



New Source Performance Standards Subpart Dc for Boilers Burning Distillate Oil

Michigan Department of Environmental Quality • Environmental Science & Services Division • 800-662-9278



This fact sheet is designed to help owners of commercial, industrial, and municipal buildings operating small boilers that combust **distillate oil alone or as a backup to natural gas**, comply with the requirements found in a federal air regulation known as the New Source Performance Standards (NSPS).

What is NSPS?

The United States Environmental Protection Agency (U.S. EPA) created NSPS in an effort to regulate new sources of air pollution and ensure that those sources pollute less than the older ones they replace. NSPS have been written for over 75 categories of sources ranging from small boilers to large municipal sewage sludge incinerators. The NSPS typically places limits on the emission of air pollutants such as carbon monoxide, sulfur dioxide and particulate matter, and requires performance testing, recordkeeping, reporting and monitoring.

Where to Find Copies of the NSPS

The U.S. EPA publishes the NSPS and all other federal regulations in the Code of Federal Regulations (CFR). The CFR is divided into 50 titles that represent broad areas subject to federal regulation. Environmental regulations are found in Title 40 (Protection of Environment). The Titles are further subdivided into Chapters, Parts and Subparts. The NSPS regulations are found in Part 60 (New Source Performance Standards). Each regulation has its own Subpart within Part 60. For example, regulations applicable to small boilers are found in Subpart Dc (Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units).

To obtain a copy of 40 CFR Part 60, Subpart Dc, go to www.epa.gov, select "Laws, Regulations & Dockets," select "Code of Federal Regulations," and then select "The Electronic Code of Federal Regulations (e-CFR)." From this page, use the browse option (drop-down box) to select "Title 40 – Protection of Environment" and click on "Go." Click on "60.1-End," then click the table of contents and scroll down to the Subpart Dc section.

What Does this Fact Sheet Cover?

This fact sheet examines the portion of Subpart Dc that applies to boilers that burn distillate oil alone or as a backup to natural gas. If your boiler burns or is equipped to burn other fuels, such as coal, then you will need to read the relevant parts of the standard that apply to that fuel usage.

SUBPART Dc FUEL DEFINITIONS

Distillate Oil: Fuel oil numbers 1 and 2, as defined by the American Society for Testing and Materials in ASTM D396-78. According to this definition, distillate oil contains a maximum of 0.5 percent sulfur by weight.

Natural Gas: (1) a naturally occurring mixture of hydrocarbon and non-hydrocarbon gases found in geologic formations beneath the earth's surface, of which the principal constituent is methane, or (2) liquefied petroleum (LP) gas, as defined in ASTM D1835-86, 87, 91, or 97.

What Boilers are Subject to the Subpart Dc Standards?

Subpart Dc applies to steam generating units (boilers) from small commercial, industrial, and municipal buildings (e.g., schools, hospitals, churches, retail buildings, etc.) that meet all of the following:

- Combust any of several fuel types, including coal, oil, natural gas, and wood. (This fact sheet pertains to boilers capable of only burning **distillate oil alone or as a backup to natural gas**).
- Maximum design heat input capacity is greater than or equal to 10 million Btu/hr (2.34 megawatts or 239 horsepower, assuming 80% thermal efficiency) and equal to or less than 100 million Btu/hr (23.4 megawatts or 2,390 horsepower, assuming 80% thermal efficiency).

You can get the maximum design heat input capacity rating from the "boilerplate" on the boiler or contact the boiler's manufacturer. There may be different ratings for different fuels.

Most boilers have the input ratings on the burner assemblies or on the American Society of Mechanical Engineers (ASME) plates. If only the output is listed, then assume 80 percent thermal efficiency, unless there is documentation proving otherwise. Calculate the boiler's heat input by dividing the heat output by 0.80.

- Construction, modification, or reconstruction started after June 9, 1989.

Construction is defined as fabrication, erection, or installation of a boiler. If construction began before June 9, 1989, but was not operational until after June 9, 1989, the boiler would not be subject to the regulation.

A **modification** is defined as any physical or operational change to an existing boiler which results in an increase in the emission rate to the atmosphere of any pollutant to which the standard applies. For example, if a natural gas-fired boiler was retrofitted to burn distillate oil, that would be considered a modification.

A boiler meets the definition of **reconstructed** if the fixed capital cost of the one-for-one replacement of parts exceeds 50 percent of the fixed capital costs required to construct an entirely new comparable boiler.

What Do I Need to Do?

Boilers subject to Subpart Dc are subject to both federal and state requirements. In addition, the Michigan Department of Environmental Quality (MDEQ), Air Quality Division (AQD) has been given authority by the U.S. EPA to enforce federal air regulations, including the NSPS. This means that typically an inspector from the MDEQ, not U.S. EPA, will visit your facility.

FEDERAL REQUIREMENTS

1) Initial Notification:

Send a written notification of the following information for each NSPS boiler:

Within 30 days after commencing construction:

- Date of original construction or reconstruction, and anticipated startup.
- The design heat-input capacity of the boiler and identification of the fuels to be combusted in the boiler.
- The annual capacity (fuel consumption) at which you anticipate operating the boiler, based on all fuels fired and based on each individual fuel fired.
- If an emerging technology will be used for controlling sulfur dioxide (SO₂) emissions.

Within 15 days after startup:

- Date of actual startup.

An acceptable notification form is attached. Submit the completed form or one you create to the appropriate MDEQ-AQD District Office (see attached map). Even if your boiler has been installed and operating for years, please comply with the initial notification requirement if you haven't already done so.

2) Opacity Performance Test Data:

A standard for opacity applies only to Dc boilers with heat input capacities between 30 and 100 million Btu/hour. The opacity standard states that a boiler may not discharge gases with more than 20 percent opacity, except for one 6-minute period per hour of not more than 27 percent opacity.

Any Subpart Dc boiler subject to the opacity limit must conduct an opacity performance test, due 180 days after initial startup or within 60 days of achieving maximum production capacity. You are required to submit a test plan to the MDEQ at least 30 days prior to testing for particulate. U.S. EPA Reference Method 9 must be used when conducting any compliance tests regarding opacity. You must follow all of the testing procedures listed in Subpart A (General Provisions) of the NSPS.

3) Recordkeeping:

Fuel Usage

The amount of distillate oil and natural gas that a boiler combusts must be recorded on a monthly basis, in the form of fuel bills or meter readings. This monitoring option is not an exemption from compliance with any of the fuel certification (see below) or initial notification reporting requirements. Your facility must still provide certification that it will burn only distillate oil alone or as a backup to natural gas and must notify the AQD if a change in fuel use occurs.

Monthly fuel usage records shall be maintained separately for each boiler for a period of two years. Use fuel bills if you only have one boiler at your facility. While reviewing fuel bills, remember that natural gas meters measure the volume of gas in units of cubic hundred feet (ccf, where the first "c" stands for the Roman numeral one hundred) or thousand cubic feet (mcf, where the "m" stands for the Roman numeral one thousand).

If you have two or more boilers, the fuel bill does not identify the amount of distillate oil and natural gas burned in each boiler. The easiest way to obtain monthly fuel usage records for more than one boiler is to install a dedicated fuel flow meter for each boiler and take meter readings on a calendar month basis. A fuel flow meter, however, requires an initial capital investment.

If you choose not to install a fuel flow meter on each boiler, you may be able to prorate or predict the fuel usage based upon many different methods. Upon prior approval by the AQD District Supervisor, each individual boiler's distillate oil and natural gas usage may be calculated using an acceptable alternative method proposed by the facility.

Fuel Supplier Certification

NSPS Subpart Dc regulates the amount of sulfur dioxide (SO₂) that may be emitted from boilers that combust distillate oil at all times, including periods of unit startup, shutdown, and malfunction. If your boiler combusts natural gas only (with no oil as backup), you are not required to demonstrate compliance with this standard.

Compliance with the SO₂ standard may be demonstrated using one of the following options:

- Demonstrate that actual SO₂ emissions are less than or equal to 0.5 pounds of SO₂ per million Btu heat input, or
- Demonstrate that the fuel sulfur content is less than or equal to 0.5 percent by weight.

Since, by definition, distillate oil cannot contain greater than 0.5% sulfur, any facility burning strictly distillate oil already complies with the fuel-oil sulfur limit.

For each shipment of distillate oil you receive, make sure the fuel supplier provides certification to demonstrate compliance that the sulfur content of the oil is below the limit. Fuel supplier certification for distillate oil must be maintained for at least two years and made available to AQD upon request, and must include the following information:

- The name of the oil supplier
- A statement from the oil supplier that the oil complies with the specifications under the definition of distillate oil

In addition, you must provide a certified statement signed by the owner or operator of the facility that the records of fuel supplier certifications submitted represent all of the fuel combusted during the reporting period. If your facility cannot provide certification that it combusts only distillate oil alone or as a backup to natural gas, you must comply with all of the standards, compliance, and performance test methods, and reporting and recordkeeping requirements of facilities that use residual oil.

STATE REQUIREMENTS

Any facility that operates a boiler subject to the Subpart Dc is also subject to the following state of Michigan requirements:

1) MAERS Reporting:

The federal Clean Air Act requires that each state maintain an inventory of air pollution emissions for certain facilities and update this inventory every year. The MDEQ maintains the Michigan Air Emissions Reporting System (MAERS) reports for commercial, industrial, and governmental sources of air pollution in Michigan. This information is submitted to the U.S. EPA and added to the national data bank to track air pollution trends, determine the effectiveness of current air pollution control programs, serve as a basis for future year projections of air quality, track source compliance, provide information for permit review, and calculate the emissions portion of the air quality fee.

Facilities that have been sent a MAERS reporting package by late January must submit their completed MAERS report to the MDEQ by March 15. You can access the MAERS web site at www.michigan.gov/deq and click on "Air," "Emissions," then "Emissions Reporting," or call the Environmental Assistance Program (EAP) at 800-662-9278 for MAERS information.

2) Air Quality Fees:

According to Part 55 (Air Pollution Control) of the Natural Resources and Environmental Protection Act 451 of 1994, as amended (Act 451), Subpart Dc sources are subject to air quality fees. The Clean Air Act requires each state to develop a Title V, Renewable Operating Permit Program supported by air quality fees. The Michigan legislation establishes the following formula for calculating the annual air quality fee for each fee-subject facility:

$$\text{Annual Fee} = \text{Facility Charge} + \text{Emissions Charge}$$

The **facility charge** used in the fee formula is based on the classification, or category, of the facility. Facilities that are "major" under Title I of the Clean Air Act (have the potential to emit 100 tons or more per year of any pollutant) are classified as Category I facilities. Facilities that are "major" under Title III of the Clean Air Act (have the potential to emit 10 tons of any one hazardous air pollutant or 25 tons of any combination of hazardous air pollutants) are classified as Category II facilities. Category II also includes any facility with operations subject to a federal New Source Performance Standard. The facility charge is \$4,485 for a Category I facility and \$1,795 for a Category II facility.

The **emissions charge** is \$45.25 per ton of billable emissions. Billable emissions are actual emissions of fee-subject air contaminants. Emissions from natural gas-fired boilers that are fee-subject air pollutants include nitrogen oxides (NO_x), volatile organic compounds (VOCs), sulfur dioxide (SO₂), and particulate matter (PM). Carbon monoxide is not a fee-subject air pollutant. Any air contaminant regulated under Section 111 (Standards of Performance for New Stationary Sources) or Section 112 (Hazardous Air Pollutants) of Part A, Title I of the Clean Air Act, or Title III (Hazardous Air Pollutants) of the Clean Air Act is subject to the emissions charge.

EXAMPLE: ACME, Inc. is a Category II facility

TPY (tons per year)	Air Contaminants	Billable Emissions
NOx	12	12
PM10		
SO ₂	7	7
VOCs		
HAPs		
TOTAL	19	19

Facility Charge (Category II): = \$1,795

Emission Charge: 19 Tons x \$45.25/Ton = \$859.75

Annual Air Quality Fee: \$1,795 + \$859.75 = \$2,654.75

3) Air Permits:

Rule 201 of the Michigan Administrative Rules for Air Pollution Control requires a person to obtain a Permit to Install prior to the installation, construction, reconstruction, relocation, or modification of equipment or activity that emits air contaminants. Boilers that burn distillate oil alone or as backup to natural gas do not need a Permit to Install, unless they fit one of the following categories:

Distillate oil – If the maximum design heat input capacity of your boiler(s) is more than 20 million Btu/hr, or the distillate oil contains more than 0.4% sulfur by weight, it is necessary to obtain a Permit to Install.

Natural gas - If the maximum design heat input capacity of your natural gas only boiler(s) is more than 50 million Btu/hr, it is necessary to obtain a Permit to Install.

Please contact the EAP for more information about air permits.

Where to Go For Help

Environmental Assistance Program (EAP):

The EAP can help companies understand and comply with federal and state regulations that protect our air, water, and land. If you need help completing your MAERS report, or have air permitting or fee questions, please contact the EAP at:

Michigan Department of Environmental Quality
Environmental Assistance Program
P.O. Box 30457
Lansing, MI 48909-7957
1-800-662-9278
www.michigan.gov/deqenvassistance



INITIAL NOTIFICATION AND INFORMATION

New Source Performance Standards

This information is required by the Federal Clean Air Act and Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451. Failure to provide this information may result in penalties and/or imprisonment.

Applicable Rule: 40 CFR, Part 60, Subpart Dc-Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

Please print or type all information.

COMPANY INFORMATION			
LEGAL NAME			
OTHER COMPANY NAME (if different from legal name)			
MAILING ADDRESS			
CITY	STATE	ZIP CODE	
SITE ADDRESS (if different from mailing address)			
CITY	ZIP CODE	COUNTY	
STANDARD INDUSTRIAL CODE (SIC)	EMAIL ADDRESS		
CONTACT NAME		CONTACT TITLE	
TELEPHONE NUMBER		FAX NUMBER	

BOILER INFORMATION			
Boiler Identification/Make		Rated design heat input capacity	Btu/hr
Boiler Model Number		Primary fuel type	
Date (year) boiler manufactured		Estimated quantity of primary fuel used per year	Ft ³
Date of original boiler construction, modification, or reconstruction		Secondary Fuel Type	
Date of boiler start-up (or anticipated)		Estimated quantity of secondary fuel used per year	Ft ³

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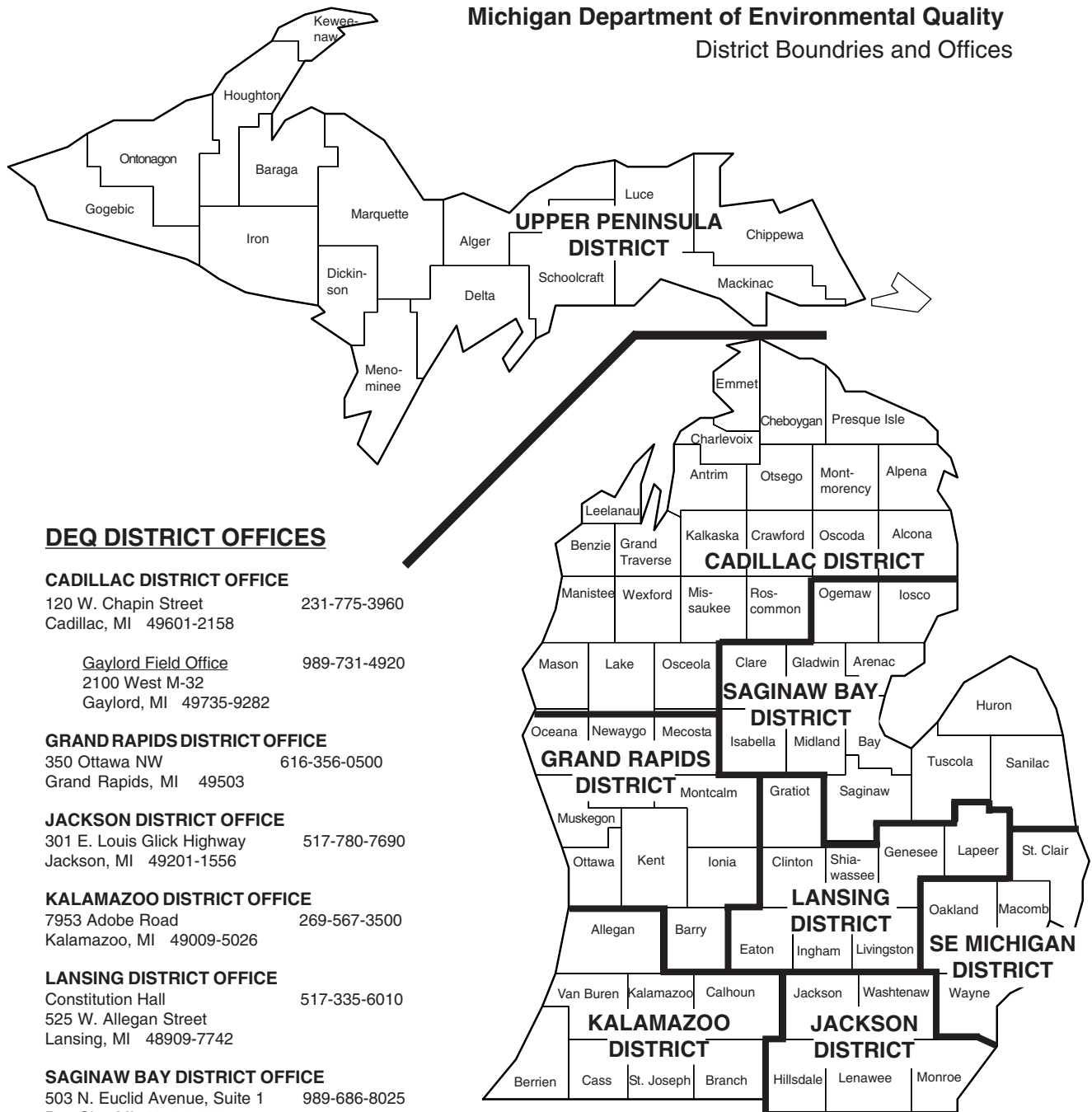
INITIAL NOTIFICATION AND INFORMATION
New Source Performance Standards (continued)

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Date (year) boiler manufactured		Estimated quantity of primary fuel used per year	Ft ³
Date of original boiler construction, modification, or reconstruction		Secondary Fuel Type	
Date of boiler start-up (or anticipated)		Estimated quantity of secondary fuel used per year	Ft ³

SIGNATURE	
I hereby certify that the information contained in this Initial Notification and Information form is true and correct to the best of my knowledge.	
NAME OF OFFICIAL (printed or typed)	TITLE OF OFFICIAL
TELEPHONE NUMBER	DATE
SIGNATURE OF OFFICIAL	

**Michigan Department of Environmental Quality
District Boundries and Offices**



DEQ DISTRICT OFFICES

CADILLAC DISTRICT OFFICE

120 W. Chapin Street 231-775-3960
Cadillac, MI 49601-2158

Gaylord Field Office 989-731-4920
2100 West M-32
Gaylord, MI 49735-9282

GRAND RAPIDS DISTRICT OFFICE

350 Ottawa NW 616-356-0500
Grand Rapids, MI 49503

JACKSON DISTRICT OFFICE

301 E. Louis Glick Highway 517-780-7690
Jackson, MI 49201-1556

KALAMAZOO DISTRICT OFFICE

7953 Adobe Road 269-567-3500
Kalamazoo, MI 49009-5026

LANSING DISTRICT OFFICE

Constitution Hall 517-335-6010
525 W. Allegan Street
Lansing, MI 48909-7742

SAGINAW BAY DISTRICT OFFICE

503 N. Euclid Avenue, Suite 1 989-686-8025
Bay City, MI 48706-2925

SOUTHEAST MICHIGAN DISTRICT OFFICE

27700 Donald Court 586-753-3700
Warren, MI 48092-2793

Detroit Field Office 313-456-4700
Cadillac Place
3058 West Grand Boulevard, Suite 2-300
Detroit, MI 48202-6058

UPPER PENINSULA DISTRICT OFFICE

420 5th Street 906-346-8300
Gwinn, MI 49841

ENVIRONMENTAL ASSISTANCE CENTER

(for general information):

Telephone: 800-662-9278
Fax: 517-241-0673

POLLUTION EMERGENCIES

Telephone: 800-292-4706

DEQ WEB PAGE

www.michigan.gov/deq