

REINHOLD ENVIRONMENTAL Ltd.



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power generation group

***MATS Compliance Strategy
Multi-Pollutant Control***

by

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MATS Emissions Limits for Existing Units

<i>Subcategory</i>	<i>Filterable Particulate</i>	<i>Hydrogen Chloride</i>	<i>Mercury</i>
Existing unit, <u>not low rank</u> virgin coal	0.030 lb/MMBtu (0.30 lb/MWh)	0.0020 lb/MMBtu (0.020 lb/MWh)	1.2 lb/TBtu (0.013 lb/GWh)
Existing unit, designed for <u>low</u> <u>rank</u> virgin coal	0.030 lb/MMBtu (0.30 lb/MWh)	0.0020 lb/MMBtu (0.020 lb/MWh)	4.0 lb/TBtu (0.040lb/GWh)

Which Equipment Affects Particulate Matter (PM) Emission?

SCR



SDA or CDS



DSI



PAC



ESP or FF



Wet FGD



Wet ESP



Equipment that Affects Particulate Matter (PM) Emission

<i>Product</i>	<i>Contribution to PM Emission Control</i>
SCR	Can increase PM emissions due to SO₂ oxidation
SDA or CDS	Increases dust burden to the PM control device
DSI	Increases dust burden to the PM control device
PAC	Increases dust burden to the PM control device
ESP or Fabric Filter	Yes, primary control device
Wet FGD	Sometimes yes, sometimes no
Wet ESP	Yes, polishing device

Which Equipment Controls HCl Emission?

SCR



SDA or CDS



DSI



PAC



ESP or FF



Wet FGD



Wet ESP



Equipment that Controls HCl Emission

<i>Product</i>	<i>Contribution to HCl Emission Control</i>
SDA or CDS	Absorbs HCl
DSI	Absorbs HCl
ESP or Fabric Filter	When used with DSI
Wet FGD	Absorbs HCl

Which Equipment Affects Hg Emission?

SCR



SDA or CDS



DSI



PAC



ESP or FF



Wet FGD



Wet ESP



Equipment that Affects Hg Emission

<i>Product</i>	<i>Contribution to Hg Emission Control</i>
SCR	Can oxidize Hg, but catalyst deactivation diminishes oxidation over time
SDA or CDS	Collects oxidized fraction; When used with PAC, provides good mixing of Hg and PAC and gas cooling
DSI	SO₃ < 3 ppm at PAC injection point
PAC	Adsorbs Hg
ESP or Fabric Filter	Separates PAC from gas stream; Adsorption of Hg on the particulate
Wet FGD	Collects oxidized fraction

MATS Pollutant Control Summary

Product	PM	HCl	Hg
SCR	SO ₂ to SO ₃ Oxidation	N/A	Hg oxidation
SDA/CDS	Increased dust burden to PM device	Primary Control Device	Yes, for oxidized fraction; With PAC, for mixing and cooling
DSI	Increased dust burden to PM device / Reduce SO ₃	Trim or Primary Control	Yes, if SO ₃ > 3 ppm
PAC	Increased dust burden to PM device	N/A	Yes
ESP / Fabric Filter	Primary Control Devices	Yes, with DSI or SDA/CDS	Yes, with PAC
Wet FGD	Increase or Decrease	Yes	Yes, for oxidized fraction
Wet ESP	Yes	N/A	N/A

Compliance Fundamentals

- **Only thing that counts is what is coming out of the stack**
- **Each control device in a train can impact stack emissions**
- **Emissions will be monitored continuously**
 - **PM 30-day rolling average**
 - **Hg 90-day rolling average**
- **For PM this is a fundamental change.**
- **Previously compliance was determined after PM device or Method 5B was used after a Wet FGD. Now Method 5 is required**

There is no “one size fits all” solution



Compliance Strategies - Examples

- **Do nothing**
- **Inspect, test, evaluate options – entire train**
- **Address reliability issues – neglected repairs**
- **Retain ESP, add FF for polishing/Hg**
- **Add SDA/CDS, PAC...**
- **Add SDA/CDS & convert or replace ESP with FF**
- **Make the ESP “larger” (Add a field, Rebuild, Repower)**
- **Add SDA/CDS, FF and/or WFGD**

There is no “one size fits all” solution

