

Odor Evaluations

Introduction

LEHDER has developed a unique phased approach to odor investigations to ensure that the problem is clearly understood and solutions are developed that address the root cause of the odorous emissions. The phases are:

- **Phase 1 - Assessment of Odor Issues**
 - Identification of Odor Sources
 - Ambient evaluation
 - Complaint history
- **Phase 2 - Quantification of Odor Sources**
 - Odor Sampling
 - Chemical Constituent Analysis
- **Phase 3 - Odor Impact Analysis**
 - Modeling of Measured Odor Emissions
- **Phase 4 - Solution Development**
 - Control technology review
 - Enhanced dispersion

Phase 1 - Assessment of Odor Issues

LEHDER personnel perform a qualitative evaluation at the facility over a period of several days. The objective is to become familiar with the odor issue, evaluate potential factors contributing to off-site odors, and to identify a list of significant odor sources for subsequent sampling and modeling. The activities which will occur during Phase 1 are:

- review of odor complaints record, stack emissions data, and facility processes
- identify and assess all possible sources of odor from processes
- survey surrounding area to assess relative odor impact from the plant.
- identify emission sources that warrant sampling and modeling.
- evaluate the building influences that may contribute to ineffective dispersion of stack emissions.
- determine appropriate process/ production conditions for subsequent odor testing through conversations with plant personnel

Phase 2 - Quantification of Odor Sources

During Phase 2, the sources identified in Phase 1 will be sampled and analyzed to determine the odor emission rate. If appropriate, the emission rate of specific contaminants present in the discharge is determined. Although the resolution of odor issues is seldom resolved through measurement of emissions of specific compounds, it provides credibility to a facility to be able to indicate knowledge of the emitted compounds.

Samples of the stack gas will be collected in Tedlar sample bags using a predilution procedure. The odor samples are evaluated using the LEHDER Dynamic Dilution Olfactometer. The LEHDER olfactometer is a ternary port system operated in a forced choice mode as outlined in ASTM 679-91.

LEHDER Environmental Services Limited

704 Mara Street, Suite 210, Point Edward, Ontario, Canada N7V 1X4 Phone: (519) 336-4101 Fax: (519) 336-4311
9954 - 67th Avenue, Edmonton, Alberta, Canada T6E 0P5 Phone: (780) 462-4099 Fax: (780) 462-4392

www.lehder.com

Phase 3 - Odor Impact Analysis

The primary objectives of Phase 3 are to:

- evaluate the extent to which odorous emissions impinge on neighboring buildings located around the facility
- identify specific sources which contribute significantly to ground level odor concentrations
- provide recommendations for designing stack heights and velocities in order to provide maximum dispersion.

To measure the impact of the odor emissions, modeling of the odorous emissions is conducted. LEHDER uses EPA recognized gaussian dispersion models such as ISCST3 to assess odor impact.

Phase 4 - Solution Development

The objective of Phase 4 is to identify practical, effective solutions. The information gathered during the first three phases is used, in conjunction with a control technology review, to develop odor abatement solutions. These solutions can include:

- prevention techniques such as elimination of an odorous raw material or process modification;
- improved dispersion through a taller stack or increased velocity of discharge;
- add on control devices such as charcoal adsorption, thermal oxidation or other innovative technologies.

Remember **Specific situations require specific solutions.**

Related Air Quality Services

Related Air Quality Management Services provided by LEHDER include:

- Regulatory Negotiations and Strategic Planning
 - Source Testing
 - Applications for Permits, Licences and Certificates of Approval
 - Dispersion Modeling
 - Preparing Source and Emission Inventories
 - Annual Emission Inventories
-

For further information

For further information please contact:

Sid Lethbridge (519) 336-4101 Ext. 222 slethbridge@lehder.com

About LEHDER

LEHDER is one of the largest Air Quality Management consulting companies in Canada. Our team of consulting professionals is built around our core strength in industrial environmental, health and safety management. LEHDER recognizes our client's need to make decisions that provide for operational flexibility while meeting regulatory, economic and social requirements.

Visit our web pages at www.lehder.com
