

APPENDIX A—TECHNICAL SUPPLEMENTS

Disclaimer

The Emissions Assessment Section (EAS) has developed technical supplements for several common emission sources. The supplements are intended to help you accurately determine and correctly report emissions from specific types of sources, and may not cover every source in your account. You are responsible for reporting emissions from every source required to be included in your emissions inventory. See Chapter 1 for information on reporting requirements.

These supplements reflect our current understanding of how certain processes work and how they generate emissions. The supplements may change over time as we continue our scientific studies and as new information becomes available. We welcome any data, information, or feedback that may improve our understanding.

The methods discussed in this appendix are intended as an aid in calculating emissions. Certain process or operational conditions may make alternate calculation methods equally acceptable if they are based upon, and adequately demonstrate, sound engineering principles or data. You are responsible for using the best available method to determine and report the emissions that accurately reflect the conditions at your site. If you have a question regarding the acceptability of a given emissions determination method, contact the EAS at 512-239-1773.

Miscellaneous VOC Sources

One of the goals of the EAS is to identify sources that are failing to report or underreporting their VOC emissions. The TCEQ is not aware of any specific guidance that is readily available to estimate the emissions from these type of sources. However, these sources are present and the emissions should be represented in the emissions inventory using the best available emission estimation methodologies. These sources include, but are not limited to, casing head gas releases, coking units, confined entry ventilation, and Mercox units.

Casing Head Gas Releases

Casing head gas is unprocessed natural gas and other hydrocarbon vapors that emerge at the casing head fitting when crude oil is pumped to the surface in a well. During normal operating conditions, the casing head fitting is tight and no vapors leak into the atmosphere. When the casing head gas is vented, the emissions should be included in the emissions inventory.

Coking Units

Coking is a severe method of thermal cracking used to break heavy, long-chained hydrocarbons into lighter products. The residual product of the coking process is a solid carbon substance called *petroleum coke*.

Petroleum coke is removed from the walls of a coke drum by *decoking* or *coke cutting*. During the decoking or coke cutting process, VOC gases trapped in the coke will be released, creating hot spots and steam eruptions. Hydrocarbons may also be emitted during the associated cooling and venting of the coke drum prior to decoking.

Confined Entry Ventilation

Confined entry usually occurs during inspection, repair, or maintenance. Before entry, gas hazards are controlled by purging, inerting, flushing, or ventilating the space as necessary. Examples of confined spaces include, but are not limited to, tanks, manholes, boilers, furnaces, vaults, pipes, trenches, tunnels, ducts, and bins.

If the seal of a confined space is broken and uncontrolled, the contaminants within the confined space may be released into the atmosphere. These emissions should be included in the EI. Consult Chapter 3 for information on Collective Sources to determine if these ventilation emission sources can be grouped in your EI.

Merox Units

After mercaptan-rich hydrocarbon liquids are treated in a Merox unit, they are often placed in a storage tank. Inert gases may become trapped in this hydrocarbon liquid and can strip VOCs while escaping during storage. These additional emissions may not be included by the EPA TANKS program.

If the liquid streams are warmer than ambient temperature, see Technical Supplement 6 for information on hot-product storage to determine the tank's routine emissions. Additional emissions from inert gas stripping should be calculated using sound engineering principles and data.

Technical Supplements

The following technical supplements are included in this appendix.

Technical Supplement 1: Select Combustion Sources addresses common problems and concerns regarding internal combustion engines (turbines, reciprocating engines, and gasoline and diesel EAS engines); external combustion sources burning natural gas; and combined-cycle turbines with heat recovery steam generators.

Technical Supplement 2: Cooling Towers will help you to determine the nature of the emissions from your cooling tower system, to identify some of the methods that may be used to quantify those emissions, and to correctly report the emissions on the annual emissions inventory.

Technical Supplement 3: Equipment Leak Fugitives discusses emissions from piping components at industrial facilities resulting from leaking seals or connections.

Technical Supplement 4: Flares clarifies how elevated flare emissions should be estimated and reported.

Technical Supplement 5: Marine Facilities discusses stationary emissions from vessel cleaning, material transfer, and dockside sources such as particulate stockpiles, silos, VOC collection units, loading racks, and abatement devices. All of these emissions sources must be reported in the dock owner's emissions inventory.

Technical Supplement 6: Aboveground Liquid Storage Tanks explores stationary emissions from storage tank breathing and working losses, flashing losses, and landing losses. The supplement identifies some of the methods used to quantify those emissions.