fine for the same violation.

15. To ensure timely payment of the settlement amount assessed in paragraph 12 and any stipulated fines assessed pursuant to paragraph 13 of this Consent Order, the Company shall pay an interest

penalty to the State of Michigan each time it fails to make a complete or timely payment under this Consent Order. The interest payment shall be determined at a rate of interest that is equal to one percent (1%) plus the average interest rate paid at auctions of 5-year United States treasury notes during the six months immediately preceding July 1 and January 1, as certified by the state treasurer, compounded annually, and using the full increment of amount due as principal, calculated from the due date specified in this Consent Order until the date that delinquent payment is finally paid in full. Payment of an interest penalty by the Company shall be made to the State of Michigan in accordance with paragraph 13 of this Consent Order. Interest payments shall be applied first towards the most overdue amount or outstanding interest penalty owed by the Company before any remaining balance is applied to subsequent payment amount or interest penalty.

16. The Company agrees not to contest the legal basis for the settlement amount assessed pursuant to paragraph 12. The Company also agrees not to contest the legal basis for any stipulated fines assessed pursuant to paragraph 13 of this Consent Order, but reserves the right to dispute in a court of competent jurisdiction the factual basis upon which a demand by MDEQ of stipulated fines is made. In addition, the Company agrees that said fines have not been assessed by the MDEQ pursuant to Section 5529 of Part 55 and therefore are not reviewable under Section 5529 of Part 55.

17. This compliance program is not a variance subject to the 12-month limitation specified in Section 5538 of Part 55.

18. This Consent Order shall remain in full force and effect for a period of at least three (3) years. Thereafter, the Consent Order shall terminate only upon written notice of termination issued by the AQD Director. Prior to issuance of a written notice of termination, the Company shall submit a request, to the AQD Director at the Michigan Department of Environmental Quality, Air Quality Division, P.O. Box 30260, Lansing, Michigan 48909-7760, consisting of a written certification that the Company has fully complied with all the requirements of this Consent Order and has made all payments including all stipulated fines required by this Consent Order. Specifically, this certification shall include: (i) the date of compliance with each provision of the compliance program and the date any payments or stipulated fines were paid; (ii) a statement that all required information has been reported to the AQD Detroit District Supervisor; (iii) confirmation that all records required to be maintained pursuant to this Consent Order are being maintained at the facility; and, (iv) such information as may be requested by the AQD Director.

19. In the event the Company sells or transfers the facility, with SRN A8648, it shall advise any purchaser or transferee of the existence of this Consent Order in connection with such sale or transfer. Within thirty (30) calendar days, the Company shall also notify the AQD Detroit District Office Supervisor, in writing, of such sale or transfer, the identity and address of any purchaser or transferee, and confirm the fact that notice of this Consent Order has been given to the purchaser and/or transferee. As a condition of the sale, the Company must obtain the consent of the purchaser and/or transferee, in writing, to assume all of the obligations of this Consent Order. A copy of that agreement shall be forwarded to the AQD Detroit District Supervisor within thirty (30) days of assuming the obligations of this Consent Order.

20. Prior to the effective date of this Consent Order and pursuant to the requirements of Sections 5511 and 5528(3) of Part 55, the public was notified of a 30-day public comment period and was provided the opportunity for a public hearing.

21. Section 5530 of Part 55 may serve as a source of authority but not a limitation under which the Consent Order may be enforced. Further, Part 17 of Act 451 and all other applicable laws and any other legal basis or applicable statute may be used to enforce this Consent Order.

22. The Company hereby stipulates that entry of this Consent Order is a result of an action by MDEQ to resolve alleged violations of its facility located at 3001 Miller Road, Dearborn, Michigan. The Company further stipulates that it will take all lawful actions necessary to fully comply with this Consent Order, even if the Company files for bankruptcy in the future. The Company will not seek discharge of the settlement amount and any stipulated fines imposed hereunder in any future bankruptcy proceedings, and the Company will take necessary steps to ensure that the settlement amount and any future stipulated fines are not discharged. The Company, during and after any future bankruptcy proceedings, will ensure that the settlement amount and any future stipulated fines remain an obligation to be paid in full by the Company to the extent allowed by applicable bankruptcy law.

The undersigned certifies that he/she is fully authorized by the Company to enter into this Consent Order and to execute and legally bind the Company to it.

FORD MOTOR COMPANY

Corey M. MacGillivray
Assistant Secretary

Print Name and Title

Signature Date:

The above signatory subscribed and sworn to before me this 30 day of Nov., 2017.

Notary Public Signature

LINDA G. BINGHAM
NOTARY PUBLIC - STATE OF MICHIGAN
COUNTY OF WAYNE
My Commission Expires August 15, 2023
Acting in the County of

Approved as to Content:

Lynn Fiedler, Division Director
AIR QUALITY DIVISION
DEPARTMENT OF
ENVIRONMENTAL QUALITY

Dated: 12/13/17

Approved as to Form:

Neil Gordon, Section Head
ENVIRONMENTAL REGULATION SECTION
ENVIRONMENT, NATURAL RESOURCES,
AND AGRICULTURE DIVISION
DEPARTMENT OF ATTORNEY GENERAL

Dated: 12/11/2017

FINAL ORDER

The Director of the Air Quality Division having had opportunity to review the Consent Order and having been delegated authority to enter into Consent Orders by the Director of the Michigan Department of Environmental Quality pursuant to the provisions of Part 55 of Act 451 and otherwise being fully advised on the premises,

HAS HEREBY ORDERED that the Consent Order is approved and shall be entered in the record of the MDEQ as a Final Order.

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

Lynn Fiedler, Division Director
Air Quality Division

Effective Date: 12/13/17

Dearborn Truck Plant

Title V Renewable Operating Permit
MI-ROP-A8648-2015

Operating and Maintenance Plan / Malfunction Abatement Plan
For Flexible Group - FGCONTROLS

Modified August 2017

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DESCRIPTION OF CONTROL EQUIPMENT

A typical paint booth emission control system consists of three steps: filtration, concentration and destruction. Filtration is achieved through the use of dry filters in a Filter House. Concentration of VOCs is accomplished through continuous adsorption and desorption process in a Zeolite Concentrator or Fluidized Bed Concentrator. The concentrated air stream is then routed to a Regenerative Thermal Oxidizer or Thermal Oxidizer for destruction. Emissions from paint oven and e-coat dip tank operations are routed directly to a Regenerative Thermal Oxidizer for destruction.

PREVENTATIVE MAINTENANCE PROGRAM

Identification of Supervisory Personnel

The Paint Area Manager and Paint Manufacturing Engineering Manager are responsible for overseeing the inspection, maintenance and repair of emission control devices at the Dearborn Truck Plant.

Description of Items and/or Conditions that Shall Be Inspected/Frequency of Inspection or Maintenance

Recommended equipment inspections are performed on a routine basis to ensure the equipment is maintained and operated in a satisfactory manner. Specific inspection and maintenance tasks are incorporated into the facility's electronic Maximo For Maintenance system (MFM) that stores inspection and maintenance task information and automatically generates work orders and tracks completion dates. The table below lists critical preventive maintenance activities performed to assure optimum operating performance of the emission controls systems at the Dearborn Truck Plant. All records of maintenance inspections including the dates, inspection results and reasons for repairs, if made, are located at the Paint Shop and maintained for five years. Preventive maintenance tasks are subject to change based on best engineering judgment and technological/equipment improvements.

Control Device	Frequency	MFM PM Number	Preventative Maintenance MFM Task Title/Description of Maintenance Activity
Rotary Zeolite Concentrator	Annually	TPEOS113	Desorption Temperature Calibration Validation of thermocouple accuracy or recalibration of each thermocouple a minimum of once every 12 months. The thermocouple can be replaced in lieu of validation.
Rotary Zeolite Concentrator	Quarterly	34271	Pressure Drop Check Observe and record the pressure drop across the concentrator a minimum of once every calendar quarter.
Rotary Zeolite Concentrator	Annually	66901	Zeolite Media Observation Perform internal observation of adsorbent materials for contamination and erosion a minimum of once every 18 months.[1]
Rotary Zeolite Concentrator	Annually	67030, 67109	Rotary Zeolite Concentrator Seal Check Inspect zeolite wheel seal material for cracks, wear, tear etc. at least once every 12 months.
Rotary Zeolite Concentrator	Semi-Annually	67014, 67101, 67102	Concentrator Proximity Switch Solenoid Valve Check Inspect proximity switches including flags, screws, cables, etc. at least once every 6 months.
Rotary Zeolite Concentrator, Regenerative Thermal Oxidizer	Quarterly	66856	E-Coat/ Enamel Booths Exhaust Proximity Switch Solenoid Valve Check Inspect proximity switches including flags, screws, cables, etc. at least once per quarter.
Rotary Zeolite Concentrator	Quarterly	67014, 67101, 67102	Concentrator Proximity Switch Solenoid Valve Check Inspect proximity switches including flags, screws, cables, etc. at least once per quarter.
Rotary Zeolite Concentrator, Prime Fluidized Bed Concentrator	Semi-Annually	36960, 36961, 36962, 36963, 66852	Abatement System IR Survey Conduct a thermal scan inspecting power cables from VFD to motor and from the substation to the VFD at least semi-annually.

Rotary Zeolite Concentrator, Prime Fluidized Bed Concentrator, Regenerative Thermal Oxidizer	Annually	39289	Clean VFDs Thoroughly clean the interior of the air supply fan VFDs including filter changes, removal of debris, etc. at least once every 12 months.
Prime Fluidized Bed Concentrator	Annually	TPEOS113	Desorption Temperature Calibration Validation of thermocouple accuracy or recalibration of each thermocouple a minimum of once every 12 months. The thermocouple can be replaced in lieu of validation.
Prime Fluidized Bed Concentrator	Annually	34251	Carbon Media Observation Perform internal observation of adsorbent materials for contamination and erosion a minimum of once every 18 months.[1]
Regenerative Thermal Oxidizer	Semi-Annually	67050, 67175, 67176, 67177, 67178	RTO IR Survey Conduct a thermal scan inspecting power cables from VFD to motor and from the substation to the VFD at least semi-annually. Scan entire RTO vessel for hot spots.
Regenerative Thermal Oxidizer	Quarterly	34916, 36964, 67720	Oxidizer Proximity Switch Solenoid Valve Check Inspect proximity switches including flags, screws, cables, etc. at least once per quarter.
Regenerative Thermal Oxidizer	Annually	TPEOS113	Combustion Chamber Temperature Calibration Validation of thermocouple accuracy or recalibration of each thermocouple a minimum of once every 12 months. The thermocouple can be replaced in lieu of validation.
Regenerative Thermal Oxidizer	Annually	67035	Cold Face Check / Heat Exchange-Heat Transfer Media Inspection Perform a heat exchange/heat transfer media inspection a minimum of once every 18 months.[1]
Regenerative Thermal Oxidizer	Annually/ Semi-Annually	67710, 67048	Inlet/Outlet Valve Check /Valve Seals Condition Inspection Perform an inspection of the valve seals condition a minimum of once every 18 months.[1]
Prime Nitrogen Generator	Semi Annual	34442	Inspection and Re-Building of Valves and Actuators Perform valve and actuator inspection and rebuild valves a minimum of once every 12 months.

[1] *The requirement to address this issue is satisfied if a performance test (i.e., stack test) has been performed on the control device within the prior 18 month period.*

Identification of Major Replacement Parts to be Maintained in Inventory for Quick Replacement

The emission control devices are equipped with Programmable Logic Controllers to identify conditions that may contribute to malfunctions by generating warning faults and alarms. Typically, only small minor repairs are required (i.e. replacement of proximity switches). However, a list of recommended major replacement parts has been incorporated in the plant's MFM system and part availability is routinely verified (i.e., quarterly). Attached is a list of the spare parts maintained at the Dearborn Truck Plant (See **Attachment 1** - DTP Spare Parts List).

Addressing Concerns Identified During Preventative Maintenance Completion

When concerns are identified during preventative maintenance activities, assessment, and/or general observations, they are addressed as soon as practicable. When defects are identified (e.g. warped thermocouples), the equipment performance is then evaluated (via testing, calibrating, etc.). If replacement is deemed necessary, it is completed immediately.

FLUIDIZED BED BEADED ACTIVATED CARBON (BAC) REPLACEMENT/REACTIVATION

Dearborn Truck Plant personnel will schedule a BAC change out every seven weeks, pending further investigation. The plant personnel will also monitor the beaded activated carbon's (BAC) apparent density (e.g. the bulk density of the BAC or the weight of a known volume of BAC) by taking a 100 cc sample of the BAC from the system and determining its weight, at least weekly.

When a BAC change-out is required, the process involves opening a valve between the adsorber and desorber in order to expedite removal of the BAC. After the change out is completed, the valve must be put back into the proper position as the system stabilizes or the rate at which the BAC travels from the Adsorber to the Desorber will be insufficient to maintain proper BAC levels. In order to mitigate BAC flow concerns, in April 2017, the facility installed a more efficient connection line between the Adsorber and the Desorber to eliminate the existing low slope/flat section present within the previous delivery line.

After removal, the BAC is sent to a reactivation facility where, through exposure to high temperature and steam, the AD is reduced to that of clean BAC. BAC that has been reactivated more than three times will **NOT** be utilized within the Ford DTP system. Records of BAC replacement and reactivation will be stored and maintained on the Dearborn Truck Plant shared drive.

CONTROLLED EMISSION SOURCES

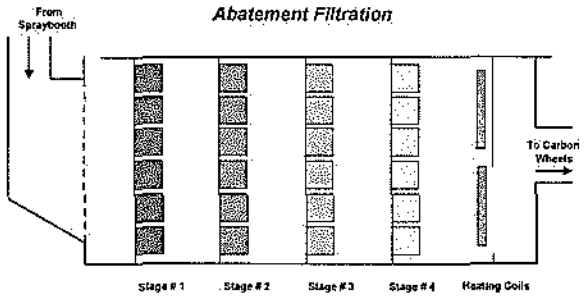
Two rotary zeolite adsorption units followed by a regenerative thermal oxidizer for control of VOC emissions from the EU-ECOAT dip tank and EU-TOPCOAT clearcoat automatic sections; a regenerative thermal oxidizer for control of VOC emissions from the EU-ECOAT curing oven, EU-GUIDECOAT oven, and EU-TOPCOAT ovens; and a fluidized carbon concentrator followed by a thermal oxidizer for control of VOC emissions from the EU-GUIDECOAT booth automatic sections.

Emission Units: All emission units and flexible groups associated with automotive painting.

EMISSION CONTROL EQUIPMENT

Filter House – Abatement Filtration

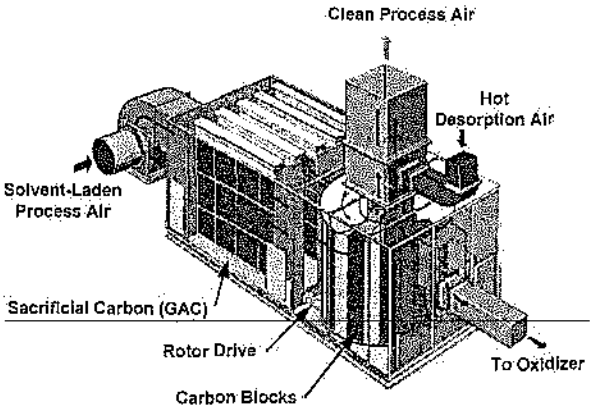
As the solvent laden air passes through four different stages of filtration, smaller and smaller particulate sizes are removed before being directed to the Rotary Zeolite or Fluidized Bed Concentrator. Differential pressure gauges are located between filtration stages and are monitored to determine the frequency of filter changes. Recommended ranges for differential pressures stages are <1.0 inches water column for Stage 1, <1.25 inches water column for Stage 2, <1.25 inches water column for Stage 3 and <1.5 inches water column for Stage 4. Depending on the type and age of the equipment, the Programmable Logic Controller (PLC) is programmed to sound an alarm if the differential pressure is outside the required operating range. The facility also inspects and trends the differential pressures on a routine basis to schedule the next required filter change.

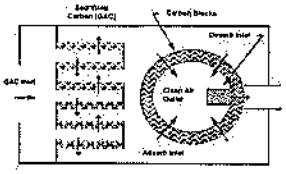


Rotary Zeolite Concentrator – Zeolite Adsorption System (ZAS)

Concentration of VOCs is accomplished through a continuous adsorption and desorption process. The Zeolite Adsorption System consists of two sections of sacrificial carbon and the rotor concentrator. Exhaust air from the Filterhouse enters the ZAS and is directed through a series of sacrificial granular activated carbon columns or trays. The air is then routed to the rotor concentrator. The rotor concentrator is sub-divided into two sections: a large adsorption zone and a small desorption zone. Adsorption is the process by which the VOC molecules present in the exhaust air are collected and retained on the surface of adsorbent media. As the rotary concentrator rotates, VOCs is adsorbed onto the surface of zeolite blocks. Adsorbed VOC is then removed in the desorption zone by hot air. During the desorption cycle, the heat releases the previously absorbed VOC molecules into the isolated desorption air stream and is then routed to an oxidizer for destruction. The desorption air temperature (approximately 390°F typically) is monitored through the Programmable Logic Controller. Currently the Programmable Logic Controller (PLC) is programmed to sound an alarm if the desorption temperature is outside the required operating range.

In order to maintain the system, the zeolite concentrator seals are inspected annually for cracks, wear and tear. The facility has determined that improperly sized seals may cause premature wearing; therefore, a standard for seal dimensions (including holes) has been established and will be adhered to during replacement activities. In addition, when cracked, worn or torn seals are identified, they will be replaced with new seals as soon as practicable.



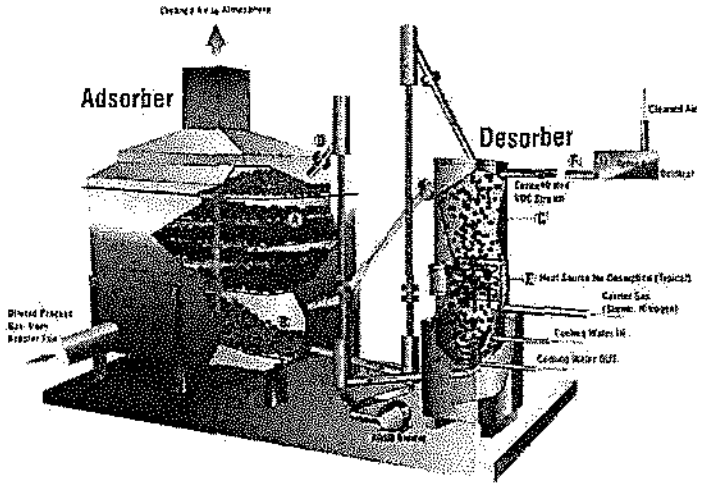


Fluidized Bed Concentrator

Concentration of VOCs is accomplished through a continuous adsorption and desorption process. The Fluidized Bed consists of two sections: the adsorber and desorber. Exhaust air from the Filterhouse enters the Fluidized Bed and is directed through a series of perforated trays loaded with beaded activated carbon (BAC). The BAC strips the solvents from the process gas, after which the process gas exhausts to atmosphere. BAC is continuously added to the top fluidized tray, displacing the BAC on the top tray toward the opposite end where a downcomer guides the overflow BAC to the next lower tray in system. The BAC must then traverse the full length of this tray to reach the next downcomer. Finally, the BAC is extracted from the bottom of the Adsorber and is airlifted to the Desorber. In the Desorber, the BAC flows as a packed bed vertically downward through the Desorber. The Desorber is equipped with electrical heating elements to drive off the solvents from the BAC. It is also supplied with a counterflow inert gas stream from the Nitrogen Generator (see note below) that carries away the desorbed concentrated solvents from the Desorber to the destruction device. The clean BAC is returned to the adsorber top tray for reuse. The middle bed thermocouple (approximately 600°F) is monitored through the Programmable Logic Controller and is programmed to sound an alarm if the temperature is outside the required operating range.

In order to reduce malfunctions associated with this equipment, a redundant SLA fan VFD was installed. In addition, an air conditioning unit was installed in the Prime control room to prevent overheating of the components instrumental in the functioning of the equipment.

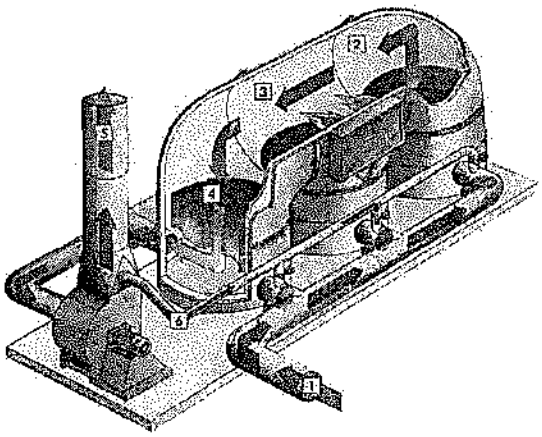
Note: The nitrogen generator is comprised of two large process tanks, an oxygen sensor, a storage tank and connecting pipework with valves. The two large process tanks contain a carbon material, which under pressure is engineered to capture oxygen molecules from compressed air originating from the plant. Pure nitrogen from the process tanks is transferred to the storage tank. As pressure is released from the process tank, the oxygen is released from the carbon and exhausted to atmosphere. The piping, valves and two process tanks allow the process to cycle between the two main tanks, resulting in a continuous stream of pure nitrogen. The oxygen sensor continuously monitors the quality of the nitrogen produced by the generator which is then fed to the prime abatement desorber. In an effort to reduce malfunctions associated with the nitrogen generator, the facility built a heated structure to enclose the system in January 2017 and reduced downtime caused by freezing valves.

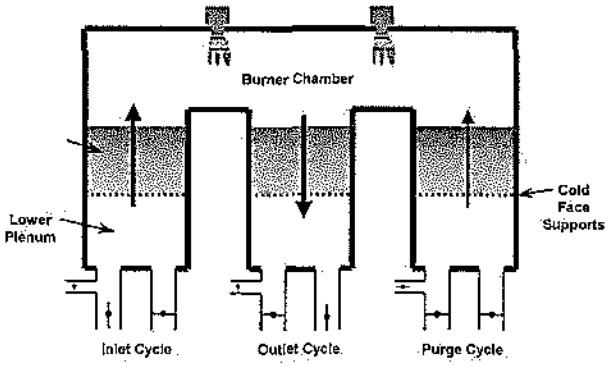


Regenerative Thermal Oxidizer (RTO)

The Regenerative Thermal Oxidizer consists of multiple towers installed in a line, each containing a packed bed of inert ceramic based media. Ford RTOs typically consist of three towers that continuously alternate from inlet, outlet and purge stages. Incoming concentrated solvent-laden exhaust from the Rotary Zeolite Adsorption System flows into the bottom of the first tower and up through the hot ceramic saddles or ceramic block. Air is preheated to within 60-100°F of the combustion temperature of approximately 1480°F. The clean hot exhaust gas then flows down through the second ceramic filled tower and transmits most of its thermal energy to the ceramic media before being discharged. After 1-2 minutes the dampers change positions and the air flow is reversed. Solvent laden air flows through the second tower that was preheated. The combustion chamber temperature is monitored through the Programmable Logic Controller. The Programmable Logic Controller (PLC) is programmed to sound an alarm if the combustion chamber temperature is outside the required operating range.

Note: In order to reduce malfunctions associated with this equipment, a redundant SLA fan VFD was installed July 2017.





Direct Fired Thermal Oxidizer (DFTO)

A Direct Fired Thermal Oxidizer (DFTO) consists of a burner operated inside an open insulated chamber. Solvent emissions from the Fluidized Bed Concentrator's desorber are directed into the combustion chamber maintained at temperature by the burner (approximately 1420°F). The solvent concentrations are normally sufficient to sustain the combustion chamber at temperature. Additional cooling air is introduced into the combustion chamber by a separate blower to utilize any additional energy provided by the solvent above the specified chamber temperature.

CORRECTIVE PROCEDURES

Description of the Corrective Procedures Taken in the Event of a Malfunction or Failure

When an abatement equipment fault condition/fault status occurs, plant personnel respond immediately and make every effort to address the issue until the fault is resolved. All actions will be documented in the plant malfunction abatement report/4D.

When a fault condition lasts for more than 15 minutes, the condition is elevated to the Plant Environmental Control Engineer (PECE), Plant Engineering Manager, Paint ME Manager and Paint Maintenance Supervisor to ensure all required resources are available (if necessary) and alternative solutions have been evaluated to resolve the issue. The notification includes the piece of abatement equipment the fault occurred on, the time the fault occurred and the estimated time for repairs.

For all events which exceed 2 hours in duration, further action is taken (i.e. contacting a third party if necessary, contacting Global Paint Engineering, etc.) and a follow-up notification will be sent stating the current status of the incident and information on the cause of the fault. The notification will be sent to the PECE, Paint ME Manager, Plant Engineering Manager, Paint Area Manager, Assistant Plant Manager and Plant Manager.

To minimize emissions impact to the environment caused by abatement equipment malfunctions, the facility will:

1. Utilize redundant equipment and readily available spare parts where possible to reduce the amount of downtime.
2. Identify root cause, interim and permanent corrective actions and evaluate permanent corrective actions to prevent reoccurrence and minimize emissions. The malfunction abatement plan or critical spare parts list will be updated as required to ensure implementation of all identified corrective actions.

3. In the event that the abatement equipment will be in an off-line condition for an extended time period, the plant will evaluate all options for reducing excess emissions, including production curtailment, elimination of planned/scheduled overtime production as well as sequenced shutdown of the emission source until the abatement equipment can be returned to normal operation.

Once the abatement equipment is back on-line, an Air Emission Control Equipment Breakdown Report /4D is completed with details on the piece of abatement equipment the fault occurred on, the duration of the breakdown (i.e., date, times, shift type), interim corrective actions, root cause of the fault, names and times that any service representatives were contacted and permanent corrective actions. The completed report is submitted to the PECE. The information is also routed to the Environmental Quality Office and Global Paint Engineering office for review and analysis. The information on the Air Emission Control Equipment Breakdown Report/4D will be used to adjust emission calculations to account for the breakdown.

In addition, the PECE will notify the MDEQ Air Quality Division, during extended breakdown events (e.g. events greater than 2 hours). The notification will be made as soon as reasonably possible, but not later than 4 hours after becoming aware of the event, Monday – Friday , 6:00am to 4:00pm, or the following business day after 4pm and on weekends. A written report that identifies the emission source and all of the elements listed below will be submitted to the MDEQ within 10 days of the malfunction event.

(a) The periods of excess emissions that occurred during start-up or shutdown were short and infrequent and could not have been prevented through careful planning and design.
(b) The excess emissions that occurred during start-up or shutdown were not part of a recurring pattern indicative of inadequate design, operation, or maintenance.
(c) The excess emissions caused by a bypass (an intentional diversion of control equipment) were unavoidable to prevent loss of life, personal injury, or severe property damage.
(d) The facility was operated at all times in a manner consistent with good practice for minimizing emissions.
(e) The frequency and duration of operating in start-up or shutdown mode were minimized to the maximum extent practicable.
(f) All reasonably possible steps were taken to minimize the impact of the excess emissions on ambient air quality.
(g) All emission monitoring systems were kept in operation if at all possible.
(h) The actions during the period of excess emissions were documented by contemporaneous operating logs or other relevant evidence as provided by R 336.1912.
(i) Excess emissions presenting an imminent threat to human health, safety, or the environment were reported to the department as soon as possible.
(j) Unless otherwise specified in the facility's permit, other excess emissions were reported as provided in R 336.1912. If requested by the department, a person shall submit a full written report that includes the known causes, the corrective actions taken, and the preventive measures to be taken to minimize or eliminate the chance of recurrence.
(k) Any information submitted to the department under this sub rule shall be properly certified in accordance with the provisions of R 336.1912.

COMPLIANCE ASSURANCE MONITORING (CAM) REQUIREMENTS

The requirements of Compliance Assurance Monitoring (CAM), as promulgated under 40 CFR 64.2, apply to a pollutant-specific emissions unit at a major source that is required to obtain a part 70 or 71 permit if the unit satisfies all of the following criteria:

(1) The unit is subject to an emission limitation or standard for the applicable regulated air pollutant (or a surrogate thereof), other than an emission limitation or standard that is exempt under 40 CFR 64.2(b)(1) of this section;
(2) The unit uses a control device to achieve compliance with any such emission limitation or standard; and
(3) The unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source. For purposes of this paragraph, ``potential pre-control device emissions'' shall have the same meaning as ``potential to emit,'' as defined in Sec. 64.1, except that emission reductions achieved by the applicable control device shall not be taken into account.

In accordance with 40 CFR 64.3, to provide a reasonable assurance of compliance with emission limitations or standards for the anticipated range of operations at a pollutant-specific emissions unit, monitoring under this part, the CAM Plan shall meet the following general criteria:

(1) The owner or operator shall design the monitoring to obtain data for one or more indicators of emission control performance for the control device and any associated capture system. Indicators of performance may include, but are not limited to, direct or predicted emissions, process and control device parameters that affect control device (and capture system) efficiency or emission rates, or recorded findings of inspection and maintenance activities conducted by the owner or operator.

(2) The owner or operator shall establish an appropriate range(s) or designated condition(s) for the selected indicator(s) such that operation within the ranges provides a reasonable assurance of ongoing compliance with emission limitations or standards for the anticipated range of operating conditions. In addition, unless specifically stated otherwise by an applicable requirement, the owner or operator shall monitor indicators to detect any bypass of the control device (or capture system) to the atmosphere, if such bypass can occur based on the design of the pollutant-specific emissions unit.
(3) The design of indicator ranges or designated conditions may be based on a single maximum or minimum value if appropriate, may be expressed as a function of process variables, may be expressed as maintaining the applicable parameter in a particular operational status or designated condition, or may be established as interdependent between more than one indicator.

Under 40 CFR 64.4(4)(b), for a CAM Plan, the owner or operator shall submit a justification for the proposed elements of the monitoring plan and if the proposed performance specifications include differences from manufacturer recommendations, the plan shall explain the reasons for the differences.

At the Dearborn Truck Plant, the following sources are subject to CAM under the above requirements:

- EU-ECOAT (utilizing rotary zeolite concentrator and regenerative thermal oxidizer for compliance)
- EU-GUIDECOAT (utilizing fluidized bed concentrator and thermal oxidizer for compliance)
- EU-TOPCOAT (utilizing rotary zeolite concentrator and regenerative thermal oxidizer for compliance)

Rotary Zeolite Concentrators
Desorption Temperature and Calibration: Monitor desorption gas inlet temperature to ensure it is not more than 15 degrees Fahrenheit below the temperature recorded during the most recent performance test (349°F) and calibrate or replace the thermocouple a minimum of once every 12 months to ensure desorption is maintained at a temperature necessary to concentrate volatile organic compounds from the incoming air stream for delivery to the regenerative thermal oxidizer.

Pressure Drop Check: Observe and record the pressure drop across the concentrator a minimum of once every calendar quarter to ensure that solvent-laden air may pass into the concentrator media as designed.

Zeolite Media Observation: Perform an internal observation of adsorbent materials for contamination and erosion a minimum of once every 18 months to ensure that solvent-laden air may pass into the concentrator media as designed (unless tested within the prior 18 months).

Fluidized Bed Concentrators
Desorption Temperature and Calibration: Monitor middle bed temperature to ensure it is not more than 15 degrees Fahrenheit below the temperature recorded during most recent performance test (585°F) and calibrate or replace the thermocouple a minimum of once every 12 months to ensure air stream is maintained at a temperature necessary to concentrate volatile organic compounds from the air stream for delivery to the thermal oxidizer.

Carbon Media Observation: Perform an internal observation of adsorbent materials for contamination and erosion a minimum of once every 18 months to ensure that solvent-laden air may pass into the concentrator media as designed (unless tested within the prior 18 months).

Regenerative Thermal Oxidizers
Combustion Chamber Temperature and Calibration: Monitor combustion chamber temperature to ensure it is not more than 50 degrees Fahrenheit below the most recent performance test (1465°F) and calibrate or replace the thermocouple a minimum of once every 12 months to ensure air stream is maintained at a temperature necessary to destroy the volatile organic compound within the regenerative thermal oxidizer.

Cold Face Check / Heat Exchange-Heat Transfer Media Inspection: Perform a heat exchange/heat transfer media a minimum of once every 18 months to ensure that solvent-concentrated air may pass into the oxidizer as designed (unless tested within the prior 18 months).

Inlet/Outlet Valve Check /Valve Seals Condition Inspection: Perform an inspection of the valve seals condition and verify valve timing/synchronization a minimum of once every 18 months to ensure that the proper retention time for destruction of volatile organic compounds within the oxidizer is maintained (unless tested within the prior 18 months).

Thermal Oxidizers
Combustion Chamber Temperature and Calibration: Monitor combustion chamber temperature to ensure it is no more than 50 degrees Fahrenheit below the most recent performance test (1370°F) and calibrate or replace the thermocouple a minimum of once every 12 months to ensure air stream is maintained at a necessary temperature to destroy the volatile organic compound within the thermal oxidizer.

Monitoring of these key operational parameters described in this section meet the requirements of CAM as defined in 40 CFR Part 64 for each of the affected emission units.

OPERATING AND MAINTENANCE PLAN REVIEWS

This Operating and Maintenance/Malfunction Abatement Plan will be reviewed and updated as required to ensure the equipment is maintained and operated in a satisfactory manner and consistent with good air pollution control practices for minimizing emissions. Preventive maintenance tasks and actions taken to respond to malfunctions/faults will be reviewed and revised (if necessary) based on best engineering judgment and technological/equipment improvements.

Reviews of this Operating and Maintenance/Malfunction Abatement Plan will be periodically conducted by the PECE and the Paint ME Manager or his designee. Reviews will be completed at least annually or following evaluation of an abatement equipment malfunction (in which it has been determined that a revision is necessary).

Records of the Operating and Maintenance Plan review will be maintained by the PECE for a period of 5 years.

REVISION LOG

Date	Page	Revision	Comments
05/15/17	1	Updated title to include "Malfunction Abatement Plan" and revised date to "May 2017"	
05/15/17	2	Edits made to Preventative Maintenance section text	
05/15/17	2	Added "Rotary Zeolite Concentrator Seal Check" PM to the Preventative Maintenance Program section.	This PM addresses concerns related to equipment (e.g. carbon concentrator seals) referenced in an October 14, 2016 Violation Notice
05/15/17	2	Added "Concentrator Proximity Switch Solenoid Valve Check" PM to the Preventative Maintenance Program section.	This PM addresses concerns associated with proximity switches documented within the DTP ROP 2016 Semi-Annual/Annual Deviation Report.
05/15/17	2	Added "Abatement System IR Survey" PM to the Preventative Maintenance Program section.	This PM addresses concerns related to equipment (e.g. VFDs) referenced in an October 14, 2016 Violation Notice
05/15/17	2	Added "Clean VFD" PM to the Preventative Maintenance Program section.	This PM addresses concerns related to equipment (e.g. VFDs) referenced in an October 14, 2016 Violation Notice
05/15/17	3	Added "RTO IR Survey" PM to the Preventative Maintenance Program section.	This PM addresses concerns related to equipment (e.g. VFDs) referenced in an October 14, 2016 Violation Notice
05/15/17	3	Added "Oxidizer Proximity Switch Solenoid Valve Check" PM to the Preventative Maintenance Program section.	This PM addresses concerns associated with proximity switches documented within the DTP ROP 2016 Semi-Annual/Annual Deviation Report.
05/15/17	3	Added "Inspection and Re-Building of Valves and Actuators" PM to the Preventative Maintenance Program section.	This PM addresses concerns related to equipment (e.g. Nitrogen Generator) referenced in an October 14, 2016 Violation Notice
05/15/17	3	Removed the "Typical Emission Control Equipment Replacement Parts Inventory Table" and added an Attachment 1 – DTP Spare Parts List.	The list was expanded to document how the facility reduces downtime associated with malfunction events; thereby reducing emissions impact.
05/15/17	3	Revised the "Fluidized Bed Carbon Bead Replacement/Regeneration" language.	The revised language includes actions taken to mitigate malfunctions associated with carbon flow. These actions address concerns referenced in an October 14, 2016 Violation Notice.
05/15/17	4-5	Revised "Fluidized Bed Concentrator" section. Added text related to the Nitrogen Generator.	The revised language addresses corrective/preventative actions taken to mitigate downtime related to the fluidized bed SLA Fan VFD as well as the nitrogen generator
05/15/17	5-6	Revised the Corrective Procedures section	Added language documenting the actions the plant will

			take to minimize emissions impact during malfunctions.
05/15/17	7-8	Updated "Operating and Maintenance Plan Reviews" section	Revised text to specify the frequency of review for this plan
05/15/17	8	Added a Revision Log	
07/14/17	3	Added " Addressing Concerns Identified During Preventative Maintenance Completion" section	Added this language to document how concerns identified within PMs, third party assessments and/or general observations are addressed (e.g. warped thermocouples, seals, etc.)
07/14/17	3	Revised the "Fluidized Bed Beaded Activated Carbon (BAC) Replacement/Reactivation" section	Revised language to reflect new change-out process for BAC
07/14/17	4	Revised "Rotary Zeolite Concentrator-Zeolite Adsorption System (ZAS) section	Revised language to include actions taken to address worn, torn or cracked seals
07/14/17	4	Revised "Fluidized Bed Concentrator" section	Removed reference to Wet Electrostatic Precipitator
07/14/17	5	Revised "Regenerative Thermal Oxidizer (RTO)" section	Removed reference to Regenerative Catalytic Oxidizer and added note documenting the installation of the redundant SLA fan VFD
07/14/17	6	Revised "Corrective Procedures" section	Revised language to document how immediate action is taken to address all fault conditions
07/24/17	2	Updated frequency of Rotary Zeolite Concentrator PMs 67014, 67101, 67102 from every 3 months to every 6 months to match recommended frequency	Corrected administrative error in Manual.
07/24/17	2	E-Coat/ Enamel Booths Exhaust Proximity Switch Solenoid Valve Check PM 66856	Historical PM facility has been completing. Omitted from Manual as an oversight.
08/17/17	7	Revised "Corrective Procedures" section	Revised language to clarify actions taken to minimize emissions during abatement malfunctions and to document notification to the AQD during extended downtime
08/17/17	8	Revised "Compliance Assurance Monitoring (CAM) Requirements" section	Removed "presumptively acceptable" references

Attachment 1 - DTP Spare Parts List

Equipment	Manufacturer	Critical part	Part #	General Stores MCC Number/ In-line Spare
Prime Abatement		Guidecoat Carbon Circulation Blower		In-Line Spare
Prime Abatement		Guidecoat SLA Fan VFD		In-Line Spare
Topcoat RTO		Topcoat SLA Fan VFD		In-Line Spare (July 2017)
Carbon Wheel/RTO	Vitran	Inlet pressure transducer	3745CEDDH	1012708001
Carbon Wheel/RTO	Vickers	Hydraulic valve	DG4V-35-2A-M-FPA3WL-B5-60EN21	1011370230
Prime Abatement	Vickers	Hydraulic pump	PVQ10-A2R-SE1S-20-C21-12	1113300901
Pump	Graco	Solvent Pump	PRP-180-SOLREC	1013369295
Carbon Wheel/RTO	Vickers	Hydraulic flow control	DGMFN-3-Y-A2W-B2W-41	1010714323
Carbon Wheel/RTO	Vickers	Pump	25V17A.IC22R	1013322693
Prime Abatement	Vickers	Hydraulic pump	PVQ20B2RSE1S21	1013335679
Carbon Wheel/RTO	US Electric Motors	RTO exhaust fan	6729-R611227	1013317105
Carbon Wheel/RTO	US Electric Motors	Pump motor	ID# B11-6791-M, 10HP	1013317113
Carbon Wheel/RTO	US Electric Motors	Hydraulic pump motor	ID-No. B10-6789-M	1013317118
Carbon Wheel/RTO	US Electric Motors	Hydraulic pump motor	ID-No. B11-3791-M	1013317123

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Equipment	Manufacturer	Critical part	Part #	General Stores MCC Number/ In-line Spare
Prime Abatement	Twin City Fan	Supply fan	660BCS CL22 SWS1ARRI	1013325719
Carbon Wheel/RTO	Thermal Transfer	Hydraulic heat exchanger	RM-19-22	1013263668
Prime Abatement	Marathon Electric	8V2000		1010732384
Carbon Wheel/RTO	Siemens	Electric motor (2)	1LE23212BB214AA3	1013321666
Carbon Wheel/RTO	Sensus	Gas regulator	243-12 w/1.0" orrifice	1011774259
Carbon Wheel/RTO	Reliance Electric	Hydraulic pump	PSV PNAF 10HRM 62/ 6928922 (mfg)	1013335817
Carbon Wheel/RTO		Proximity switch	73135281424	1012607137
Prime Abatement	Marathon Electric	Motor, 300 hp, 1800 rom	605E691	1013321676
Prime Abatement	Marathon Electric	Electric motor	EVE184TTFS6026EYL	1013321684
Carbon Wheel/RTO	Honeywell	Flame amplifier	R7861	1011931327
Carbon Wheel/RTO	Flo-Tork	Actuator	1500-90-CB-ES-MS13X-RXH-NLX-XP	1013330476
Prime Abatement	Eclipse	Burner	RM32.050-NAACBMCCXDAH212BDB	1013317863
Prime Abatement	Eclipse	Make Up Air Blower	SMJ10-.202748_1-14CA32X	1013317890
Prime Abatement	Eclipse	Blocking valve	2008AT 100036806	1013230725
Carbon Wheel/RTO	Durr	Rotor center bearing		1013306968
Carbon Wheel/RTO	Chicago Blower	Fan (2) size:245, job:08-B-774	P.O. 10-2322	1013354814

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Equipment	Manufacturer	Critical part	Part #	General Stores MCC Number/ In-line Spare
Carbon Wheel/RTO	Bosch	Solenoid valve	081WV06P1V101KM115/60 D51/11	1011492204
Carbon Wheel/RTO	Bosch	Hydraulic pump	P/N 0513400210	1013322477 1013335817
Carbon Wheel/RTO	Baldor	Electric motor, CAT # M3613T	SPEC. 36A001T850H1	1013317130
Carbon Wheel/RTO	Arjay Engineering	Carbon level sensor	9820-A0229/Probe No. PFA-8in-Z	1013335292
Prime Abatement	Advanced Instrum.	GPR 1900 ppm oxygen analyzer	GPR-1900	1013335295
Carbon Wheel/RTO		Combustion fan motor		1013321511
Carbon Wheel/RTO		UV detector	C7061A1038	1012035891
Carbon Wheel/RTO		Bearing lube mtr	F94B-E49226	1013321628
Carbon Wheel/RTO		Desorption supply fan motor		1013321631
Carbon Wheel/RTO		Heater recirculation fan motor		1013321518
Carbon Wheel/RTO		Combustion fan motor		1013321637
Carbon Wheel/RTO		Electric motor	P21S3070-KE	1013336296
Carbon Wheel/RTO	Pyromation	Thermocouple	KK480HYC311208SL8HN91	1013620534
Carbon Wheel/RTO	Dodge	Pillow Block Bearing	69570	1013620534
Carbon Wheel/RTO	Dodge	Pillow Block Bearing	69588	1013620534