



EXHIBIT 15
DATE 2.15.05
HB 455

Brian Schweitzer, Governor

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MEMORANDUM

TO: House Natural Resource Committee

FROM: Don Vidrine, Chief of the Air Resources Management Bureau

DATE: February 9, 2005

SUBJECT: Response to question regarding Activated Carbon Injection (ACI) and HB 455

This memorandum was prepared in response to Representative Gutsche's question during the House Natural Resource Committee hearing for HB 455 on February 4, 2005, regarding the proposed coal-fired power plant MidAmerican Energy Company (MidAmerican) and its permit condition requiring greater than 80% control of mercury emissions using ACI. The permit, issued by the Iowa Department of Natural Resources (DNR) with relevant portions attached, did include a mercury limit of 1.7×10^{-6} pounds per million British thermal units (lb/MMBtu), which is equivalent to 1.7 lb/trillion Btu (lb/Tbtu). That limit was based on an approximate 83% reduction in mercury emissions. The limit was established by Iowa DNR based on an ACI test at the Great River Energy's Stanton Generating Station (North Dakota), which Iowa DNR believed to be fairly similar to the proposed MidAmerican facility. Tests (on lignite coal, not the subbituminous to be used by MidAmerican) showed that a removal efficiency of 81% may be achievable. Iowa DNR stated that removal efficiencies of 83-85% might be possible with higher injection rates of carbon. This information was discussed with Corey Detter, an Environmental Engineer with Iowa DNR (phone number: 515-281-4842, e-mail: Corey.Detter@dnr.state.ia.us) who was the permit engineer for the MidAmerican permit. The information is also available in the Technical Support Document of the permit. Mr. Detter stated that the facility had begun construction this summer (poured concrete supports, etc.), but had not commenced operation. Mr. Detter also stated that he believed MidAmerican accepted the mercury limits due to timing and the need for their permit and because of a review process required by the Iowa equivalent of the Public Service Commission to address regulatory requirements projected for the next 10 years (Iowa is a fully regulated state for energy).

This information was also discussed with Mr. Steve Guyer (phone number: 515-281-2692), an environmental contact with MidAmerican. He stated that MidAmerican accepted the mercury limit because they needed their permit and because there are specific provisions in the attached portion of the permit that allow the permit limit to be changed if it cannot be met. He stated they had not been able to secure vendor guarantees with the ACI at their permitted limit. MidAmerican has secured a vendor guarantee for between 50 and 55% mercury removal efficiency, and anticipates having to change the permit to reflect what could actually be achievable. In addition, Mr. Guyer stated that according to the permit (this portion also attached), if EPA promulgated the Utility Maximum Achievable Control Technology (MACT) standards (due out in some form in March of 2005), the permitted mercury limit and ACI requirement would be replaced by those MACT standards.

According to EPA's mercury website (www.epa.gov/mercury/control_emissions/technology.htm), no power plants are currently using ACI technology, except for testing of the technology. EPA states in a January 1, 2004 report (<http://www.epa.gov/ttn/atw/utility/hgwhitepaperfinal.pdf>) that ACI has "the potential to achieve moderate to high levels" of mercury control based on limited testing (tests generally

were for one or two four or five day periods per site). The first full-scale demonstration project for ACI (Presque Isle Plant, Michigan) was initiated by the U.S. Department of Energy in April 2004 (to include design, installation, operation, and evaluation of an ACI system) and is expected to be completed in 2009.

The current regulations, including Best Available Control Technology and MACT, require that emission limitations be technically achievable using methods that are currently available. When the emission limitations become achievable or technology becomes available, the Department of Environmental Quality will be obligated to consider this in any control technology analysis associated with an air quality permit application.

Iowa Department of Natural Resources

Air Quality PSD Construction Permit

Notice of MACT Approval

Permit Holder

Firm: MidAmerican Energy Company

Contact:

Chad A. Teply
 Outage Project Manager
 (712) 366-5316

Responsible Party:

Jack L. Alexander
 Sr. Vice President Supply and Marketing

2115 Navajo Road
 Council Bluffs, IA 51501

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Permitted Equipment

Emission Unit(s): CBEC 4 Boiler (7,675 MMBTU/hr),
 Three (3) Carbon Silos (4,800 ft³ each), and Fugitive Emissions

Control Equipment: Baghouse, Low NO_x Burners, Overfire Air, Selective Catalytic
 Reduction, Activated Carbon, and Lime Spray Dryer Flue Gas
 Desulfurization

Emission Point: 141

Equipment Location: 2115 Navajo Road
 Council Bluffs, IA 51501

Plant Number: 78-01-026

Permit No.	Proj. No.	Description	Date	Testing
03-A-425-P	02-528	Original permit.	6/17/03	Yes

Under the Direction of the Director of
 the Department of Natural Resources

9. Permit Violations

Knowingly committing a violation of this permit may carry a criminal penalty of up to \$10,000 per day fine and 2 years in jail according to Iowa Code Section 455B.146A.

10a. BACT Emission Limits

Pollutant	Tons/Yr ¹	Additional Limits
State Particulate Matter (PM)	NA	0.027 lb/MMBTU ²
PM ₁₀	NA	0.025 lb/MMBTU ²
Opacity ³	NA	5% ⁴
Sulfur Dioxide (SO ₂) ³	3,362	0.1 lb/MMBTU ⁵
Nitrogen Oxides (NO _x) ³	2,353	0.07 lb/MMBTU ⁵
Volatile Organic Compounds	121	0.0036 lb/MMBTU ²
Carbon Monoxide (CO) ³	5,177	0.154 lb/MMBTU ⁶
Lead (Pb)	NA	0.000026 lb/MMBTU
Flourides (F)	NA	0.0009 lb/MMBTU
Total Reduced Sulfur (TRS)	NA	0.001 lb/MMBTU
Sulfuric Acid Mist (H ₂ SO ₄)	NA	0.00421 lb/MMBTU

¹ Standard is a 12-month rolling total.

² Standard is expressed as the average of 3 runs.

³ Compliance with the emission standards shall be demonstrated through the use of Continuous Emission Monitoring Systems (CEMS).

⁴ Standard is a 1-hr average.

⁵ This standard is a 30-day rolling average not including periods of startup, shutdown, and malfunction.

⁶ Standard is a 1 calendar day average.

10b. 112g Emission Limits

Pollutant	Lb/MMBTU
Mercury	1.7 X 10 ⁻⁶ ⁽¹⁾
Hydrogen Chloride (HCl)	0.0029 ⁽¹⁾
Total Selected Metals (TSM) ²	1.04 X 10 ⁻⁴ ⁽¹⁾
Federal PM ³	0.018 ⁽¹⁾
CO ⁴	0.154 ⁽⁵⁾

¹ Standard is expressed as the average of 3 runs.

² Total Selected Metals (TSM) means the combination of the following metallic HAP: arsenic, beryllium, cadmium, chromium, lead, manganese, nickel, and selenium.

³ The federal particulate matter standard listed is a surrogate to show continual compliance with the total selected metals standard.

⁴ Compliance with the emission standards shall be demonstrated through the use of a CEMS.

⁵ Standard is a 1 calendar day average.

13. NSPS, NESHAP, and Acid Rain Applicability

This emission unit is subject to Subparts A (General Provisions, 40 CFR §60.1 – 40 CFR §60.19) and Da (Standards of Performance for Electric Utility Steam Generating Units for Which Construction is Commenced After September 18, 1978, 40 CFR §60.40a – 40 CFR §60.49a) of the New Source Performance Standards (NSPS).

This emission unit is subject to Subparts A (General Provisions, 40 CFR §63.1 – 40 CFR §63.15) and B [Requirements for Control Technology Determinations for Major Sources in Accordance With Clean Air Act Sections, Sections 112(g) and 112(j), 40 CFR §63.40 – 40 CFR §63.56] of the National Emission Standard for Hazardous Air Pollutants (NESHAP). Consistent with the requirements of 40 CFR §63.44, if the EPA Administrator promulgates an applicable emission standard under Section 112(d) or Section 112(h) of the Act, or if the permitting authority issues a determination under Section 112(j) of the Act, this permit will be modified as necessary to make the terms of this permit consistent with the applicable standard.

The facility (plant number 78-01-026) is considered an affected source under 40 CFR 72, 73, 75, 76, 77, and 78 definitions as emission units at this source are subject to the acid rain emission reduction requirements or the acid rain emission limitations, as adopted by the Department by reference (See 567 IAC 22.120 – 567 IAC 22.148). CBEC Boiler 4 will be subject to the SO₂ allowance allocation, NO_x emission limitations, and monitoring provisions of the federal acid rain program.

14. Operating Limits

Operating limits for this permit shall be:

- A. CBEC Boiler 4 shall be limited to firing on coal and #2 fuel oil (for light off, startup, and flame stabilization).
- B. The sulfur (S) content of the fuel used shall not exceed 0.625 lbs of S/MMBTU.
- C. Per 40 CFR §60.42a(a)(2), particulate matter (federal) emissions shall not exceed 1% of the potential combustion concentration (99% reduction) when combusting coal.
- D. Per 40 CFR §60.43a(a)(1) and 40 CFR §60.43a(a)(2), sulfur dioxide emissions shall not exceed
 - (1) 520 ng/J (0.60 lb/MMBTU) heat input and 10% of the potential combustion concentration (90% reduction) when combusting coal, or
 - (2) 30% of the potential combustion concentration (70% reduction), when emissions are less than 260 ng/J (0.60 lb/MMBTU) heat input. Compliance with this standard is determined on a 30-day rolling average basis.
- E. Per 40 CFR §60.46a(d), during emergency conditions an affected facility with a malfunctioning flue gas desulfurization system may be operated if sulfur dioxide emissions are minimized by:
 - (1) Operating all operable flue gas desulfurization system modules, and bringing back into operation any malfunctioned module as soon as repairs are completed,
 - (2) Bypassing flue gases around only those flue gas desulfurization system modules that have been taken out of operation because they were incapable of any sulfur dioxide emission reduction or which would have suffered significant physical damage if they had remained in operation, and

14. Operating Limits (Continued)

(3) Rail unloading coal stockout pile:

- (i) The size of the inactive coal storage pile shall not exceed 28,224 square feet.
- (ii) Fugitive emissions shall be controlled by applying a chemical dust suppressant. Applications of the selected chemical dust suppressant and the record keeping requirements described in Condition 15.V. shall begin at the same time as the startup of Boiler 4. A control efficiency of 95% shall be maintained. MidAmerican may elect to use any chemical dust suppressant that is capable of achieving the 95% control efficiency. In the event that the manufacturer or distributor of a chemical dust suppressant recommends different amounts of chemical dust suppressant or MidAmerican chooses to use a different chemical dust suppressant, MidAmerican shall notify DNR of the change in application rates and/or chemical dust suppressant and the manufacturer's/distributor's recommendations.
- (iii) If the selected chemical dust suppressant cannot be applied because the ambient air temperature (as measured at the facility during daylight operating hours) will be less than 35° F (1.7° C) or other conditions due to weather cause the chemical dust suppressant to not be applied then the chemical dust suppressant application shall be postponed and applied as soon after the scheduled application date as the conditions preventing the application have abated.

M. Optimization studies are required for the control of SO₂, NO_x, and Hg. These studies shall evaluate the affects of increased activated carbon injection, increased injection of slurry in the spray dryer absorber, and the optimization of the operation of the SCR unit. The following conditions shall be met for the studies:

- (1) Prior to the initiation of the studies, a protocol for each study shall be developed and approved by the Department.
- (2) During each trial, the emissions of the individual pollutant shall be measured.
- (3) For the mercury study the following shall be collected:
 - (i) Data concerning the mercury content of the coal.
 - (ii) Data on the coal consumption rate.
 - (iii) The mercury content of the bottom ash.
 - (iv) The generation rate of the bottom ash shall be collected.
- (4) The emission data during the trials shall be collected using either three (3) stack test runs or CEMS required by Condition 16 of this permit. All stack testing done for this optimization study shall be coordinated with the Department.
- (5) The studies shall be conducted in a manner to collect a minimum amount of data representative of the variability of coal used by the facility. The studies shall be completed within nine (9) months of the completion of all initial compliance tests.
- (6) A report summarizing the results of individual study shall be submitted to the Department within forty-five (45) days after the completion of the individual optimization study. This report shall include all data necessary to confirm the emission rates measured during each trial. This permit shall be reopened and the permit limits adjusted if the information in the report shows an amendment is necessary.
- (7) Exceedances of any emission limit that occur during a trial of this optimization study is not a violation of the emission limit set forth in this permit as long as the owner or operator maintains and operates the equipment and control equipment at all times in a manner consistent with good practice for minimizing emissions. While not conducting a trial of this optimization study, the control equipment must be operated in a manner consistent with the operational limits outlined in this permit.