

Section 129 Impact

OUTLINE

Compliance Schedule

Emissions of concern

What constitutes Compliance

Technology

FBI

MHF

Title V permit is now a requirement

Risk

Section 129 Impact Compliance Schedule (BE IN OPERATION)

3 years after SIP Approved

OR

5 years after publish date

In reality, you must be in operation within
4 to 5 years from March 21, 2011

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Steps To Reach Compliance

1. Feasibility & Preliminary Design
 1. Can it be done?
 2. What will it cost?
 2. Apply for state funding
 3. Final design & bidding
 4. Award and construction
 5. Testing and compliance
- This will take about 4 years.

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Emissions Limits & Concerns

TABLE 1—EMISSION LIMITS FOR EXISTING SSI UNITS			
Pollutant	Units	Limits	
		MHF	FBI
Cadmium (Cd)	mg/dscm @ 7% O ₂	0.0095	0.0016
Mercury (Hg)	mg/dscm @ 7% O ₂	0.28	0.037
Lead (Pb)	mg/dscm @ 7% O ₂	0.30	0.0074
Particulate Matter	mg/dscm @ 7% O ₂	80	18
Carbon Monoxide (CO)	ppmvd @ 7% O ₂	3800	64
Sulfur Dioxide (SO ₂)	ppmvd @ 7% O ₂	26	15
Nitrogen Oxides (NO _x)	ppmvd @ 7% O ₂	220	150
Hydrochloric Acid (HCl)	ppmvd @ 7% O ₂	1.2	0.51
PCDD/PCDF, TEQ	ng/dscm @ 7% O ₂	0.32	0.10
PPCD/PCDF, TMB	ng/dscm @ 7% O ₂	5.0	1.2

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Units Conversion

TABLE 1—EMISSION LIMITS FOR EXISTING SSI UNITS				1 TD/H Incinerator			NJ Permit
Pollutant	Units	Limits		DSCFM @ 7%	DSCFM @ 7%	Units	Lower Limit
		MHF	FBI	16000	5700		
Cadmium (Cd)	mg/dscm @ 7% O ₂	0.0095	0.0016	0.0005	0.00003	#/h	0.002
Mercury (Hg)	mg/dscm @ 7% O ₂	0.28	0.037	0.014	0.0007	#/h	0.005
Lead (Pb)	mg/dscm @ 7% O ₂	0.30	0.0074	0.015	0.00013	#/h	0.004
Particulate Matter	mg/dscm @ 7% O ₂	80	18	3.99	0.32	#/h	1.3
Carbon Monoxide (CO)	ppmvd @ 7% O ₂	3800	64	3800	64	ppmd @ 7%	4.0
Sulfur Dioxide (SO ₂)	ppmvd @ 7% O ₂	26	15	26	15	ppmd @ 7%	12.2
Nitrogen Oxides (NO _x)	ppmvd @ 7% O ₂	220	150	220	150	ppmd @ 7%	18.5
Hydrochloric Acid (HCl)	ppmvd @ 7% O ₂	1.2	0.51	0.06	0.009	#/h	0.05
PCDD/PCDF, TEQ	ng/dscm @ 7% O ₂	0.32	0.10	1.6E-08	1.8E-09	#/h	
PPCD/PCDF, TMB	ng/dscm @ 7% O ₂	5.0	1.2	2.5E-07	2.1E-08	#/h	

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New Incinerator Emissions Limits & Concerns

TABLE 2—EMISSION LIMITS FOR NEW SSI UNITS			
Pollutant	Units	Limits	
		MHF	FBI
Cadmium (Cd)	mg/dscm @ 7% O ₂	0.0024	0.0011
Mercury (Hg)	mg/dscm @ 7% O ₂	0.15	0.0010
Lead (Pb)	mg/dscm @ 7% O ₂	0.0035	0.00062
Particulate Matter	mg/dscm @ 7% O ₂	60	9.6
Carbon Monoxide (CO)	ppmvd @ 7% O ₂	52	27
Sulfur Dioxide (SO ₂)	ppmvd @ 7% O ₂	26	5.3
Nitrogen Oxides (NO _x)	ppmvd @ 7% O ₂	210	30
Hydrochloric Acid (HCl)	ppmvd @ 7% O ₂	1.2	0.24
PCDD/PCDF, TEQ	ng/dscm @ 7% O ₂	0.045	0.013
PPCD/PCDF, TMB	ng/dscm @ 7% O ₂	0.0022	0.0044

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Reductions Required to Build A NEW Incinerator

EMISSION LIMITS FOR NEW SSI UNITS <u>REDUCTIONS</u>			
		Limits	
Pollutant	Units	MHF	FBI
Cadmium (Cd)	mg/dscm @ 7% O ₂	74.7%	31.3%
Mercury (Hg)	mg/dscm @ 7% O ₂	46.4%	97.3%
Lead (Pb)	mg/dscm @ 7% O ₂	98.8%	91.6%
Particulate Matter	mg/dscm @ 7% O ₂	25.0%	46.7%
Carbon Monoxide (CO)	ppmvd @ 7% O ₂	98.6%	57.8%
Sulfur Dioxide (SO ₂)	ppmvd @ 7% O ₂	0.0%	64.7%
Nitrogen Oxides (NO _x)	ppmvd @ 7% O ₂	4.5%	80.0%
Hydrochloric Acid (HCl)	ppmvd @ 7% O ₂	0.0%	52.9%
PCDD/PCDF, TEQ	ng/dscm @ 7% O ₂	85.9%	87.0%
PPCD/PCDF, TMB	ng/dscm @ 7% O ₂	99.96%	99.6%

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When do The Emissions Limit apply?

60.4860

“The emissions limits and standards apply at all times and periods of malfunction.”

“The operating limits apply at all times that sewage sludge is in the combustion chamber...” “... i.e., sewage sludge incinerator residence time...”

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Demonstration OF Compliance

60.4865

1. Initial Stack Test, Or
2. Continuous Emission Monitoring System(CEMS) or Continuous Automated Sampling System (CASS) For All Pollutants

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Demonstration OF Continuous Compliance

60.4865

1. Annual Stack Test, and
2. Parametric compliance for all emissions except CO.
3. CEMS for CO -24 Hour block average.
4. 75% of limit for 2 yrs. allows no sampling for that pollutant for the next 2 years.

Alternately,

CEMS and CASS for all emissions limits.

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Operating Limits

Operating Limits are parameters measured & recorded which show proper operation for the APC equipment. For example, water flow, delta P and pH for a scrubber system.

If you have a CEMS or CASS you do not need Operating Limits – you are measuring emissions “continuously.”

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Startup, Shutdown & Malfunction (SSM)

The limits apply at all times there is sludge in the incinerator.

During SSM the CO values do not have to be corrected to 7% O₂. You may use the raw concentration.

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APC Equipment Inspections

60.4895

Required Annually (“no later than 12 months..”)

Any needed repairs must be completed within 10 days, unless you obtain approval....

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Demonstrating Operating Limit Compliance

60.4905

You must monitor and record data such as pressure drop, water flow, pH, secondary voltage, temperature, etc. continuously (at least 4 times per hour) and calculate an hourly average value.

Compliance is a 24 hour average for many items.

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Technology –Multiple Hearth Incinerators

1. NOx
 1. Regenerative Thermal Oxidizer
 2. Flue Gas Recirculation
 3. NOx removal systems
2. Hg
 1. Activated carbon adsorption
 1. Adsorption columns
 2. Direct injection
 2. Cleaner sludge
3. Metals
 1. Improved scrubber system
 2. WESP
 3. Bag collector
4. Acid Gases –Add NaOH to scrubber system

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Technology –Fluid Bed Incinerators

1. NOx
 1. Control Bed temperature
 2. Control overall excess air
2. Hg
 1. Activated carbon adsorption
 1. Adsorption columns
 2. Direct injection
 2. Cleaner sludge
3. Metals
 1. Improved scrubber system
 2. WESP
 3. Bag collector
4. Acid Gases –Add NaOH to scrubber system

Section 129 Impact Training – “State Approved Program”

1. Environmental Concerns & Emission types.
2. Basic combustion and products of combustion
3. Specific Inc. Type
 1. Startup & Shutdown, & Sludge feeding
4. Combustion Controls & Monitoring
5. Operation of APC Equipment
6. Inspection & Maintenance of Incinerator & APC Equipment
7. Actions to Prevent Malfunctions
8. Ash Handling –Particularly dry ash
9. Federal, State & Local Regulations, Including OSHA Work Place Standards
10. Pollution Prevention

Final Examination

Written material for future reference

Then annual review & refresher course (Min topics 1 thru 5)

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Title V is now a requirement

As part of this regulation, all incinerator locations will have to obtain a Title V Operating Permit.

This permit includes all of the emissions for the entire facility. Be careful, this is NOT an opportunity for NJDEP to revise existing limits.

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RISK

Monitors vs. Annual Testing

1. Monitors show failures daily.
2. Annual testing is likely less costly than running the CEMS and CASS systems. You can also pretest periodically to be sure you are in compliance before the real thing.