

Mr. Barry R. Stephens, P.E.  
Director  
Division of Air Pollution Control  
Tennessee Department of Environment & Conservation  
9<sup>th</sup> Floor, L & C Annex  
401 Church Street  
Nashville, TN 37243-1531

Dear Mr. Stephens:

The purpose of this letter is to provide you with a determination concerning a request for alternative monitoring procedures submitted by Eastman Chemical Company (ECC) in the enclosed letter dated June 10, 2010. ECC's request is for equipment at the Kingsport, Tennessee facility that is or will become subject to New Source Performance Standards (NSPS), Subpart VVa - "Standards of Performance for Equipment Leaks of Volatile Organic Compounds (VOC) in the Synthetic Organic Chemicals Manufacturing Industry (SOCMI) for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006." For equipment in propionic acid service, acetic acid/acetic anhydride service, diketene service, and acetic acid service, ECC proposes to use sensory means (i.e., visual, audible, or olfactory) as an alternative to Environmental Protection Agency (EPA) Method 21 for identifying leaks. For indoor equipment in methyl iodide (MeI) service in the acetic anhydride process unit, ECC proposes to use a system of continuous monitors to detect leaks. Based upon our review, we have determined the use of these alternative procedures for identifying equipment leaks where Subpart VVa requires the use of EPA Method 21 is acceptable.

The types of equipment covered by the leak detection and repair standards in Subpart VVa are pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, and connectors. Under this regulation, owners/operators are required to periodically monitor equipment in VOC service. When leaks are detected, a first attempt at repair must be made within five days, and repairs must be completed within 15 days unless the provisions in Section 60.482-9a allow a delay in repairs. The two primary methods of detecting leaks under Subpart VVa are either using an instrumental analyzer that satisfies performance requirements in EPA Method 21 or using sensory methods that identify leaks through visual, audible, or olfactory means.

The ECC alternative monitoring proposals regarding NSPS Subpart VVa are based on similar alternatives previously approved by EPA Region 4 for the ECC facility regarding NSPS Subpart VV - "Standards of Performance for Equipment Leaks of VOC in the SOCMI for Which Construction, Reconstruction, or Modification Commenced After January 5, 1981, and On or Before November 7, 2006." The previous Region 4 approval letters for alternative monitoring at ECC concerning NSPS Subpart VV are identified below and copies of the letters are enclosed.

- January 23, 2004, letter approving alternative monitoring consisting of the use of sensory means (i.e., sight, sound, and smell) as an alternative to EPA Method 21 for identifying leaks from equipment in acetic acid service.
- March 30, 2005, letter approving alternative monitoring consisting of the use of sensory means (i.e., sight, sound, and smell) as an alternative to EPA Method 21 for identifying leaks from equipment in acetic acid and/or acetic anhydride service.
- February 23, 2007, letter approving alternative monitoring consisting of the use of sensory means (i.e., sight, sound, and smell) as an alternative to EPA Method 21 for identifying leaks from equipment in propionic acid service.
- April 25, 2008, letter approving alternative monitoring consisting of the use of an integrated system of continuous monitors as an alternative to EPA Method 21 for identifying leaks from equipment in MeI service located in three buildings (i.e., Plant 22, Plant 23/33, and Plant 32) in the acetic anhydride process unit. The types of monitors included in the system include stationary ultraviolet (UV) analyzers that measure total hydrocarbon (THC) concentration levels, stationary gas chromatographs (GCs) that can measure both THC and MeI concentration levels, and photoionization detectors (PIDs) that operators use to pinpoint leaks initially detected by the UV and GC monitors. When one of the continuous monitors detects a potential leak, ECC initiates actions once an alarm is triggered to enable the location and repair of a leak.
- July 21, 2008, letter approving alternative monitoring based on the use of sensory means (i.e., sight, sound, and smell) as an alternative to EPA Method 21 for identifying leaks from equipment in diketene service.

The above alternative monitoring procedures were approved by Region 4 based on information provided by ECC indicating that leaks would be detected more readily using the alternatives than by using EPA Method 21 as required by Subpart VV. As described in the previous Region 4 determinations, leaks from equipment in acetic acid and/or acetic anhydride service, propionic acid service, and diketene service are detected more readily using sensory means than with EPA Method 21 due to the physical properties of these compounds. The physical properties of acetic acid, acetic anhydride, and propionic acid that enable the detection of leaks are high boiling points (resulting in liquid drips), high corrosivity (resulting in staining or rusting of metal components), and a low odor threshold. The physical properties of diketene that enable the detection of leaks are a high boiling point, low odor threshold, and lachrymatory sensation (a tear gas-like effect on the eyes) associated with the compound. The continuous monitoring system for MeI in the three buildings at ECC allows the facility to quickly identify and locate leaks that may otherwise go undetected for extended periods of time and was determined by Region 4 to be more effective than using the Subpart VV monitoring requirements.

Since NSPS Subpart VVa includes requirements similar to those of Subpart VV, ECC requests that alternatives to the use of EPA Method 21 also be allowed for equipment that is or will become subject to Subpart VVa. For equipment in propionic acid service, acetic acid/acetic

anhydride service, diketene service, and acetic acid service, ECC proposes to use sensory means (i.e., visual, audible, or olfactory) to identify equipment leaks where Subpart VVa requires the use of EPA Method 21. For indoor equipment in MeI service in the acetic anhydride process unit, ECC proposes to use the system of continuous monitors which was approved by Region 4 as alternative monitoring under Subpart VV. Based on our approval of similar proposals for Subpart VV, Region 4 has determined that the proposed alternatives for detecting equipment leaks under Subpart VVa are acceptable.

If you have any questions concerning the determination provided in this letter, please contact Keith Goff of the EPA Region 4 staff at (404) 562-9137.

Sincerely,

Carol L. Kemker  
Acting Director  
Air, Pesticides and Toxics  
Management Division

Enclosure

cc: Mark Williams, Eastman Chemical Company