

**Public Comments & DNR Response**  
**Presumptive BACT for Formaldehyde Emissions Generated From Landfill Gas-Fired SI RICE**

The Department received comments from 3 individuals. Thank you to all for taking the time to review and comment on the proposed guidance. The comments are summarized or abbreviated below with the associated response.

The Department received the following two comments in support of the proposal and its approach to use work practice standards modeled after federal requirements.

**Comment 1:**

*[O]n behalf of Waste Management I am submitting this comment in support of the proposed guidance for the presumptive BACT for formaldehyde emissions from landfill-gas-to-energy plants. We appreciated the opportunity to participate in the Technical Advisory Committee through which facility owners and air quality experts worked with Department staff. The proposed guidance will ensure that air quality is protected and landfill-gas-to-energy plants can continue their significant contributions to Wisconsin's renewable power infrastructure.*

*We ask that the Department adopt the guidance as proposed.*

**Comment 2:**

*Work Practice Standards-3.B.1.*

*Dairyland supports the use of work practice standards modeled after those contained in the Part 63, Subpart ZZZZ (RICE) rule as presumptive BACT for formaldehyde emissions from SI landfill gas fired RICE.*

**Response:**

*The Department appreciates the support of the commenters.*

The Department received the following comment questioning the requirement for periodic stack testing for formaldehyde.

**Comment:**

*Periodic Stack Test Emission Testing for Formaldehyde-3.B.2.*

*Dairyland questions the requirement to perform periodic (i.e., every five years) stack testing for formaldehyde if no standard is being measured against. Emission testing can be costly, particularly if multiple engine classes/categories are located at a facility, plus owner/operators of landfill gas-fired RICE have internal cost associated with stack emission testing (e.g., unit operation, additional staff labor for test coordination). Therefore, Dairyland would recommend that the requirement to perform periodic formaldehyde stack emissions tests be removed from the draft Presumptive BACT.*

**Response:**

*The Department appreciates and has taken into account the cost of the stack emission testing requirement in the presumptive BACT analysis.*

*Data regarding formaldehyde emissions from landfill gas-fired sources are limited, due in part to the lack of reliable and/or approved test methods for formaldehyde from these sources. Much of the presumptive BACT (applicability threshold, cost effectiveness of control technologies) is premised on an average emission rate taken from engine tests in Wisconsin. Due to the variability of the constituents that make up landfill gas and subsequent emission of formaldehyde resulting from the combustion of the gas in SI engines, the Department has determined it important to both check in on its presumptions and build a more robust data base over time. Costs to a facility that elects to operate under the presumptive BACT are mitigated by allowing a test for a single engine to represent a class or category of engines at the facility.*

*The five year periodic test requirement will remain unchanged in the final guidance.*

The Department received the following informative comment:

**Comment:**

*[F]or larger landfills that produce in excess of 1,500 MMcf of methane per day they could install a Small-Scale methane Liquefaction Technology system using a portion of the landfill gas. See attached. This would dramatically reduce the formaldehyde emissions and maintain their revenue source at a similar cost to installing a SI RICE in the first place.*

**Response:**

*The Department appreciates the information provided by the commenter. While it presents a feasible alternative to burning landfill gas in SI engines thus reducing formaldehyde emissions, it is outside of the scope of the presumptive BACT analysis. The purpose of the analysis is to conduct a “top-down” evaluation of control technologies to reduce formaldehyde emissions that can be applied to the burning of landfill gas in SI engines to produce electricity. Converting methane to liquid natural gas using a liquefaction technology system is a completely different process that would redefine the purpose of the facility.*

*No changes to the guidance have been made as a result of this comment.*



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AIR MANAGEMENT

April 15, 2014

Mr. Andrew Stewart  
NR Manager  
Wisconsin Department of Natural Resources  
101 S Webster Street  
P.O. Box 7921  
Madison, WI 53707-7921

Dear Mr. Stewart:

**SUBJECT: Comments on Draft Presumptive Best Available Control Technology for Formaldehyde Emissions Generated From Landfill Gas-Fired Spark Ignition Reciprocating Internal Combustion Engine**

Dairyland Power Cooperative (Dairyland) appreciates the opportunity to comment on the Draft Presumptive Best Available Control Technology (BACT) for Formaldehyde Emissions Generated From Landfill Gas-Fired Spark Ignition (SI) Reciprocating Internal Combustion Engine (RICE) (hereafter referred to as Presumptive BACT).

Dairyland hereby submits its comments on the Draft Presumptive BACT.

**I. WORK PRACTICE STANDARDS – 3.B.1.**

Dairyland supports the use of work practice standards modeled after those contained in the Part 63, Subpart ZZZZ (RICE) rule as presumptive BACT for formaldehyde emissions from SI landfill gas-fired RICE.

**II. PERIODIC STACK EMISSION TESTING FOR FORMALDEHYDE – 3.B.2**

Dairyland questions the requirement to perform periodic (i.e., every five years) stack testing for formaldehyde if no standard is being measured against. Emission stack testing can be costly, particularly if multiple engine classes/categories are located at a facility, plus owner/operators of landfill gas-fired RICE have internal costs associated with stack emission testing (e.g., unit operation, additional staff labor for test coordination). Therefore, Dairyland would recommend that the requirement to perform periodic formaldehyde stack emissions tests be removed from the draft Presumptive BACT.

We appreciate the opportunity to provide these comments on the draft Presumptive BACT.

Sincerely,

Erik Hoven  
Manager, Air Quality Programs

EJH:krm

A Touchstone Energy® Cooperative

**From:** Jim Lenz <jlenz@didionmilling.com>  
**Sent:** Friday, March 28, 2014 8:16 AM  
**To:** Stewart, Andrew M - DNR  
**Subject:** Comment on MACT for SI RICE  
**Attachments:** GTI Liquefier Tech Overview FNL 4-13.pdf

This may be outside the scope of MACT but for larger landfills that produce in excess of 1,500 MMcf of methane per day they could install a Small-Scale methane Liquefaction Technology system using a portion of the landfill gas. See attached. This would dramatically reduce the formaldehyde emissions and maintain their revenue source at a similar cost to installing a SI RICE in the first place. Selling LNG instead of electricity.

**Jim Lenz**

Safety & Environmental Manager

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From: Morgan, Lynn <lmorgan@wm.com>  
Sent: Monday, April 14, 2014 11:19 AM  
To: Stewart, Andrew M - DNR  
Cc: Hamblin, Gerard; Leclaire, Dan  
Subject: Comments Regarding Draft BACT Guidance

Andrew, on behalf of Waste Management I am submitting this comment in support of the proposed guidance for the presumptive BACT for formaldehyde emissions from landfill-gas-to-energy plants. We appreciated the opportunity to participate in the Technical Advisory Committee through which facility owners and air quality experts worked with Department staff. The proposed guidance will ensure that air quality is protected and landfill-gas-to-energy plants can continue their significant contributions to Wisconsin's renewable power infrastructure.

We ask that the Department adopt the guidance as proposed.

Thank you,

Lynn Morgan  
Public Affairs Manager  
262.250.8711

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