Department of Environmental Protection
Bureau of Remediation & Waste Management
STANDARD OPERATING PROCEDURE

Title: Indoor Air Assessments for Residences Impacted by Petroleum Vapors.

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David Lennett, Bureau Director

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Indoor Air Assessment for Residences Impacted by Petroleum Vapors

1. PURPOSE

The purpose of this standard operating procedure (SOP) is to specify the recommended procedures for protecting the health of occupants of residences impacted by vapors from oil discharges.

2. SCOPE

This SOP applies whenever an oil discharge is affecting or is likely to affect indoor air quality. The SOP is intended for use by bureau staff and consultants working for the bureau. Sections 5 and 6 of this SOP also are intended for use by responsible parties and their agents who take the lead in the investigation and remediation of an oil discharge.

1. DEFINITIONS. The following terms as used in this SOP have the following meanings:

A. Bureau. "Bureau" means the Bureau of Remediation and Waste Management in the Maine Department of Environmental Protection.

B. DEP. "DEP" means the Maine Department of Environmental Protection.

C. PID. "PID" means photo-ionization detection device.

D. Responsible party. "Responsible party" means a person who could be held liable under 38 MRSA §§552 or 570 for the costs of mitigating vapors from the discharge of oil.

4. RESPONSIBILITIES

A. Response Services staff. Staff in the bureau Division of Response Services are responsible for:

(1) Making the initial determination as to whether an oil discharge is affecting or is likely to affect indoor air quality. This determination may be made by experience or other conventional means such as odor detection, PID screening and occupant complaint.

(2) Advising occupants to leave the residence if they are experiencing discomfort or health effects associated with petroleum vapors. This advice is provided prior to obtaining any indoor air sampling results.

(3) Providing occupants with the DEP "Health Advisory on Indoor Petroleum Vapors."

(4) Informing occupants and responsible parties of their rights, responsibilities and options under bureau administered programs including, as applicable, clean-up options, the third party damage claim program and the Ground Water Oil Clean-up Fund insurance program.

(5) Notifying the Engineering Unit in the Division of Technical Services to request an indoor air assessment and vapor mitigation assistance if needed.

(6) Initiating investigative and corrective action as soon as possible to reduce the level of petroleum vapors in the residence. See mitigation techniques for indoor vapors and explosion hazards, as set forth in the Division of Technical Services "LUST Procedural Guidelines."

(7) Assisting bureau Technical Services staff in collecting air samples for field and laboratory analysis, and in recording information for the "Residential Investigation Data Form."

(8) Managing the emergency response phase of the investigation, clean-up, vapor mitigation and property restoration, and paying costs associated with the emergency response including the indoor air assessment.

B. Technical Services staff. Staff in the bureau Division of Technical Services are responsible for:

(1) Conducting an indoor air assessment and assisting in vapor mitigation as requested by Response Services staff and as detailed in the Field Guidance described in section 5 of this SOP.

(2) Assuming project management upon completion of the emergency response phase by Response Services staff.

C. Director of Technical Services. The Director of Technical Services is responsible for revising the Field Guidelines as called for under section 6 of this SOP.

5. FIELD GUIDANCE

In carrying out their responsibilities under this SOP, bureau staff and consultants should refer to document "Edited/Adapted Field Guideline for Protecting Residents from Inhalation Exposure to Petroleum Vapors" (Field Guidance), dated June, 2000. This is a guideline and is intended to be used in conjunction with the judgment and experience of bureau staff and consultants. Where individual site conditions dictate, the Field Guidance may need to be adjusted. Adjustments should be made only after review by a toxicologist.

The Field Guidance is an edited version of a document prepared for the DEP by Menzie-Cura and Associates in October 1998. The Field Guideline varies from the source document in that the Field Guidance is adapted to reflect existing bureau policies and to focus on field application of the source document. It may be necessary to refer to the source document from time to time to understand the basis for the Field Guideline recommendations. Copies of the source document are kept in each DEP field office for this purpose.

6. REVISION of the FIELD GUIDANCE

The action levels in the Field Guidance are derived from databases and literature available through 1998. As new information becomes available, the action levels may be revised.

The recommenced sample collection and analysis procedures are based on practical and currently available methods. These procedures will be reviewed periodically and revised as appropriate. [VPH fraction methods are recommended when lab analysis is available.] PETER AND GEORGE, THIS BRACKETED SENTENCE SEEMS OUT OF PLACE. SHOULD IT BE IN THE FIELD GUIDANCE?

Revisions to the Field Guidance will be conveyed to bureau staff through division meetings and by posting the revisions on the bureau website:
http://janus.state.me.us/dep/rwm/homepage.htm

7. DATA COLLECTION

A. In order to obtain an understanding of the impacts that petroleum discharges have on indoor air quality, those following this SOP are asked to complete the forms in Appendix B of the Field Guidance as appropriate and submit them along with the results of any laboratory analyses to the Engineering Unit, Division of Technical Services, in the DEP Southern Maine Regional Office (312 Canco Road, Portland ME 04103).

B. In order to determine if a correlation exits between action levels and PID levels, bureau staff and consultants conducting indoor air assessments under this SOP are directed to collect PID readings (calibrated to DEP set points) at the same time and location that samples for laboratory analysis are collected, and to send copies of the both the PID and laboratory analyses to the Engineering Unit, Division of Technical Services, in the DEP Southern Maine Regional Office (312 Canco Road, Portland ME 04103).

Health Advisory on Indoor Petroleum Vapors

Updated 11/5/2004

Kerosene, gasoline, home-heating oil, and other fuel oils are petroleum products. Fuel oils are made up of many different chemicals called hydrocarbons. When fuel oil spills out of its container, some of the chemicals can escape into air. When these chemicals are in the air you breathe, you can be exposed to them. This means that you can take the chemical into your body. Some chemicals, including some in fuel oils, can harm your health if you take them into your body. Whether your health is harmed depends on how much chemical you take in. In general, more harm is expected when a lot of fuel has been spilled or the spill has been there for a long time.

I can smell fuel oil. Should I be worried?

It depends. Some chemicals in fuel oils have strong smells but are not very harmful. Other chemicals can be harmful but not smell very much. Opening the windows in the area of the spill can help to take away the chemicals in the air and the smell. However, if you have had a fuel oil spill and the smell is very strong, it is best to leave the area where the smell is worst.

How can a gasoline spill harm my health?

If you are exposed for a short time to chemicals in air from a gasoline spill, you may have health effects. If you are exposed to gasoline chemicals in the air, you may feel dizzy, sleepy, or nauseated (sick to your stomach). You may also get a headache. If a spill occurs inside a building, more chemical builds up in the air and the health effects can be worse. If a large spill occurs inside a small space, the amount of chemicals in the air can be high enough to cause you to pass out or even die.

If someone is exposed for a long time (years) to gasoline chemicals in air, he or she may have different health effects. Whether there are any health effects depends on how long the person is exposed and how much chemical is in the air. Some of the chemicals in gasoline are known to cause cancer in humans. Other chemicals in gasoline can cause serious damage to the brain. Some chemicals are known to have effects on babies in the womb. No one knows if these effects will happen to people exposed to these chemicals when they are in a mixture like a fuel oil.

How can a kerosene spill harm my health?

If you are exposed for a short time to chemicals in air from a kerosene spill, you may have health effects. If you are exposed to kerosene chemicals in the air, you may feel nauseated (sick to your stomach), your blood pressure may go up, or your eyes may feel irritated

How do I know if my air has unsafe levels of fuel oil chemicals?

Maine's Department of Environmental Protection (DEP) has determined what levels are safe. These levels are called "action levels". There are different action levels for different chemicals in fuel oils. For each chemical, the DEP has set three separate action levels. The acute action level is one that is believed to be safe for a short time (less than 2 weeks). If your air has levels that are higher than the acute action level, you will want to leave your home until the levels go down. The subchronic action level is one that is believed to be safe for up to a year. The chronic action level is one that is believed to be safe for your whole life. DEP will continue to work with you until your air levels are below the chronic action levels and we are sure they will stay that way. Once the spill has been cleaned up, you can help to clear out your air by opening windows and doors to let the air flow through.

Where can I get more information?

If you have more questions about the health effects of fuel oil spills, you can call Dr. Andrew Smith, State Toxicologist, toll-free at 866-292-3474. You can also get health information on the Agency for Toxic Substance and Disease Registry's (ATSDR) web site http://www.atsdr.cdc.gov/toxpro2.html for fuel oils, and also for hazardous components of fuel such as benzene and polycyclic aromatic hydrocarbons. ATSDR also has a "fact sheet" for fuel oils at the web site http://www.atsdr.cdc.gov/tfacts75.html.

To report a fuel oil spill or for information on cleaning up spills, call the Department of Environmental Protection, Bureau of Remediation, Division of Response Services at 800-482-0777. If you want to find a company to test your air for chemicals, look in your phone book's Yellow Pages under "Air Pollution Measuring Services".