

BIG RIVERS ELECTRIC CORPORATION
REGULAR BOARD OF DIRECTORS MEETING
APRIL 15, 2011

The regular meeting of the board of directors of Big Rivers Electric Corporation was called to order at 8 a.m., CDT, on Friday, April 15, 2011, at 201 Third Street, Henderson, Kentucky 42420.

[REDACTED]

[REDACTED] & [REDACTED]

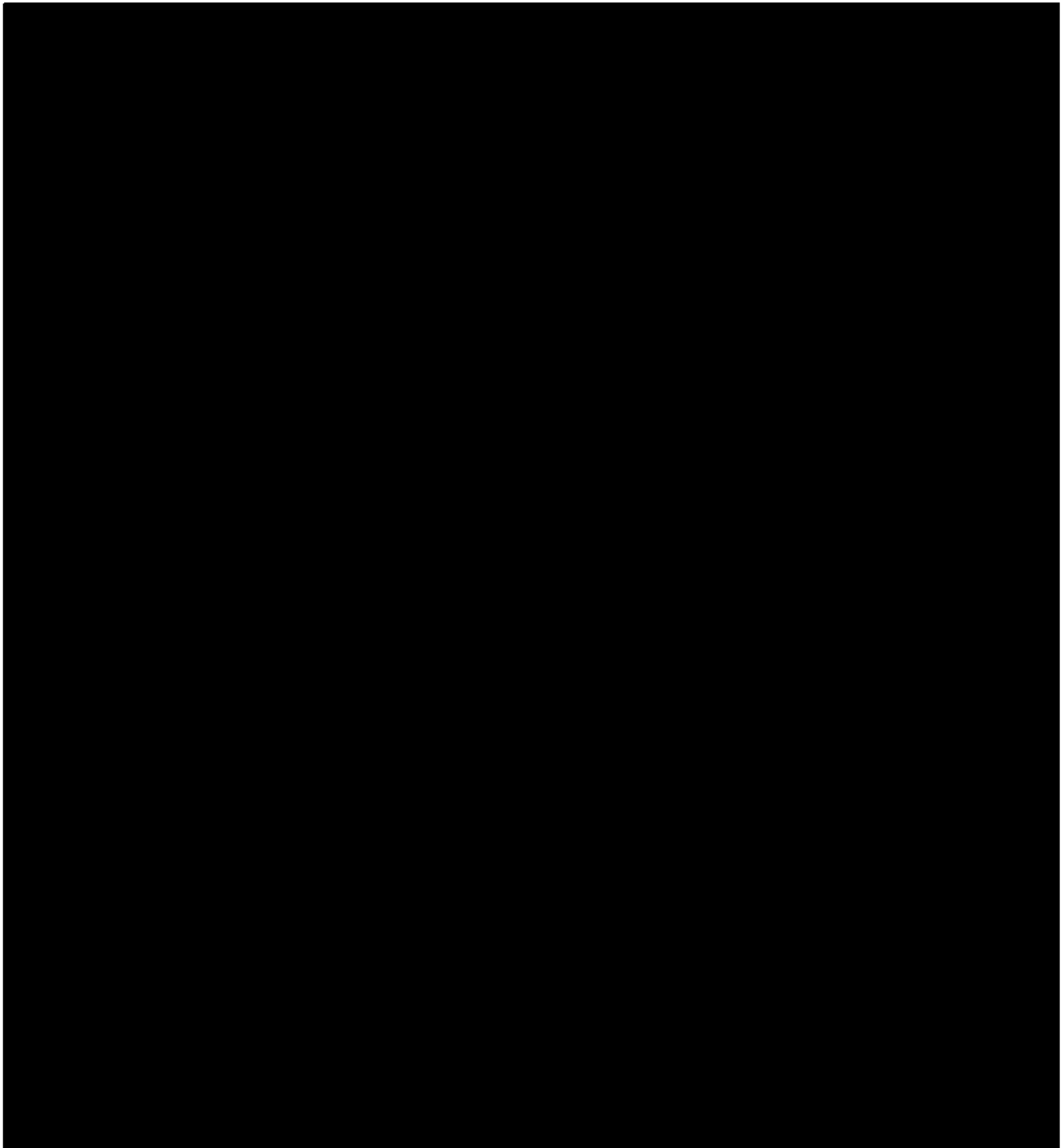
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Tom Shaw, manager environmental services, presented an overview of the EPA's HAPs regulations. He also reviewed the steps Big Rivers is taking to comply with these environmental regulations.



Proposed Hazardous Air Pollutants Control

Hazardous Air Pollutants
Maximum Achievable Control
Technology (HAP's MACT)

April 15, 2011

HAP's

- Arsenic (As)
- Antimony (Sb)
- Beryllium (Be)
- Cadmium (Cd)
- Chromium (Cr)
- Cobalt (Co)
- Dioxins/Furan
- Hydrogen Chloride (HCl)
- Hydrogen Fluoride (HF)
- Lead (Pb)
- Manganese (Mn)
- Mercury (Hg)
- Nickel (Ni)
- Selenium (Se)

HAP's Limits

- Antimony 0.6 lbs/tBtu
- Arsenic 2 lbs/tBtu
- Beryllium 0.2 lbs/tBtu
- Cadmium 0.3 lbs/tBtu
- Chromium 3 lbs/tBtu
- Cobalt 0.8 lbs/tBtu
- Hydrogen Chloride 0.002 lbs/mmBtu
- Lead 2 lbs/tBtu
- Manganese 5 lbs/tBtu
- Mercury 1 lbs/tBtu
- Nickel 4 lbs/tBtu
- Selenium 6 lbs/tBtu
- Alternate limit for Total non-Hg HAP Metals 0.00004 lbs/mmBtu
- Alternate limit for Total non-Hg metal using particulate monitor 0.03 lbs/mmBtu
- Alternate limit for HCL SO₂ at 0.2 lbs/mmBtu

Proposed HAP's MACT Rule Overview

- Emission rates based on pounds per million BTU (lbs/mmBTU) or pounds per trillion BTU (lbs/tBTU).
- To give a sense of the order of magnitude: million = 1,000,000, trillion= 1,000,000,000,000 ; 10^6 vs. 10^{12} .
- Compliance based on a 30 day rolling average.
- Emission averaging among units at a facility.
- Stack Testing, Surrogate Monitors and/or Pollutant Specific Monitors to measure compliance.

Proposed HAP's MACT Rule Overview

- Proposed rule currently in the comment period.
- Final rule by November 15, 2011.
- Published in the Federal Register early 2012.
- Compliance deadline 3 years after published in the Federal Register (early 2015).

Big Rivers Facility Estimate of HAP's Emissions

Pollutant	2006				2007			2008		
	Actual	Permit	Permit	Permit	Actual	Permit	Permit	Actual	Permit	Permit
SO ₂	2.12	7.9	24-45	24-45	7.3	6.7	1.1	?	0.27	
NO _x	0.25-0.37				0.30-0.40	0.37-0.40		4.62	0.44-0.50	
CO										
PM ₁₀										
PM _{2.5}										
Mercury										
Lead										
Cadmium										
Chromium										
Vanadium										
Other HAP's										

HAP's MACT Control Equipment Options

- Carbon injection with bag house collection.
- Selective Catalytic Reduction (SCR) Technology.
- Scrubbers.
- Chemical Injection.
- Fuel Conversion to Natural Gas.

Compliance Monitoring Options for HAP's

- Mercury- Hg CEMs, Sorbent Tube, Stack Testing Every Other Month.
- Acid Gases- HCL CEMs, SO₂ CEMs, Stack Testing Every Other Month.
- Non-Hg Metallic HAPs – PM CEMs, Stack Testing Every Other Month.
- Organic HAPs (Dioxins / Furans) – Work Practice Standards and Tune Up every 18 months.

Update on Status of Proposed Regulations.

- The HAP's MACT proposal is the 3rd environmental rule proposed by EPA impacting coal generation.
- Clean Air Transport Rule.
- Coal Combustion Residuals Rule.
- 316 b just published.
- Proposed Rules yet to be published.
 - Steam Effluent Guidelines.
 - 316 a.
- A common compliance strategy is difficult due to the different compliance timelines.

The Next Step for Big Rivers

- Engage the services of an A&E
- Establish a time line to evaluate control technologies and or fuel switching to meet proposed emission rates and the change in classification of ash.

Proposed Timeline

Task Name	Start	Finish	April	May	June	July	August	September	October	November
BREC request for quotes to A&E firms of Sergeant & Lundy and Burns & McDonnell	Wed 4/6/11	Wed 4/6/11	█							
Receive bids from A&E firms	Thu 4/14/11	Thu 4/14/11	█							
BREC evaluate A&E bids	Fri 4/15/11	Mon 4/18/11	█							
BREC issue purchase order to A&E to begin developing a timeline to comply with environmental regulations	Tue 4/19/11	Wed 4/20/11	█							
Plant visit by A&E and provide a detailed list of required testing for all of BREC Units	Mon 5/2/11	Fri 5/13/11		█						
BREC provide drawings of plant equipment as requested by A&E	Mon 5/9/11	Wed 6/1/11		█						
Unit stack testing by BREC environmental group	Wed 6/1/11	Mon 8/1/11			█	█				
A&E provides compliance options for BREC units	Wed 6/1/11	Thu 9/1/11			█	█	█			
A&E meets with BREC Management to discuss options for compliance including control equipment and cost	Sun 9/4/11	Sun 9/4/11						█		
BREC management reviews control equipment options, estimated cost, and outage schedules to accommodate construction	Mon 9/5/11	Tue 11/1/11						█	█	
Review environmental compliance options with the Board of Directors	Thu 11/17/11	Fri 11/18/11								█

Questions ?