



# WELCOME

## SOIL VAPOR SAMPLING

April 28, 2016

5:00 p.m. to 8:00 p.m.

### Station 1

Introduction and  
Background

Welcome

### Station 2

Soil Vapor  
Sampling Plan

Open House  
Format

Check In  
AMCC Housing  
Office

### Station 3

Soil Vapor  
Sampling Results

### Station 4

Issues Related to  
Heating Oil

## LAUREL BAY MILITARY HOUSING SOIL VAPOR SAMPLING

Marine Corps Air Station Beaufort  
Beaufort, South Carolina

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# Laurel Bay Military Housing Area

## History

### 1950s:

- Laurel Bay Military Housing Area constructed.
- Heating oil, stored in underground storage tanks, used to heat the homes.
- Beaufort-Jasper Water and Sewer Authority supplied water to the homes.

### 1980s:

- Laurel Bay homes converted to electric heating.
- Heating oil tanks abandoned in place.

### 2007:

- MCAS began removing heating oil tanks.
- Soil and groundwater sampling conducted with tank removal.

### 2012:

- United States Environmental Protection Agency published vapor intrusion guidelines.

### 2013:

- First vapor intrusion sampling in Laurel Bay.

### 2014:

- Continuation of vapor intrusion sampling at houses readied for demolition.
  - Precautionary measure
  - Not required by regulations

### 2015:

- United States Environmental Protection Agency published new vapor intrusion guidelines focusing on petroleum (heating oil) compounds.

### 2016:

- Vapor intrusion sampling scheduled to begin at occupied houses.

# Laurel Bay Military Housing Area

## Key Points

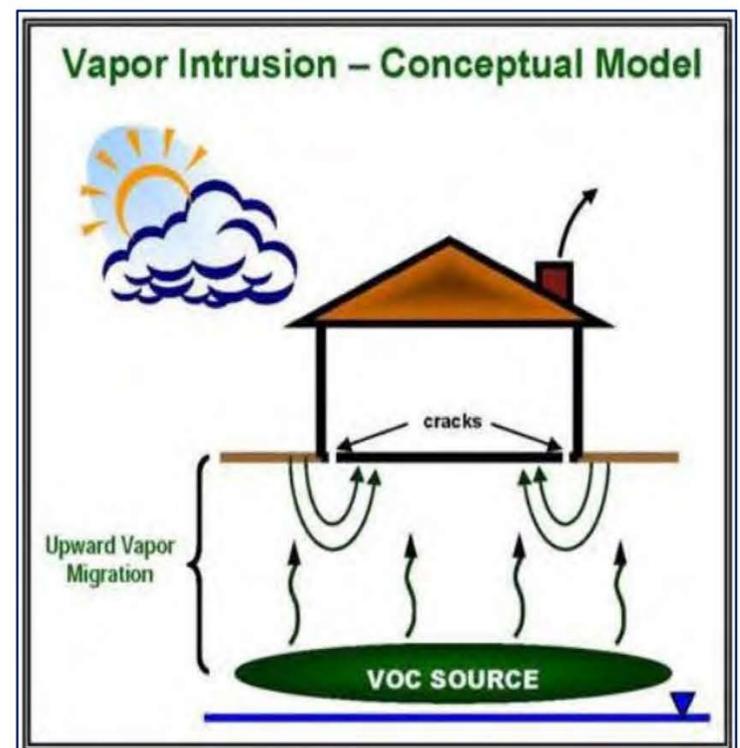
*As a precautionary measure, we want to make sure vapors from heating oil are not entering Laurel Bay homes.*

- As part of the soil vapor sampling process, we need to take samples from underneath some homes.
- 39 homes sampled to date. ***Results from previous petroleum vapor intrusion sampling have not identified potential for vapor intrusion.***
- We are committed to sharing information with you throughout this process.



## What is Petroleum Vapor Intrusion?

- Petroleum Vapor Intrusion may occur when vapors from heating oil compounds in contaminated groundwater or soil travel upwards through soil into overlying buildings.
- Heating oil has compounds common to all petroleum products that can become vapors. These compounds are known as volatile organic compounds (VOCs).
- VOCs are found in heating oil as well as in many materials and substances commonly found indoors.
  - Cleaning products
  - Cigarettes
  - Paints
  - Adhesives



***Petroleum Vapor Intrusion may occur when vapors from heating oil compounds in contaminated groundwater or soil travel upwards through soil into overlying buildings.***

# Soil Vapor Sampling Plan

## Why these homes?

### Soil Vapor Sampling Locations

162	Acorn Drive
95	Albacore Street
175	Albacore Street
14	W. Althea Street
100	Ash Street
72	Aspen Street
171	Aspen Street
41	Balsam Street
49	Balsam Street
59	Balsam Street
85	Balsam Street
99	Balsam Street
117	Balsam Street
118	Balsam Street
134	Balsam Street
39	Banyan Drive
173	Barracuda Drive
135	Beech Street
55	Birch Drive
263	Camellia Drive
318	Camellia Drive
40	W. Cardinal Lane
6	W. Cypress Street
279	Dahlia Drive
377	Dahlia Drive
48	W. Dove Lane
95	Elderberry Drive
385	Elderberry Drive
588	Elderberry Drive
362	W. Laurel Bay Blvd.
827	W. Laurel Bay Blvd.
899	W. Laurel Bay Blvd.
904	W. Laurel Bay Blvd.
918	W. Laurel Bay Blvd.

Please note this information is dated. Soil vapor sampling conducted in July and August 2016 determined no tanks were found at these addresses. Please refer to the Laurel Bay Health Study homepage (<http://www.beaufort.marines.mil/Resources/Laurel-Bay-Health-Study/>) sections 'Underground Storage Tank (UST) Removal Program' and 'Soil gas testing' for the most current information. (edited January 15, 2017)

- ***The heating oil tanks at these addresses are located underneath a structure on the property.***
- ***The heating oil tanks could not be removed without risking damage to the home.***

## When will sampling occur?

- ***Sampling is anticipated to begin after Memorial Day and continue in June and July.***
  - In most cases, sampling will take less than one day.
  - Sampling will be conducted between 0800 and 1600, Monday through Friday.
  - Your presence is not required during this effort, but please take special consideration for pets and children.

# Soil Vapor Sampling Plan

## What will happen first?

- ***Prior to any sampling in your home, all residents will be contacted to:***
  - Discuss and review the sampling plan and requirements.
  - Schedule a time for sampling to occur.
  - Collect information about your home,:
    - Information will be collected about layout, attached garages, utility doors, ventilation system design, foundation condition, presence of foundation sump, building material, location of laundry facilities, etc.
    - Requires no action by the resident.

## How will sampling be performed?

- A 5/8-inch hole will be drilled through the concrete slab, approximately 6-inches deep.
- The soil vapor point (bottom right photo) will be installed.
- The soil vapor point will need to sit for at least two hours to stabilize conditions.
- A soil vapor sample will then be collected.
- The soil vapor point will then be removed, the hole will be sealed, and the surface will be restored.



# Soil Vapor Sampling Results

## Screening Criteria

- ***All soil vapor results will be compared to levels established by the United States Environmental Protection Agency (EPA) following EPA's Petroleum Vapor Intrusion guidance.***
  - Soil vapor results within the EPA standards require no further action.
  - Exceeding an EPA screening level requires additional investigation. It does not confirm the presence of petroleum vapor intrusion.

## Potential Additional Investigations

- More soil vapor sampling
- Indoor air sampling
- Long term solutions, if needed
  - Seal house foundations
  - Ventilation systems



Soil Vapor Sampling



Indoor Air Sampling

## How will we keep you informed?

- Information updates will be available on the AMCC web site.
- Soil vapor results will be available 1 to 2 months after sampling and will be sent directly to the resident.

***We are committed to sharing information with you throughout this process.***

# Petroleum Vapor Intrusion

## Substances Sampled

- ***Only certain substances are a concern for vapor intrusion. Because heating oil is the source for potential petroleum vapor intrusion, compounds related to petroleum are the focus of sampling.***
- Volatile organic compounds (VOCs) are a group of compounds that can become vapors through evaporation.
- The same heating oil substances are commonly found in:
  - Household products
  - Cigarettes
  - Vehicle exhausts
  - Paint



## Health Effects

- Possible initial symptoms associated with petroleum vapor intrusion of heating oil components include:
  - Headache
  - Dizziness
  - Drowsiness
  - Respiratory and Eye Irritation
  - Nausea
  - Increased Heart Rate
- ***At this time, no soil vapor results have indicated potential for vapor intrusion.***
- Specific health concerns should be communicated to your primary care manager.

## Additional Testing

If soil vapor sampling demonstrates the potential for petroleum vapor intrusion, additional sampling will be performed. This may include collecting air samples from inside the home. Recommendations regarding medical evaluations will be provided, if needed, based on these results.