



## U.S. Environmental Protection Agency Applicability Determination Index

**Control Number: M040011**

**Category:** MACT  
**EPA Office:** Region 8  
**Date:** 01/22/2004  
**Title:** Leak Detection on Ancillary Equipment for Alt. Monitoring  
**Recipient:** Betsy Wagner  
**Author:** Martin Hestmark  
**Comments:** See also ADI Control No. 0100078.

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**Subparts:** Part 63, HH, Oil & Natural Gas Prod. Facilities

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**References:** 61.241  
61.242  
61.243  
61.244  
61.245  
61.246  
61.247  
63.761  
63.761  
63.769(c)

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**Abstract:**

Q: Will EPA approve the alternative monitoring of quarterly visual inspections of equipment in ethylene glycol jacket water service (considered "in VHAP service") as a substitute for Method 21 under 40 CFR part 63, subpart HH at Chevron's Carter Creek Gas Plant in Evanston, Wyoming?

A: Yes. EPA has determined that quarterly visual inspections of equipment in jacket water service at a gas plant is an acceptable substitute for Method 21.

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**Letter:**

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION 8 999 18TH STREET - SUITE 300 DENVER, CO 80202-2466 Phone 800-227-8917  
<http://www.epa.gov/region08>

Ref: ENF-AT

Ms. Betsy Wagner  
Regulatory Specialist  
Chevron U.S.A. Production Company  
1013 West Cheyenne Drive  
Evanston, WY 82930

Re: MACT Subpart HH Affected Facility in Wyoming Alternative Monitoring for Leak Detection on Ancillary Equipment

Dear Ms. Wagner:

This letter is in response to your March 11, 2003, request for alternative monitoring under the National Emission Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities (40 CFR Part 63, Subpart HH). Specifically, you are seeking approval for alternative monitoring of ethylene glycol in jacket water service at the Carter Creek Gas Plant in Evanston, WY (AFS # 56-041-00009). Carter Creek Gas Plant is a sour natural gas processing plant designed with a nominal capacity to process 155 million standard cubic feet per day of sour inlet gas.

Pursuant to definitions in 40 CFR Part 63, Sec. 63.761, the jacket water service at the Carter Creek Gas Plant is considered "ancillary equipment" that operates "in VHAP service" since ethylene glycol is used in concentrations equal to or greater than 10 percent by weight. Therefore, pursuant to 40 CFR Sec. 63.769(a), equipment leak standards apply to the jacket water service since it is located at a natural gas processing plant and operates in VHAP service equal to or greater than 300 hours per calendar year. 40 CFR Sec. 63.769(c), requires the Carter Creek Gas Plant to follow the equipment leak standards specified in 40 CFR Part 61, Subpart V, Secs. 61.241 through 61.247. These sections specify Method 21 as the monitoring method with which to comply.

The jacket water at the Carter Creek Gas Plant is a mixture of ethylene glycol and water and it is used to cool various pieces of equipment throughout the plant. As stated in your letter, although the jacket water becomes hot during this process, the mixture exists in the system as a liquid, not as a gas. Ethylene glycol's high boiling point of 198°C, also ensures that any leak would be visible as a liquid (or a solid if the ambient temperature in Wyoming were to fall below ethylene's glycol's melting point of -11.5°C). An accurate measurement cannot be made using the portable field analyzer due to ethylene glycol's low volatility (vapor pressure = 0.06 mm Hg at 20°C). Therefore it is difficult to obtain a reproducible and useful response factor as required in EPA Reference Method 21. This is described in EPA report EPA-453/R-95-017, "Protocol for Equipment Leak Emission Estimates". Appendix D of this report provides a detailed listing of published Response Factors for ~190 compounds at actual concentrations of 10,000 ppmv and 500 ppmv for 6 different analyzers. Due to its low volatility, no useable response factors could be developed for ethylene glycol (EPA Reference Method 21 Sec. 8.1.1.2 states that the response factor for each individual VOC to be measured shall be less than 10).

Due to the limitation in the application of Method 21 to ethylene glycol, you have proposed to substitute quarterly visual inspections of the equipment in jacket water service. Visual evidence of ethylene glycol liquid on or dripping from the equipment in jacket water service would indicate an equipment leak, and repair would be conducted meeting the requirements of Part 61, Subpart V. This proposed alternative monitoring is consistent with a previously approved request that is posted on EPA's Applicability Determination Index (Control Number: 0100078) where quarterly visual monitoring was accepted as a substitute for Method 21 which was required under Part 60, Subpart VV for ethylene glycol service.

Pursuant to the General Provisions of 40 CFR Section 63.8(b)(ii), monitoring shall be conducted as set forth in this section and the relevant standards unless the Administrator approves the use of an intermediate or major change or alternative to any monitoring requirements or procedures. Based on our review of Chevron's request, we have determined that the proposed alternative monitoring is acceptable as a substitute for Method 21 for the equipment in jacket water service at the Carter Creek Gas Plant.

By email dated 12/29/03 we notified Wyoming Department of Environmental Quality (WDEQ) of our determination and approval of Chevron's alternative monitoring plan. Robert Gill of WDEQ responded with their agreement via email dated 1/5/04.

This alternative monitoring does not alter any of the other requirements of Part 61, Subpart V or Part 63, Subpart HH which may apply to these facilities. If you have any questions regarding this letter, please contact Cindy Beeler of my staff at 303-312-6204 or [Beeler.Cindy@epa.gov](mailto:Beeler.Cindy@epa.gov).

Sincerely,

Martin Hestmark, Director  
Technical Enforcement Program

cc: Robert Gill, WDEQ  
Gregory Fried, OECA HQ