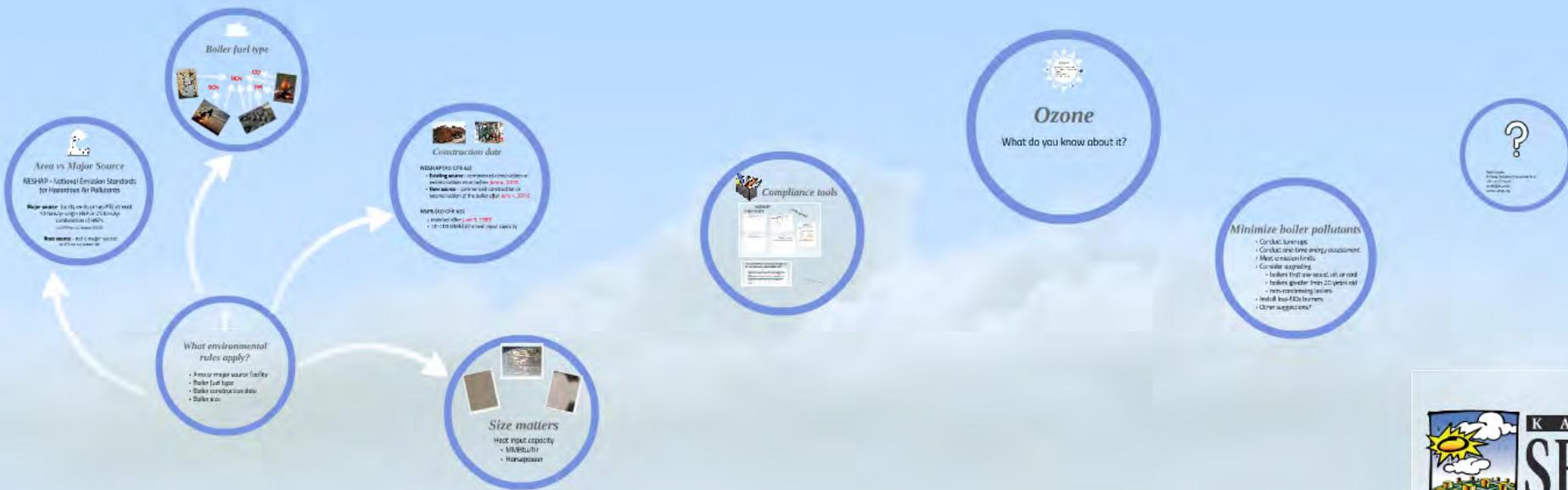


NOx, Ozone, NESHAP, & MACT

What these terms mean to air quality

Barb Goode, K-State Pollution Prevention Institute



NOx, Ozone, NESHAP, & MACT

What these terms mean to air quality

Barb Goode, K-State Pollution Prevention Institute



NO_x, Ozone, NESHAP, & MACT

What these terms mean to air quality

Barb Goode, K-State Pollution Prevention Institute



K A N S A S

SBEAP

Small Business Environmental Assistance Program

EPA

vs

OSHA

Environment

Safety

EPA

OSHA

KDHE

OSFM

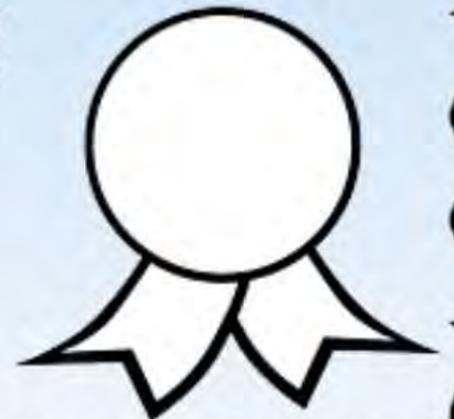
Bureau of Air

Boiler Safety Unit



Certificate

You may have your boiler safety certificate, but do you know whether your boilers are subject to EPA hazardous air pollutant regulations or KDHE permitting requirements?



What is a boiler?

An enclosed device using controlled flame combustion in which water is heated to recover thermal energy in the form of steam and/or hot water. Controlled flame combustion refers to a steady-state, or near steady-state, process wherein fuel and/or oxidizer feed rates are controlled.

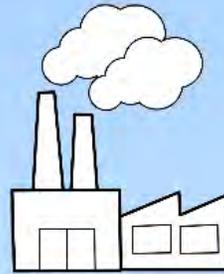
What is a process heater?

An enclosed device using controlled flame, and the unit's primary purpose is to transfer heat indirectly to a process material (liquid, gas, or solid) or to a heat transfer material (e.g. glycol or a mixture of glycol and water) for use in a process unit, instead of generating steam. Process heaters are devices in which the combustion gases do not come into direct contact with process materials.



What environmental rules apply?

- Area or major source facility
- Boiler fuel type
- Boiler construction date
- Boiler size



Area vs Major Source

NESHAP - National Emission Standards
for Hazardous Air Pollutants

Major source- facility emits or has PTE at least
10 tons/yr single HAP or 25 tons/yr
combination of HAPs

40 CFR Part 63, Subpart DDDDD

Area source - not a major source

40 CFR Part 63, Subpart JJJJJ



Boiler fuel type



SOx

NOx

CO



PM





Construction date

NESHAP (40 CFR 63)

- **Existing source** - commenced construction or reconstruction on or before **June 4, 2010**
- **New source** - commenced construction or reconstruction of the boiler after **June 4, 2010**

NSPS (40 CFR 60)

- installed after **June 9, 1989**
- 10-100 MMBTU/hr heat input capacity



Construction date



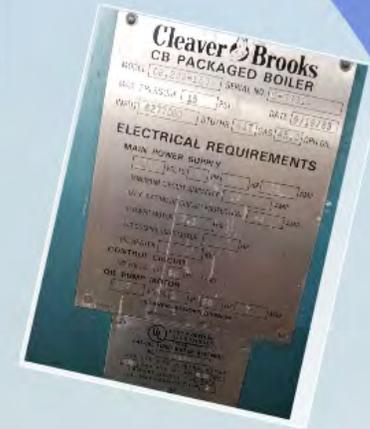
Construction date

NESHAP (40 CFR 63)

- **Existing source** - commenced construction or reconstruction on or before **June 4, 2010**
- **New source** - commenced construction or reconstruction of the boiler after **June 4, 2010**

NSPS (40 CFR 60)

- installed after **June 9, 1989**
- 10-100 MMBTU/hr heat input capacity



Size matters

Heat input capacity

- MMBtu/hr
- Horsepower

Limpsfield Engineering Ltd
Unit 10 Airport Industrial Estate
Biggin Hill
Kent
TN16 3BW
United Kingdom
www.limpsfield.co.uk
enquiries@limpsfield.co.uk



Burner Type:	LCNP21
Manufacture Date:	15/06/11
Serial No:	00752
Fuels:	NATURAL GAS
Max Input:	7.0 MBTU
Control Voltage:	110 Volts

Cleaver Brooks

CB PACKAGED BOILER

MODEL SERIAL NO.

MAX. PRESSURE PSI DATE

INPUT BTU/HR GAS GPH OIL

ELECTRICAL REQUIREMENTS

MAIN POWER SUPPLY

VOLTS PH HZ AMP

MINIMUM CIRCUIT AMPACITY AMP

MAX. RATING OF CIRCUIT PROTECTION AMP

BLOWER MOTOR HP

AIR COMPRESSOR MOTOR HP

OIL HEATER KW

CONTROL CIRCUIT

120 VOLTS 1 PH HZ 7 AMP

OIL PUMP MOTOR

VOLTS PH HZ AMP

CLEAVER - BROOKS DIVISION
AQUA CHIM INC
MILWAUKEE, WISCONSIN U.S.A.



UNDERWRITERS
LABORATORIES
INC

LISTED
GAS-OIL FIRED BOILER ASSEMBLY

NO.

FOR USE WITH INTEGRAL GROUP
 (GAS) AND INT. GR. (OIL)
PRIMARY SAFETY CONTROLS
OIL NOT HEAVIER THAN

RAY FORCED DRAFT UNIT

SIZE 5-30 TYPE FDG-104 MODEL 550
CONTROL VOLTS 120 SERIAL NO. 268156
SUPPLY VOLTS 440 CYCLE 60 PHASE 3
MAXIMUM INPUT 4.5 MILLION BTU/HR

Underwriters' Laboratories, Inc.

INSPECTED

GAS BURNER NO. H 617457
FOR USE WITH INTEGRAL GROUP IV PRIMARY SAFETY
CONTROLS

RAY OIL BURNER CO., SAN FRANCISCO, CALIF.



What environmental rules apply?

- Area or major source facility
- Boiler fuel type
- Boiler construction date
- Boiler size



Compliance tools

NESHAP major source



area source



NSPS and KDHE construction permit/approval

<http://www.kdheks.gov/air-permit/download.html>

Table with 4 columns: Major source type, Major size, Federal, and State. It lists various source types like 'Stationary combustion engine' and 'Process heat - noncombustible' with their respective sizes and compliance requirements.

Major source type	Major size	Federal	State
Stationary combustion engine	100 HP or more	NSPS	NSPS
Process heat - noncombustible	100,000 Btu/hr	NSPS	NSPS
Process heat - combustible	100,000 Btu/hr	NSPS	NSPS
Process heat - noncombustible	100,000 Btu/hr	NSPS	NSPS
Process heat - combustible	100,000 Btu/hr	NSPS	NSPS
Process heat - noncombustible	100,000 Btu/hr	NSPS	NSPS
Process heat - combustible	100,000 Btu/hr	NSPS	NSPS



www.sbeep.org → Air Quality Rules

NESHAP

major source

area source

Kansas Department of Health and Environment - Bureau of Air Quality Control, 2000 West 16th Street, Topeka, Kansas 66612
Phone: (785) 296-6422 Fax: (785) 296-2345
Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters
40 CFR Part 63, Subpart DDDDD

Heat Input Capacity	Subcategory	Requirements: Tables L-1 and L-3	Notification and Report Submissions: 40 CFR Part 63, Subpart DDDDD	Other Requirements
Any size	All units except (a) and (b)	• 100% inspection due 5-13-13 • 100% inspection due 5-13-15 • 100% inspection due 5-13-17	• 100% inspection due 5-13-13 or 5-13-15 or 5-13-17 • 100% inspection due 5-13-13 or 5-13-15 or 5-13-17	• Continuous compliance 603.2540 • Reporting requirements Table 2 • Records 603.2555
≥10 MMBtu/hr (Large)	All units except (a) and (b)	• 100% inspection due 5-13-13 • 100% inspection due 5-13-15 • 100% inspection due 5-13-17	• 100% inspection due 5-13-13 or 5-13-15 or 5-13-17 • 100% inspection due 5-13-13 or 5-13-15 or 5-13-17	• Continuous compliance 603.2540 • Reporting requirements Table 2 • Records 603.2555
≥10 MMBtu/hr (Small)	All units except (a) and (b)	• 100% inspection due 5-13-13 • 100% inspection due 5-13-15 • 100% inspection due 5-13-17	• 100% inspection due 5-13-13 or 5-13-15 or 5-13-17 • 100% inspection due 5-13-13 or 5-13-15 or 5-13-17	• Continuous compliance 603.2540 • Reporting requirements Table 2 • Records 603.2555

Kansas Department of Health and Environment - Bureau of Air Quality Control, 2000 West 16th Street, Topeka, Kansas 66612
Phone: (785) 296-6422 Fax: (785) 296-2345
Major Sources: Industrial, Commercial, and Institutional Boilers located at an area source of HAPS
40 CFR Part 63, Subpart IIIIIII

Heat Input Capacity	Subcategory	Requirements: Tables L-1 and L-2	Performance Testing: Tables 4 and 5	Notification and Report Submissions	Other Requirements
Any size	All units except (a) and (b)	• 100% inspection due 5-13-13 • 100% inspection due 5-13-15 • 100% inspection due 5-13-17	• 100% inspection due 5-13-13 or 5-13-15 or 5-13-17 • 100% inspection due 5-13-13 or 5-13-15 or 5-13-17	• 100% inspection due 5-13-13 or 5-13-15 or 5-13-17 • 100% inspection due 5-13-13 or 5-13-15 or 5-13-17	• Continuous compliance 603.2540 • Reporting requirements Table 2 • Records 603.2555
≥10 MMBtu/hr (Large)	All units except (a) and (b)	• 100% inspection due 5-13-13 • 100% inspection due 5-13-15 • 100% inspection due 5-13-17	• 100% inspection due 5-13-13 or 5-13-15 or 5-13-17 • 100% inspection due 5-13-13 or 5-13-15 or 5-13-17	• 100% inspection due 5-13-13 or 5-13-15 or 5-13-17 • 100% inspection due 5-13-13 or 5-13-15 or 5-13-17	• Continuous compliance 603.2540 • Reporting requirements Table 2 • Records 603.2555
≥10 MMBtu/hr (Small)	All units except (a) and (b)	• 100% inspection due 5-13-13 • 100% inspection due 5-13-15 • 100% inspection due 5-13-17	• 100% inspection due 5-13-13 or 5-13-15 or 5-13-17 • 100% inspection due 5-13-13 or 5-13-15 or 5-13-17	• 100% inspection due 5-13-13 or 5-13-15 or 5-13-17 • 100% inspection due 5-13-13 or 5-13-15 or 5-13-17	• Continuous compliance 603.2540 • Reporting requirements Table 2 • Records 603.2555

Kansas Department of Health and Environment - Bureau of Air Quality Control, 2000 West 16th Street, Topeka, Kansas 66612
Phone: (785) 296-6422 Fax: (785) 296-2345
Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters
40 CFR Part 63, Subpart DDDDD

Heat Input Capacity	Subcategory	Requirements: Tables L-1 and L-3	Notification and Report Submissions: 40 CFR Part 63, Subpart DDDDD	Other Requirements
Any size	All units except (a) and (b)	• 100% inspection due 5-13-13 • 100% inspection due 5-13-15 • 100% inspection due 5-13-17	• 100% inspection due 5-13-13 or 5-13-15 or 5-13-17 • 100% inspection due 5-13-13 or 5-13-15 or 5-13-17	• Continuous compliance 603.2540 • Reporting requirements Table 2 • Records 603.2555
≥10 MMBtu/hr (Large)	All units except (a) and (b)	• 100% inspection due 5-13-13 • 100% inspection due 5-13-15 • 100% inspection due 5-13-17	• 100% inspection due 5-13-13 or 5-13-15 or 5-13-17 • 100% inspection due 5-13-13 or 5-13-15 or 5-13-17	• Continuous compliance 603.2540 • Reporting requirements Table 2 • Records 603.2555
≥10 MMBtu/hr (Small)	All units except (a) and (b)	• 100% inspection due 5-13-13 • 100% inspection due 5-13-15 • 100% inspection due 5-13-17	• 100% inspection due 5-13-13 or 5-13-15 or 5-13-17 • 100% inspection due 5-13-13 or 5-13-15 or 5-13-17	• Continuous compliance 603.2540 • Reporting requirements Table 2 • Records 603.2555

Kansas Department of Health and Environment - Bureau of Air Quality Control, 2000 West 16th Street, Topeka, Kansas 66612
Phone: (785) 296-6422 Fax: (785) 296-2345
Major Sources: Industrial, Commercial, and Institutional Boilers located at an area source of HAPS
40 CFR Part 63, Subpart IIIIIII

Heat Input Capacity	Subcategory	Requirements: Tables L-1 and L-2	Performance Testing: Tables 4 and 5	Notification and Report Submissions	Other Requirements
Any size	All units except (a) and (b)	• 100% inspection due 5-13-13 • 100% inspection due 5-13-15 • 100% inspection due 5-13-17	• 100% inspection due 5-13-13 or 5-13-15 or 5-13-17 • 100% inspection due 5-13-13 or 5-13-15 or 5-13-17	• 100% inspection due 5-13-13 or 5-13-15 or 5-13-17 • 100% inspection due 5-13-13 or 5-13-15 or 5-13-17	• Continuous compliance 603.2540 • Reporting requirements Table 2 • Records 603.2555
≥10 MMBtu/hr (Large)	All units except (a) and (b)	• 100% inspection due 5-13-13 • 100% inspection due 5-13-15 • 100% inspection due 5-13-17	• 100% inspection due 5-13-13 or 5-13-15 or 5-13-17 • 100% inspection due 5-13-13 or 5-13-15 or 5-13-17	• 100% inspection due 5-13-13 or 5-13-15 or 5-13-17 • 100% inspection due 5-13-13 or 5-13-15 or 5-13-17	• Continuous compliance 603.2540 • Reporting requirements Table 2 • Records 603.2555
≥10 MMBtu/hr (Small)	All units except (a) and (b)	• 100% inspection due 5-13-13 • 100% inspection due 5-13-15 • 100% inspection due 5-13-17	• 100% inspection due 5-13-13 or 5-13-15 or 5-13-17 • 100% inspection due 5-13-13 or 5-13-15 or 5-13-17	• 100% inspection due 5-13-13 or 5-13-15 or 5-13-17 • 100% inspection due 5-13-13 or 5-13-15 or 5-13-17	• Continuous compliance 603.2540 • Reporting requirements Table 2 • Records 603.2555

Fact Facts: Area Source Requirements Industrial, Commercial, and Institutional Boilers 40 CFR Part 63, Subpart IIIIIII

Do the Emission Limits Requirements Apply?

Heat Capacity (Btu/hr)	Existing SO ₂ (lb/hr)	New SO ₂ (lb/hr)	Existing CO (lb/hr)	New CO (lb/hr)	Existing NO _x (lb/hr)	New NO _x (lb/hr)
≥10 MMB	Yes	Yes	No	Yes	Yes	Yes
<10 MMB	No	No	No	No	No	No

Am I required to do a One-Time Energy Assessment?

Heat Capacity (Btu/hr)	Existing Coal Units	New Coal Units	Existing Oil Units	New Oil Units	Existing Biomass Units	New Biomass Units
≥10 MMB	Yes	No	Yes	No	Yes	No
<10 MMB	No	No	No	No	No	No

Am I required to do a Tune-Up Every 5 Years?

Heat Capacity (Btu/hr)	Existing Coal Units	New Coal Units	Existing Oil Units	New Oil Units	Existing Biomass Units	New Biomass Units
≥10 MMB	No	No	Yes	Yes	Yes	Yes
<10 MMB	Yes	Yes	Yes	Yes	Yes	Yes

* Provided the boiler (boilers) meet the definition of listed area boiler
 * Provided the boiler (boilers) meet the definition of covered boiler
 * Boiler (boilers) will not be subject to 40 CFR 63.12125-10 unless it is a boiler of 100 MMBtu/hr or greater and is not subject to 40 CFR 63.12125-10
 * Provided the boiler (boilers) meet the definition of listed area boiler, the tune-up is required to be performed.



Kansas Department of Health and Environment – Bureau of Air
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Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters
40 CFR Part 63, Subpart DDDDD

New Boilers and Process Heaters - commenced construction or reconstruction after June 4, 2010; compliance deadline = 1/31/13 or upon startup ¹				
Heat input capacity	Subcategory ²	Requirements Tables 1 and 3	Notification and Report Submission §63.7545, §63.7550 & Table 9	Other Requirements
Any size	All units (except limited-use)	See below	<ul style="list-style-type: none"> Initial notification due 5-31-13 or w/in 15 days after startup, if startup on or after 1-31-13 Notification of compliance status due w/in 60 days after completing compliance demonstrations 	<ul style="list-style-type: none"> Continuous compliance §63.7540 Reporting requirements Table 9 General provisions Table 10 Records §63.7555
	Limited-use units	Tune-up every 5 years §63.7540		
	Units w/continuous oxygen trim system			
≥10 MMBtu/hr (Large)	All units (except Gas 1 or metal process furnaces)	<ul style="list-style-type: none"> Numeric emission limits³ for Hg, CO, filterable PM (or total selected metals), HCl, alternate CO CEMS limit, §63.7500 Annual tune-up (serves as work practice st'd for dioxin/furan emissions) 	<ul style="list-style-type: none"> Notification of intent due 60 days before performance test Notification of compliance status due w/in 60 days after completing performance tests and compliance demonstrations Demonstrate initial compliance with emission limits by 7-30-13 or w/in 180 days after start-up 1st report due 1-31 or 7-31 Subsequent semi-annual reports due 7-31 and 1-31 	<ul style="list-style-type: none"> Initial compliance §63.7530 <ul style="list-style-type: none"> - Stack testing §63.7520 and Table 5, - Fuel analysis §63.7521 & Table 6 , - Establish operating limits §63.7520 & Table 7 - Continuous monitoring systems §63.7540 & Table 8 May need site-specific monitoring plan §63.7505(d) Emission averaging §63.7522 Alternate emission limits §63.7510(f) Monitoring, installation, operation, & maintenance §63.7525
	Gas 1 or metal process furnaces	Annual tune-up (serves as work practice for all regulated emissions)	<ul style="list-style-type: none"> 1st report due 1-31 at least one year after compliance date Subsequent annual reports due 1-31 	
<10 MMBtu/hr (Small)	Heavy liquid, and solid fuel-fired units (coal and biomass) and if gas 1, gas 2 (other), and light liquid are >5MMBtu/hr	Tune-up every 2 years	<ul style="list-style-type: none"> 1st report due 1-31 at least two years after compliance date Subsequent biennial reports due 1-31 	<ul style="list-style-type: none"> See other requirements for all units (above) Notification of alternative fuel use due w/in 48 hrs of declared natural gas curtailment or supply interruption
≤5 MMBtu/hr	Gas 1, gas 2 (other), and light liquid	Tune-up every 5 years	<ul style="list-style-type: none"> 1st report due 1-31 at least five years after compliance date Subsequent 5-yr reports due 1-31 	

¹Existing area sources that become major sources must comply within 3 years from the date it becomes a major source.

²If fuel switch or physical change caused the unit to change subcategory, provide notice within 30 days.

³If subject to numeric emission limits then must comply with specific startup and shutdown requirements (Table 3) and certain operating limits (Table 4); also, alternative emission limits exist for boilers constructed or reconstructed between 6-4-10 and 5-20-11 (Table 12), and between 12-23-11 and 1-31-13 (Table 13).



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Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters
40 CFR Part 63, Subpart DDDDD

Existing Boilers and Process Heaters - commenced construction or reconstruction on or before June 4, 2010; compliance deadline = 1/31/16 ¹				
Heat input capacity	Subcategory ²	Requirements Tables 2 and 3	Notification and Report Submission	Other Requirements
Any size	All units (except limited-use)	One-time energy assessment and initial tune-up	<ul style="list-style-type: none"> Initial notification due 5-31-13 Assessment & tune-up due 1-31-16 Notification of compliance status due w/in 60 days after completing compliance demonstrations 	<ul style="list-style-type: none"> Continuous compliance §63.7540 Reporting requirements Table 9 General provisions Table 10 Records §63.7555
	Limited-use units	Tune-up initially and every 5 yrs		
	Units w/continuous oxygen trim system			
≥10 MMBtu/hr (Large)	All units (except Gas 1 or metal process furnaces)	<ul style="list-style-type: none"> Numeric emission limits³ for Hg, CO, filterable PM (or total selected metals), HCl, alternate CO CEMS limit, §63.7500 Annual tune-up (serves as work practice st'd for dioxin/furan emissions) 	<ul style="list-style-type: none"> Notification of intent due 60 days before performance test Notification of compliance status due w/in 60 days after completing performance tests and compliance demonstrations Demonstrate initial compliance with emission limits by 7-29-16 1st report due 1-31-17 Subsequent semi-annual reports due 7-31 and 1-31 	<ul style="list-style-type: none"> Initial compliance §63.7530 <ul style="list-style-type: none"> Stack testing §63.7520 and Table 5, Fuel analysis §63.7521 & Table 6 , Establish operating limits §63.7520 & Table 7 Continuous monitoring systems §63.7540 & Table 8 May need site-specific monitoring plan §63.7505(d) Emission averaging §63.7522 Alternate emission limits §63.7510(f) Monitoring, installation, operation, & maintenance §63.7525
	Gas 1 or metal process furnaces	Annual tune-up (serves as work practice for all regulated emissions)	<ul style="list-style-type: none"> 1st report due 1-31-17 Subsequent annual reports due 1-31 	
<10 MMBtu/hr (Small)	Heavy liquid, and solid fuel-fired units (coal and biomass) and if gas 1, gas 2 (other), and light liquid are >5MMBtu/hr	Tune-up initially and every 2 yrs	<ul style="list-style-type: none"> 1st report due 1-31-17 Subsequent biennial reports due 1-31 	<ul style="list-style-type: none"> See other requirements for all units (above) Notification of alternative fuel use due w/in 48 hrs of declared natural gas curtailment or supply interruption
≤5 MMBtu/hr	Gas 1, gas 2 (other), and light liquid	Tune-up initially and every 5 yrs	<ul style="list-style-type: none"> 1st report due 1-31-17 Subsequent 5-yr reports due 1-31 	

¹Existing area sources that become major sources must comply within 3 years from the date it becomes a major source.

²If fuel switch or physical change caused the unit to change subcategory, provide notice within 30 days.

³If subject to numeric emission limits then must comply with specific startup and shutdown requirements (Table 3) and certain operating limits (Table 4).



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**Industrial, Commercial, and Institutional Boilers located at an area source of HAPS
 40 CFR Part 63, Subpart JJJJJ**

New Boilers – commenced construction or reconstruction after June 4, 2010 ¹					
Heat capacity	Subcategory	Requirements Tables 1 and 2	Performance Testing Tables 4 and 5	Notification and Report Submission	Other Requirements
Large ²	Coal (not limited-use boilers)	<ul style="list-style-type: none"> Numeric emission limits for Hg, CO, and PM (Table 1) Fuel analyses (Table 5 and §63.11213) 	Show initial compliance w/in 180 days after startup	<ul style="list-style-type: none"> Initial notification Notification of compliance status (electronic) Annual report 	<ul style="list-style-type: none"> Minimize startup and shutdown periods and conduct according to manufacturer's recommended procedures Operating limits in Tables 3 and 6 Stack tests and procedures §63.11212 Continuous compliance §63.11222 or §63.11223
	Biomass and Oil (not limited-use and not seasonal boilers)	<ul style="list-style-type: none"> Numeric emission limit for PM⁴ Tune-up every other yr, or every 5 yrs if using O₂ trim system 			
Small ³	Coal, Biomass, and Oil (> 5MMBtu/hr)	<ul style="list-style-type: none"> Tune-up every other yr, or every 5 yrs if using O₂ trim system 	NA	<ul style="list-style-type: none"> Initial notification Notification of compliance status (electronic) 2- or 5-year report 	<ul style="list-style-type: none"> Continuous compliance §63.11223
≤ 5 MMBtu/hr	Oil	<ul style="list-style-type: none"> Tune-up every 5 years 	NA NA	<ul style="list-style-type: none"> Initial notification Notification of compliance status (electronic) 5-year report 	<ul style="list-style-type: none"> Continuous compliance §63.11223 Limited use - keep copy of fed enforceable permit and records of fuel use Seasonal - keep records of days of operation per year
Either	Seasonal and limited-use boilers				
	Gas (all types)	<ul style="list-style-type: none"> None (NA to rule) 	NA	NA	NA

¹A new or reconstructed dual-fuel gas-fired boiler that meets the applicability requirements of subpart JJJJJ after June 4, 2010 due to a fuel switch from gaseous fuel to solid fossil fuel, biomass, or liquid fuel is considered to be a new source.

²Large – heat capacity is greater than or equal (≥) to 10 MMBtu/hr.

³Small – heat capacity is less than (<) to 10 MMBtu/hr.

⁴New oil-fired boilers that combust only oil with no more than 0.50 wt % sulfur or a mixture of 0.50 wt % sulfur oil with other fuels are not subject to a PM emission limit and that do not use a post-combustion technology (except a wet scrubber) to reduce PM or SO₂ emissions are not subject to the PM emission limit (monitor and record monthly the type of fuel combusted).

This page reflects rules in effect on February 1, 2013, updated sheets can be found at:

<http://www.kdheks.gov/air-permit/download.html>



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**Industrial, Commercial, and Institutional Boilers located at an area source of HAPS
 40 CFR Part 63, Subpart JJJJJ**

Existing Boilers – commenced construction or reconstruction on or before June 4, 2010 ¹					
Heat capacity	Subcategory	Requirements Tables 1 and 2	Performance Testing Tables 4 and 5	Notification and Report Submission	Other Requirements
Large ²	Coal (not limited-use boilers)	<ul style="list-style-type: none"> Numeric emission limits for Hg and CO (Table 1) One-time energy assessment Fuel analyses (Table 5 and §63.11213) 	Show initial compliance w/in 180 days after compliance date (3/21/14)	<ul style="list-style-type: none"> Initial notification Notification of compliance status (electronic) Annual report 	<ul style="list-style-type: none"> Minimize startup and shutdown periods and conduct according to manufacturer’s recommended procedures Operating limits in Tables 3 and 6 Stack tests and procedures §63.11212 Continuous compliance §63.11222
	Biomass and Oil (not limited-use boilers)	<ul style="list-style-type: none"> Tune-up initially and every other year or every 5 years⁴ One-time energy assessment 	NA	<ul style="list-style-type: none"> Initial notification Notification of compliance status (electronic) 2- or 5-year report 	<ul style="list-style-type: none"> Continuous compliance §63.11223
Small ³	Coal, Biomass, and Oil (> 5MMBtu/hr)	<ul style="list-style-type: none"> Tune-up initially and every other year or every 5 years⁴ 	NA		
≤ 5 MMBtu/hr	Oil			<ul style="list-style-type: none"> Initial notification Notification of compliance status (electronic) 5-year report 	<ul style="list-style-type: none"> Continuous compliance §63.11223 Limited use - keep copy of fed enforceable permit and records of fuel use Seasonal - keep records of days of operation per year
Either	Seasonal and limited-use	<ul style="list-style-type: none"> Tune-up initially and every 5 years 	NA		
	Gas (all types)	<ul style="list-style-type: none"> None (NA to rule) 	NA	NA	NA

¹An existing dual-fired boiler meeting the definition of gas-fired boiler that meets the applicability requirements of subpart JJJJJ after June 4, 2010 due to a fuel switch from gaseous fuel to solid fossil fuel, biomass, or liquid fuel is considered to be an existing source under this rule as long as the boiler was designed to accommodate the alternate fuel.

²Large – heat capacity is greater than or equal (≥) to 10 MMBtu/hr.

³Small – heat capacity is less than (<) to 10 MMBtu/hr.

⁴If boiler uses an oxygen trim system that maintains an optimum air-to-fuel ratio, then tune every 5 years.

This page reflects rules in effect on February 1, 2013, updated sheets can be found at:

<http://www.kdheks.gov/air-permit/download.html>

**Fast Facts: Area Source Requirements
Industrial, Commercial, and Institutional Boilers
40 CFR Part 63, Subpart JJJJJ**

Do the Emission Limits Requirements Apply?

Heat Capacity (Btu/Hr)	Existing Coal Units	New Coal Units	Existing Oil Units	New Oil Units	Existing Biomass Units	New Biomass Units
>10 MM	Yes ¹	Yes ¹	No	Yes ^{1, 2, 3}	No	Yes ^{1, 2}
<10 MM	No	No	No	No	No	No

Am I required to do a One-Time Energy Assessment?

Heat Capacity (Btu/Hr)	Existing Coal Units	New Coal Units	Existing Oil Units	New Oil Units	Existing Biomass Units	New Biomass Units
≥10 MM	Yes ¹	No	Yes ¹	No	Yes ¹	No
<10 MM	No	No	No	No	No	No

Am I required to do a Tune-Up Every 5 Years?

Heat Capacity (Btu/Hr)	Existing Coal Units	New Coal Units	Existing Oil Units	New Oil Units	Existing Biomass Units	New Biomass Units	Existing Seasonal or limited use units	New Seasonal or limited use units
≥10 MM	No	No			Yes ⁴	Yes ⁴	Yes	Yes
<10 MM	Yes ⁴	Yes ⁴			Yes ⁴	Yes ⁴	Yes	Yes

	Existing Oil Units	New Oil Units					
>5 MM	Yes ⁴	Yes ⁴					
≤5MM	Yes	Yes					

- ¹ Provided the boiler does not meet the definition of limited-use boiler
- ² Provided the boiler does not meet the definition of seasonal boiler
- ³ Boilers combusting only oil containing ≤0.50 weight % sulfur or a mixture of 0.50 weight % sulfur oil with other fuels not subject to PM emission limit and do not use a post combustion technology (except a wet scrubber) are not subject to emission limits
- ⁴ Provided the boiler uses an oxygen trim system that maintains an optimum air-to-fuel ratio, otherwise tune-ups required biennially.

NSPS and KDHE construction permit/approval

<http://www.kdheks.gov/air-permit/download.html>

Boiler sizes that trigger permit or approval for NSPS Dc

Needs construction **approval**

Boiler or furnace type (<100MMBTU/hr input)	Boiler size		Pollutant Trigger	lb/hr			lb/24 hr		
	MMBTU/hr	hp (at 80% eff)		SOx	VOC	PM/PM10	NOx	CO	VOC
Wood-fired -- uncontrolled	> 3.5 and < 8.6	> 85 and < 205	CO	0.088	0.060	1.400	41.160	50.400	1.428
Residual oil #5 or #6	> 3.8 and < 17.3	> 90 and < 415	SOx	2.014	0.041	0.253	33.440	3.040	0.976
Distillate oil #1 or #2 or diesel fuel	> 14.6 and < 64.0	> 350 and < 1530	NOx	0.0225	0.0580	0.209	50.057	12.514	1.392
Natural gas -- uncontrolled	> 21.3 and < 93.2	> 510 and < 2230	NOx	0.0125	0.115	0.159	50.118	42.099	2.756
Natural gas -- low-NOx burners	≥ 10 and < 100	≥ 240 and < 2390		Required by KDHE					

Needs construction **permit**

Boiler or furnace type (<100MMBTU/hr input)	Boiler size		Pollutant Trigger	tons/yr				
	MMBTU/hr	hp (at 80% eff)		SOx	VOC	PM/PM10	NOx	CO
Wood-fired -- uncontrolled	≥ 8.6	≥ 205	PM10	0.942	0.640	15.067	18.457	22.601
Residual oil #5 or #6	≥ 17.3	≥ 415	SOx	40.16	0.811	5.052	27.784	2.526
Distillate oil #1 or #2 or diesel fuel	≥ 64.0	≥ 1530	NOx	0.432	1.113	4.005	40.0460	10.011
Natural gas -- uncontrolled	≥ 93.2	≥ 2230	NOx	0.240	2.201	3.042	40.021	33.618
Natural gas -- low-NOx burners	none	none	none	0.258	2.362	3.264	21.471	36.071



K A N S A S

SBEAP

Small Business Environmental Assistance Program

www.sbeap.org



Air Quality Rules



Boiler fuel type



SOx

NOx

CO

PM



NSPS and KDHE construction permit/approval

<http://www.kdheks.gov/air-permit/download.html>

Boiler sizes that trigger permit or approval for NSPS Dc

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Natural gas -- low-NOx burners	≥ 10 and < 100	≥ 240 and < 2390		Required by KDHE					

Needs construction **permit**

Boiler or furnace type (<100MMBTU/hr input)	Boiler size		Pollutant Trigger	tons/yr				
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Ozone

What do you know about it?

Ozone

- Good up high, bad nearby
- NO_x + VOCs + sunlight/heat = ozone
- Harmful to health
- New EPA standards



30 miles

Protective Ozone Layer

(Good Ozone)

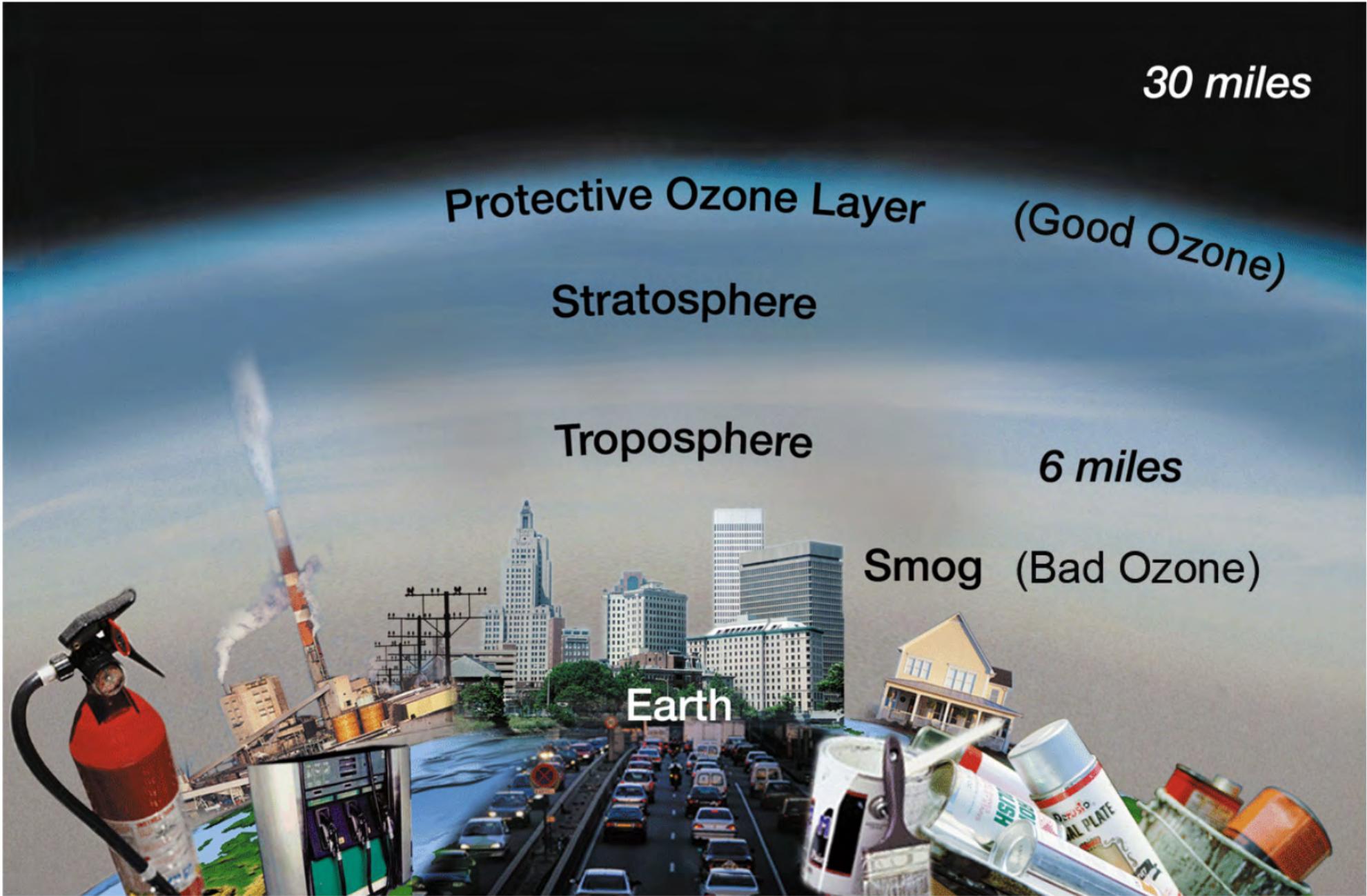
Stratosphere

Troposphere

6 miles

Smog (Bad Ozone)

Earth

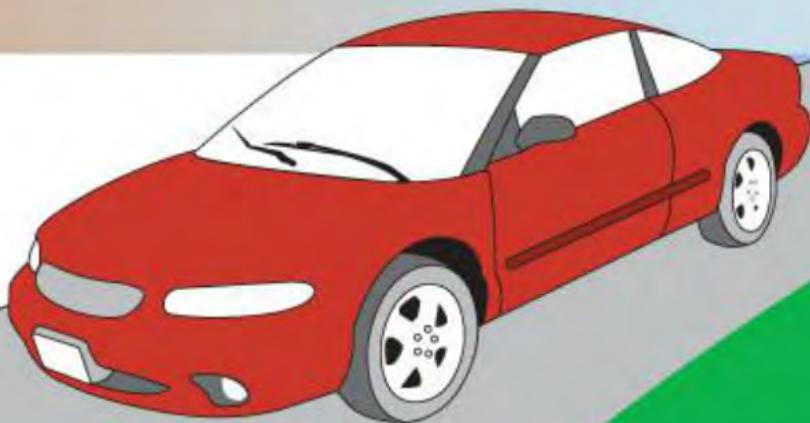


Ozone pollution basics:

- ✓ Formed by the reaction of pollutants in heat and sunlight

OZONE

NO_x + VOC + Heat & Sunlight = Ozone



Effects of Ozone

- irritates air ways
 - coughing
 - burning sensation
 - wheezing
 - shortness of breath
- aggravates asthma



Newsroom

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News Releases from Headquarters

EPA Strengthens Ozone Standards to Protect Public Health/Science-based standards to reduce sick days, asthma attacks, emergency room visits, greatly outweigh costs

Release Date: 10/1/2015

Contact Information: Enesta Jones, Jones.enesta@epa.gov, 202-564-7873, 202-564-4355; En español: Lina Younes, younes.lina@epa.gov, 202-564-9924, 202-564-4355

WASHINGTON – Based on extensive scientific evidence on effects that ground-level ozone pollution, or smog, has on public health and welfare, the U.S. Environmental Protection Agency (EPA) has strengthened the National Ambient Air Quality Standards (NAAQS) for ground-level ozone to 70 parts per billion (ppb) from 75 ppb to protect public health. The updated standards will reduce Americans' exposure to ozone, improving public health protection, particularly for at risk groups including children, older adults, and people of all ages who have lung diseases such as asthma. Ground-level ozone forms when nitrogen oxides (NO_x) and volatile organic compounds (VOCs) react in the air.

and
people
with
asthma
or other lung diseases

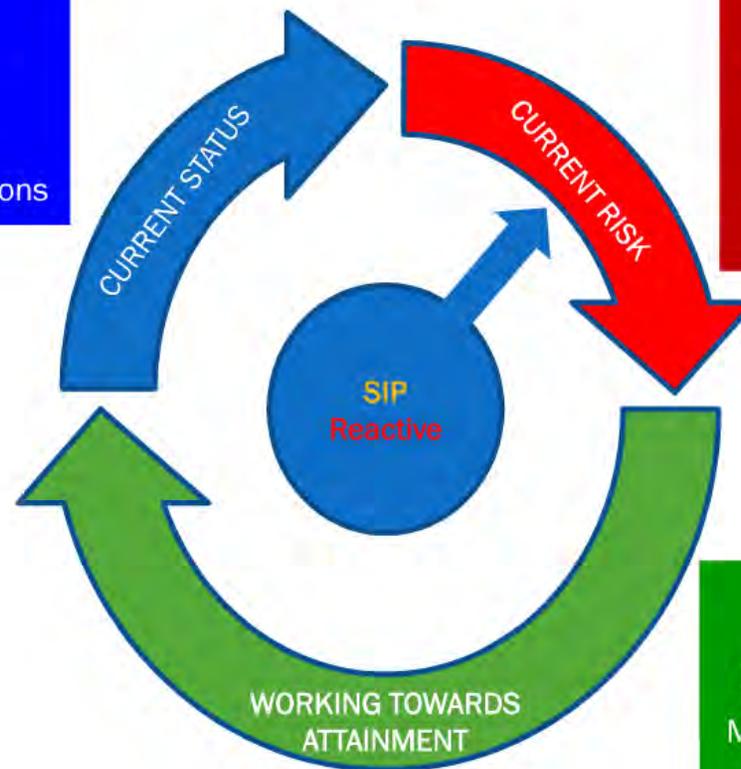


YouTube

Ozone Attainment Classifications

Attainment
Meeting the Standard
Current Status
Ozone Advance
Voluntary program to reduce emissions

Nonattainment
Not Meeting the Standard
Additional Federal Regulations
State Implementation Plan
Transportation Conformity Analysis



Maintenance
Meets the Standard Again
Maintain the standard for 10 yrs min
Potentially fewer restrictions & requirements

Impact of Non-Attainment

BUSINESS & INDUSTRY

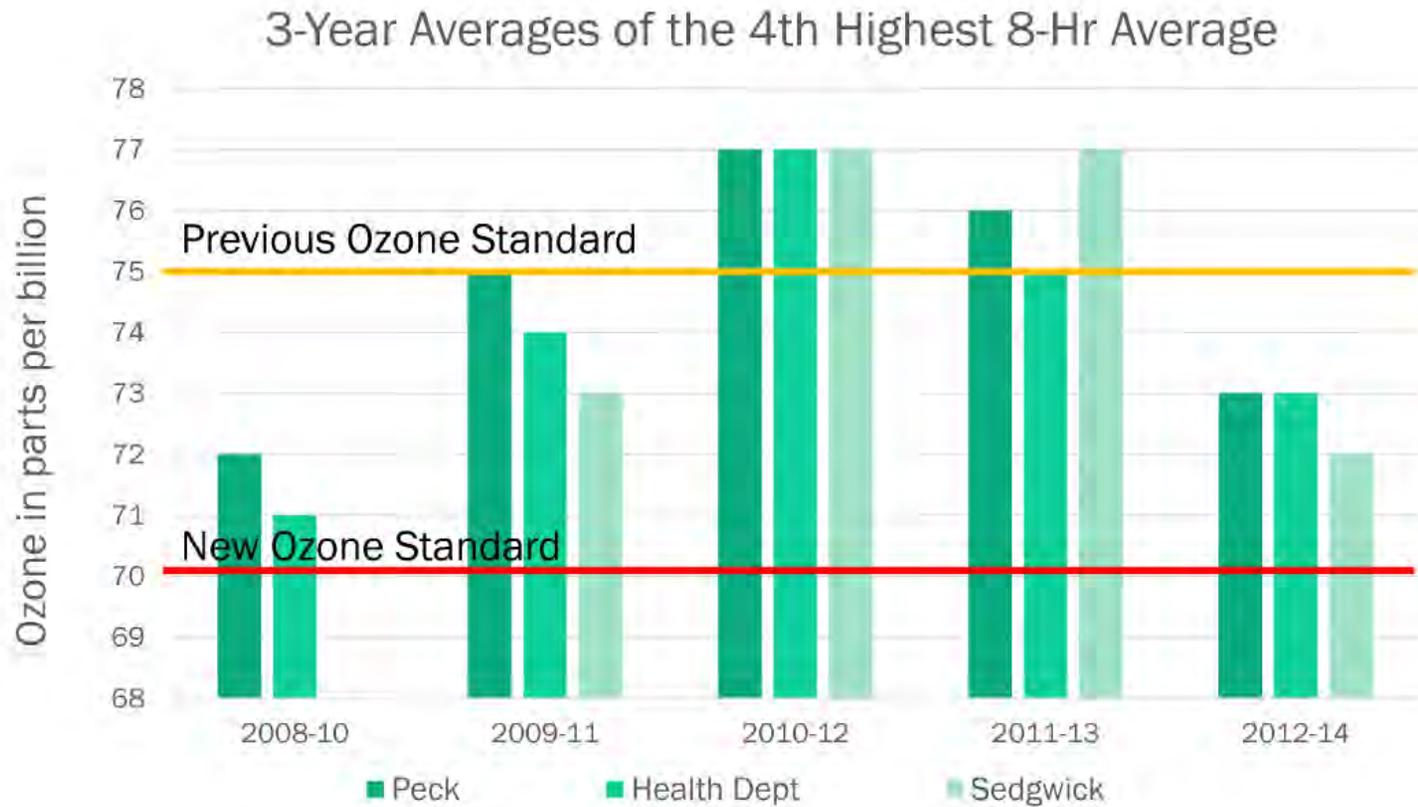
- ⌘ More Federal Regulation
- ⌘ More Stringent Permitting Requirements for Industry
- ⌘ Increased Costs for Businesses
- ⌘ Loss of New Business
- ⌘ Road Funding Impacts

CITIZENS & VISITORS

- ⌘ New Fuel Blend Requirement
- ⌘ Higher Fuel Costs
- ⌘ Higher Energy Costs
- ⌘ Health Care Costs for Some Individuals
- ⌘ Decreased Quality of Life

Cost estimates range in the tens of millions of dollars annually and are ongoing for at least 10 years.

Wichita MSA



Minimize boiler pollutants

- Conduct tune-ups
- Conduct one-time energy assessment
- Meet emission limits
- Consider upgrading
 - boilers that use wood, oil, or coal
 - boilers greater than 20 years old
 - non-condensing boilers
- Install low-NOx burners
- Other suggestions?



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