Air Permits Division Marine Loading Collection Efficiency Guidance (September 21, 2016)

Introduction

The TCEQ's previous guidance regarding marine loading collection efficiencies for ocean-going marine vessels has been 95 percent. With ILTA's noted commitments resulting in as many as 50 ship testing results, the TCEQ has evaluated the information confirming that collection efficiencies for inerted, ocean-going vessels were well beyond 95%, and in consideration of federal and state regulations applicable to ship loading, the TCEQ Air Permits Division (APD) agrees that a shift in our policy regarding collection efficiency is warranted. The control efficiencies listed below are supported by the test data and information submitted by ILTA.

Category 1: 99.0% - No additional testing required

Category 2: >99.0 to 99.49% – 1 initial demonstration of compliance test within 12 months

Category 3: 99.5 to 99.89% – 1 test per year for 3 years

Category 4: 99.9% – 3 tests per year for 5 years

Further, applicants that have accepted more stringent testing frequencies may revise their permits with the adjusted requirements. This change to testing requirements can be accomplished by permit alteration. However, if the permit holder proposes to increase loading throughput, a permit amendment will be necessary to account for potential actual increases as well as any possible increases from other facilities (such as storage tanks). Credit will be given for tests that have already been completed provided that the tests are deemed acceptable by the TCEQ and that they have been conducted over an appropriate time frame. If granted, credit for prior tests will be noted in the altered or amended permit.

Use of the higher collection efficiencies by a regulated entity is contingent upon acceptance of revised permit conditions appropriate to the chosen category of collection efficiency. Note that the collection efficiencies represented by the applicant are enforceable representations, and the required tests will serve to demonstrate compliance. Any subsequent test that results in measured collection efficiency lower than the represented value will be considered as a violation of the permit, and will be subject to possible enforcement action. For Title V sources, non-compliant tests must be reported as permit deviations.

The use of 99% capture efficiency is acceptable for sources authorized under Permit by Rule (PBR) provided the regulated entity certifies to following the additional monitoring, inspection, and recordkeeping requirements indicated in the attached Special Condition No. 1. The use of collection efficiencies higher than 99% will require testing to demonstrate compliance and will not be authorized via PBR. Through this process, it has been well demonstrated that facilities adhering to the additional monitoring, inspection, and recordkeeping requirements in the attached Special Condition No. 1 have regularly achieved 99 percent capture efficiency. If an applicant commits to and follows these requirements, the facility should achieve 99 percent capture efficiency. Documentation of the compliance with the requirements in Special Condition No. 1 will serve as a demonstration of compliance rather than testing. As testing would not be required it would be acceptable to authorize a facility with 99% capture efficiency and representations of compliance required in the Special Condition No. 1 with the applicable PBR.

Special Conditions for Category 1 (99.0%)

1. The following additional requirements apply to loading of a VOC which has a vapor pressure equal to or greater than 0.5 pounds per square inch absolute (psia) under actual storage conditions onto inerted marine vessels (ships).

   A. Before loading, the owner or operator of the marine terminal shall verify that the marine vessel has passed an annual vapor tightness test as specified in 40 CFR §63.565(c) (September 19, 1995) or 40 CFR §61.304(f) (October 17, 2000) within the previous twelve months.

   B. The pressure at the vapor collection connection of an inerted marine vessel must be maintained such that the pressure in a vessels' cargo tanks do not go below 0.2 pounds per square inch gauge (psig) or exceed 80% of the lowest setting of any of the vessel's pressure relief valves. The lowest vessel cargo tank or vent header pressure relief valve setting for the vessel being loaded shall be recorded. Pressure shall be continuously monitored while the vessel is being loaded. Pressure shall be recorded at fifteen minute intervals.

   C. VOC loading rates shall be recorded during loading. The loading rate must not exceed the maximum permitted loading rate.

   D. During loading, the owner or operator of the marine terminal or of the marine vessel shall conduct audio, olfactory, and visual checks for leaks once every 8 hours for on-shore equipment and on board the ship.

      (1) If a liquid leak is detected during loading and cannot be repaired immediately (for example, by tightening a bolt or packing gland), then the loading operation shall cease until the leak is repaired.

      (2) If a vapor leak is detected by sight, sound, smell, or hydrocarbon gas analyzer during the loading operation, then a "first attempt" shall be made to repair the leak. Loading operations need not be ceased if the first attempt to repair the leak is not successful provided that the first attempt effort is documented by the owner or operator of the marine vessel and a copy of the repair log is made available to a representative of the marine terminal.

      (3) If the attempt to repair the leak is not successful and loading continues, emissions from the loading operation for that ship shall be calculated assuming a collection efficiency of 95%.

      (4) Date and time of each inspection shall be noted in the operator's log or equivalent. Records shall be maintained at the plant site of all repairs and replacements made due to leaks. These records shall be made available to representatives of the Texas Commission on Environmental Quality (TCEQ) upon request.

Special Conditions for Category 2: (>99.0 - 99.49%)
(In addition to Condition 1)

2. VOC collection efficiency tests of inerted ocean-going marine vessels shall be conducted as follows to demonstrate a collection efficiency of 99.49% as represented in the permit application.

   A. Testing shall be conducted using the protocol agreed to by the Executive Director on XX/XX/XXXX. Any revision to the approved testing protocol shall require approval from the Executive Director prior to implementation. The permittee shall maintain a copy of the approved protocol on site.

   B. Complying test results shall be obtained in accordance with the protocol for a minimum of one vessel. The test shall be conducted within twelve months of the first loading of an inerted ocean-going marine vessel.

   C. The results of the test shall be submitted to the TCEQ Regional Office with a copy to the TCEQ Air Permits Division within 60 days after completion of the test.

   D. The TCEQ Regional Office must be notified at least 48 hours prior to testing. The facility owner or operator may request a waiver from the 48 hour advance notification requirement from the TCEQ Regional Office.

   E. The permit holder shall maintain the following records for each ship tested for a period of 5 years from the date of testing:

      (1) The most recent vapor tightness certificate;

      (2) A recent, completed Standard Tanker Chartering Questionnaire form (Q88); and

      (3) Records of each incidence of testing conducted in accordance with this condition.

Special Conditions for Category 3: (99.5 - 99.89%)
(In addition to Condition 1)

2. VOC collection efficiency tests of inerted ocean-going marine vessels shall be conducted as follows to demonstrate a collection efficiency of (99.5 – 99.89%) as represented in the permit application.

   A. Testing shall be conducted using the protocol agreed to by the Executive Director on XX/XX/XXXX. Any revision to the approved testing protocol shall require approval from the Executive Director prior to implementation. The permittee shall maintain a copy of the approved protocol on site.

   B. Complying test results shall be obtained in accordance with the protocol for a minimum of one vessel per year for 3 years. The first test shall be conducted within twelve months of the first loading of an inerted ocean-going marine vessel.

   C. The results of the test shall be submitted to the TCEQ Regional Office with a copy to the TCEQ Air Permits Division within 60 days after completion of the test.

   D. The TCEQ Regional Office must be notified at least 48 hours prior to testing. The facility owner or operator may request a waiver from the 48 hour advance notification requirement from the TCEQ Regional Office.

   E. The permit holder shall maintain the following records for each ship tested for a period of 5 years from the date of testing:

      (1) The most recent vapor tightness certificate;

(2) A recent, completed Standard Tanker Chartering Questionnaire form (Q88); and

(3) Records of each incidence of testing conducted in accordance with this condition.

3. The following requirements apply if a test conducted per Condition 2 shows collection efficiency lower than assumed in permit emission calculations.

A. Emissions from the tested ship shall be calculated at the measured collection efficiency instead of the efficiency assumed for permit calculations.

B. Emissions from future instances of ship loading shall continue to be calculated at the lower measured collection efficiency until a test result confirming the permitted collection efficiency is obtained.

C. As an alternative to assuming the lower measured collection efficiency for subsequent loading as specified in paragraph B, the regulated entity can assume the permitted collection efficiency in subsequent loading operations provided that the loading activity is monitored with an optical gas imaging instrument as defined in 30 TAC 115.358 and no leaks are observed. If a leak is observed, the lower measured collection efficiency must be used. The observations must occur during a minimum 6 hour period as close to the end of loading as possible.

Special Conditions for Category 4: (99.9 %)
(In addition to Condition 1)

2. VOC collection efficiency tests of inerted ocean-going marine vessels shall be conducted as follows to demonstrate a collection efficiency of 99.9% as represented in the permit application.

A. Testing shall be conducted using the protocol agreed to by the Executive Director on XX/XX/XXXX. Any revision to the approved testing protocol shall require approval from the Executive Director prior to implementation. The permittee shall maintain a copy of the approved protocol on site.

B. Complying test results shall be obtained in accordance with the protocol for a minimum of three vessels per year for five years. The first test shall be conducted within twelve months of the first loading of an inerted ocean-going marine vessel.

C. The results of the test shall be submitted to the TCEQ Regional Office with a copy to the TCEQ Air Permits Division within 60 days after completion of the test.

D. The TCEQ Regional Office must be notified at least 48 hours prior to testing. The facility owner or operator may request a waiver from the 48 hour advance notification requirement from the TCEQ Regional Office.

E. The permit holder shall maintain the following records for each ship tested for a period of 5 years from the date of testing:

(1) The most recent vapor tightness certificate;

(2) A recent, completed Standard Tanker Chartering Questionnaire form (Q88); and

(3) Records of each incidence of testing conducted in accordance with this condition.

3. The following requirements apply if a test conducted per Condition 2 shows collection efficiency lower than assumed in permit emission calculations.

A. Emissions from the tested ship shall be calculated at the measured collection efficiency instead of the efficiency assumed for permit calculations.

B. Emissions from future instances of ship loading shall continue to be calculated at the lower measured collection efficiency until a test result confirming the permitted collection efficiency is obtained.

As an alternative to assuming the lower measured collection efficiency for subsequent loading as specified in paragraph B, the regulated entity can assume the permitted collection efficiency in subsequent loading operations provided that the loading activity is monitored with an optical gas imaging instrument as defined in 30 TAC 115.358 and no leaks are observed. If a leak is observed, the lower measured collection efficiency must be used. The observations must occur during a minimum 6 hour period as close to the end of loading as possible.