

Time: 1600

Inspector: GANT

Hard Boom:

Lineal Feet Deployed: 200"

Anchored to Bank Properly: yes

Tears/Damage Present: NO

Repairs Made: NO

Absorbent Boom:

Lineal Feet Deployed: N/A

Anchored to Bank Properly: N/A

Staining/Oil Present: N/A

Lineal Feet Replaced: N/A

Additional Notes/Comments: Adjusted Boom

Time: 2000

Inspector: Berkemeyer

Hard Boom:

Lineal Feet Deployed: 200"

Anchored to Bank Properly: yes

Tears/Damage Present: NO

Repairs Made: N/A

Absorbent Boom:

Lineal Feet Deployed: N/A

Anchored to Bank Properly: N/A

Staining/Oil Present: N/A

Lineal Feet Replaced: N/A

Additional Notes/Comments: Adjusted Boom

Email daily to: Todd.bachand@duke-energy.com



Daily Boom Inspection Form

Client: Duke Energy
Location: East End Gas Plant, Ohio River Bank, 39.12081, -84.45449

Date: 7-31-19
Job Number: 9932.05001

Time: 1200 Sheen/Oil Present at Riverbank: _____

Inspector: _____ Hard Boom: Lineal Feet Deployed: _____

Anchored to Bank Properly _____

Tears/Damage Present: _____

Repairs Made: _____

Absorbent Boom: Lineal Feet Deployed: _____

Anchored to Bank Properly: _____

Staining/Oil Present: _____

Lineal Feet Replaced: _____

Additional Notes/Comments: _____

Time: 1600 Sheen/Oil Present at Riverbank: No signs of either

Inspector: J. Patterson Hard Boom: Lineal Feet Deployed: None

Anchored to Bank Properly _____

Tears/Damage Present: _____

Repairs Made: _____

Absorbent Boom: Lineal Feet Deployed: None

Anchored to Bank Properly: _____

Staining/Oil Present: _____

Lineal Feet Replaced: _____

Additional Notes/Comments: Hard boom was taken up earlier in the day. No absorbent boom has been put out.

Time: 2000
Inspector: J. Patterson

Hard Boom:

Sheen/Oil Present at Riverbank:

No sign of either

Lineal Feet Deployed:

Anchored to Bank Properly

Tears/Damage Present:

Repairs Made:

Absorbent Boom:

Lineal Feet Deployed:

Anchored to Bank Properly:

Staining/Oil Present:

Lineal Feet Replaced:

Additional Notes/Comments:

River bank looked good, water level still
under active area.

Time: _____

Sheen/Oil Present at Riverbank:

Inspector: _____

Hard Boom:

Lineal Feet Deployed:

Anchored to Bank Properly

Tears/Damage Present:

Repairs Made:

Absorbent Boom:

Lineal Feet Deployed:

Anchored to Bank Properly:

Staining/Oil Present:

Lineal Feet Replaced:

Additional Notes/Comments:

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Daily Boom Inspection Form

River Bank

Client: Duke Energy
Location: East End Gas Plant, Ohio River Bank, 39.12081, -84.45449

Date: 8-1-19
Job Number: 9932.05001

Time: 0800

Sheen/Oil Present at Riverbank: None detected

Inspector: _____

Hard Boom:

Lineal Feet Deployed: N

Anchored to Bank Properly: _____

Tears/Damage Present: _____

Repairs Made: _____

Absorbent Boom:

Lineal Feet Deployed: _____

Anchored to Bank Properly: _____

Staining/Oil Present: _____

Lineal Feet Replaced: _____

Additional Notes/Comments: _____

Time: 1200

Sheen/Oil Present at Riverbank: None detected

Inspector: _____

Hard Boom:

Lineal Feet Deployed: N

Anchored to Bank Properly: _____

Tears/Damage Present: _____

Repairs Made: _____

Absorbent Boom:

Lineal Feet Deployed: _____

Anchored to Bank Properly: _____

Staining/Oil Present: _____

Lineal Feet Replaced: _____

Additional Notes/Comments: _____

Time: 1600

Inspector: _____

Hard Boom:

Sheen/Oil Present at Riverbank: None detected

Lineal Feet Deployed: N

Anchored to Bank Properly _____

Tears/Damage Present: _____

Repairs Made: A

Absorbent Boom:

Lineal Feet Deployed: _____

Anchored to Bank Properly: _____

Staining/Oil Present: _____

Lineal Feet Replaced: _____

Additional Notes/Comments: _____

Time: 2000

Inspector: _____

Hard Boom:

Sheen/Oil Present at Riverbank: None detected

Lineal Feet Deployed: N

Anchored to Bank Properly _____

Tears/Damage Present: _____

Repairs Made: A

Absorbent Boom:

Lineal Feet Deployed: _____

Anchored to Bank Properly: _____

Staining/Oil Present: _____

Lineal Feet Replaced: _____

Additional Notes/Comments: _____

Email daily to: Todd.bachand@duke-energy.com



~~Daily Boom Inspection Form~~
River Bank Inspections

Client: Duke Energy
Location: East End Gas Plant, Ohio River Bank, 39.12081, -84.45449

Date: 8-2-19
Job Number: 9932.05001

Time: 0800

Inspector: Austin

Hard Boom:

Sheen/Oil Present at Riverbank:

Lineal Feet Deployed:

Anchored to Bank Properly

Tears/Damage Present:

Repairs Made:

Absorbent Boom: Lineal Feet Deployed:

Anchored to Bank Properly:

Staining/Oil Present:

Lineal Feet Replaced:

Additional Notes/Comments:

Time: 1200

Inspector: Austin

Hard Boom:

Sheen/Oil Present at Riverbank:

Lineal Feet Deployed:

Anchored to Bank Properly

Tears/Damage Present:

Repairs Made:

Absorbent Boom: Lineal Feet Deployed:

Anchored to Bank Properly:

Staining/Oil Present:

Lineal Feet Replaced:

Additional Notes/Comments:

Time: 1600

Inspector: Austin

Hard Boom:

Sheen/Oil Present at Riverbank:

No Sheen

Lineal Feet Deployed:

Anchored to Bank Properly

N

Tears/Damage Present:

Repairs Made:

A

Absorbent Boom:

Lineal Feet Deployed:

Anchored to Bank Properly:

Staining/Oil Present:

Lineal Feet Replaced:

Additional Notes/Comments:

Time: 2000

Inspector: Austin

Hard Boom:

Sheen/Oil Present at Riverbank:

No Sheen

Lineal Feet Deployed:

Anchored to Bank Properly

N

Tears/Damage Present:

Repairs Made:

A

Absorbent Boom:

Lineal Feet Deployed:

Anchored to Bank Properly:

Staining/Oil Present:

Lineal Feet Replaced:

Additional Notes/Comments:

Email daily to: Todd.bachand@duke-energy.com



Daily Boom Inspection Form

Client: Duke Energy
Location: East End Gas Plant, Ohio River Bank, 39.12081, -84.45449

Date: 8-3-19
Job Number: 9932.05001

Time: 0800

Sheen/Oil Present at Riverbank:

No Sheen present

Inspector: Jamerson

Hard Boom:

Lineal Feet Deployed:

Anchored to Bank Properly

Tears/Damage Present:

Repairs Made:

Absorbent Boom:

Lineal Feet Deployed:

Anchored to Bank Properly:

Staining/Oil Present:

Lineal Feet Replaced:

N
A

Additional Notes/Comments:

Time: 1200

Sheen/Oil Present at Riverbank:

No Sheen present

Inspector: Jamerson

Hard Boom:

Lineal Feet Deployed:

Anchored to Bank Properly

Tears/Damage Present:

Repairs Made:

Absorbent Boom:

Lineal Feet Deployed:

Anchored to Bank Properly:

Staining/Oil Present:

Lineal Feet Replaced:

N
A

Additional Notes/Comments:

Time: 1600

Inspector: Jamerson

Hard Boom:

Sheen/Oil Present at Riverbank:

No Sheen present

Lineal Feet Deployed:

Anchored to Bank Properly

Tears/Damage Present:

Repairs Made:

Absorbent Boom:

Lineal Feet Deployed:

Anchored to Bank Properly:

Staining/Oil Present:

Lineal Feet Replaced:

Additional Notes/Comments:

Time: 2000

Inspector: Jamerson

Hard Boom:

Sheen/Oil Present at Riverbank:

No Sheen present

Lineal Feet Deployed:

Anchored to Bank Properly

Tears/Damage Present:

Repairs Made:

Absorbent Boom:

Lineal Feet Deployed:

Anchored to Bank Properly:

Staining/Oil Present:

Lineal Feet Replaced:

Additional Notes/Comments:

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Daily Boom Inspection Form

Client: Duke Energy
Location: East End Gas Plant, Ohio River Bank, 39.12081, -84.45449

Date: 8-4-19
Job Number: 9932.05001

Time: 0800

Sheen/Oil Present at Riverbank:

No Sheen present

Inspector: _____

Hard Boom:

Lineal Feet Deployed: _____

Anchored to Bank Properly _____

Tears/Damage Present: _____

Repairs Made: _____

Absorbent Boom: Lineal Feet Deployed: _____

Anchored to Bank Properly: _____

Staining/Oil Present: _____

Lineal Feet Replaced: _____

Additional Notes/Comments: _____

Time: 1200

Sheen/Oil Present at Riverbank:

No Sheen present

Inspector: _____

Hard Boom:

Lineal Feet Deployed: _____

Anchored to Bank Properly _____

Tears/Damage Present: _____

Repairs Made: _____

Absorbent Boom: Lineal Feet Deployed: _____

Anchored to Bank Properly: _____

Staining/Oil Present: _____

Lineal Feet Replaced: _____

Additional Notes/Comments: _____

Time: 1600

Inspector: _____

Hard Boom:

Sheen/Oil Present at Riverbank:

No Sheen present

Lineal Feet Deployed: _____

Anchored to Bank Properly _____

Tears/Damage Present: _____

Repairs Made: _____

Absorbent Boom:

Lineal Feet Deployed: _____

Anchored to Bank Properly: _____

Staining/Oil Present: _____

Lineal Feet Replaced: _____

Additional Notes/Comments: _____

Time: 2000

Inspector: _____

Hard Boom:

Sheen/Oil Present at Riverbank:

No Sheen present

Lineal Feet Deployed: _____

Anchored to Bank Properly _____

Tears/Damage Present: _____

Repairs Made: _____

Absorbent Boom:

Lineal Feet Deployed: _____

Anchored to Bank Properly: _____

Staining/Oil Present: _____

Lineal Feet Replaced: _____

Additional Notes/Comments: _____

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Daily Boom Inspection Form

Client: Duke Energy
Location: East End Gas Plant, Ohio River Bank, 39.12081, -84.45449

Date: 8-5-19
Job Number: 9932.05001

Time: 0800

Sheen/Oil Present at Riverbank:

No Sheen present

Inspector: Gant

Hard Boom:

Lineal Feet Deployed:

Anchored to Bank Properly

Tears/Damage Present:

Repairs Made:

Absorbent Boom:

Lineal Feet Deployed:

Anchored to Bank Properly:

Staining/Oil Present:

Lineal Feet Replaced:

Additional Notes/Comments:

Time: 1200

Sheen/Oil Present at Riverbank:

No Sheen present

Inspector: Gant

Hard Boom:

Lineal Feet Deployed:

Anchored to Bank Properly

Tears/Damage Present:

Repairs Made:

Absorbent Boom:

Lineal Feet Deployed:

Anchored to Bank Properly:

Staining/Oil Present:

Lineal Feet Replaced:

Additional Notes/Comments:

8-5-19

Time: 1600

Inspector: Eant

Hard Boom:

Sheen/Oil Present at Riverbank:

No Sheen

Lineal Feet Deployed:

Anchored to Bank Properly

Tears/Damage Present:

Repairs Made:

Absorbent Boom:

Lineal Feet Deployed:

Anchored to Bank Properly:

Staining/Oil Present:

Lineal Feet Replaced:

Additional Notes/Comments:

Time: 2000

Inspector: Easter

Hard Boom:

Sheen/Oil Present at Riverbank:

No Sheen

Lineal Feet Deployed:

Anchored to Bank Properly

Tears/Damage Present:

Repairs Made:

Absorbent Boom:

Lineal Feet Deployed:

Anchored to Bank Properly:

Staining/Oil Present:

Lineal Feet Replaced:

Additional Notes/Comments:

Email daily to: Todd.bachand@duke-energy.com



Daily Boom Inspection Form

Client: Duke Energy
Location: East End Gas Plant, Ohio River Bank, 39.12081, -84.45449

Date: 8-6-19
Job Number: 9932.05001

Time: 0800

Inspector: Gant

Hard Boom: Sheen/Oil Present at Riverbank:

Lineal Feet Deployed:

Anchored to Bank Properly

Tears/Damage Present:

Repairs Made:

Absorbent Boom: Lineal Feet Deployed:

Anchored to Bank Properly:

Staining/Oil Present:

Lineal Feet Replaced:

No Sheen present

Additional Notes/Comments:

Time: 1200

Inspector: Gant

Hard Boom: Sheen/Oil Present at Riverbank:

Lineal Feet Deployed:

Anchored to Bank Properly

Tears/Damage Present:

Repairs Made:

Absorbent Boom: Lineal Feet Deployed:

Anchored to Bank Properly:

Staining/Oil Present:

Lineal Feet Replaced:

No Sheen present

Additional Notes/Comments:

Time:

1600

Inspector:

Gant

Hard Boom:

Sheen/Oil Present at Riverbank:

No Sheen

Lineal Feet Deployed:

Anchored to Bank Properly

Tears/Damage Present:

Repairs Made:

Absorbent Boom:

Lineal Feet Deployed:

Anchored to Bank Properly:

Staining/Oil Present:

Lineal Feet Replaced:

Additional Notes/Comments:

Time:

2000

Inspector:

Easter

Hard Boom:

Sheen/Oil Present at Riverbank:

No Sheen

Lineal Feet Deployed:

Anchored to Bank Properly

Tears/Damage Present:

Repairs Made:

Absorbent Boom:

Lineal Feet Deployed:

Anchored to Bank Properly:

Staining/Oil Present:

Lineal Feet Replaced:

Additional Notes/Comments:

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Daily Boom Inspection Form

River Bank inspection

Client: Duke Energy
Location: East End Gas Plant, Ohio River Bank, 39.12081, -84.45449

Date: 8-7-19
Job Number: 9932.05001

Time: 0800

Sheen/Oil Present at Riverbank: No Sheen present

Inspector: Gant

Hard Boom: Lineal Feet Deployed:

Anchored to Bank Properly

Tears/Damage Present:

Repairs Made:

Absorbent Boom: Lineal Feet Deployed:

Anchored to Bank Properly:

Staining/Oil Present:

Lineal Feet Replaced:

Additional Notes/Comments:

Time: 1200

Sheen/Oil Present at Riverbank: No Sheen present

Inspector: Gant

Hard Boom: Lineal Feet Deployed:

Anchored to Bank Properly

Tears/Damage Present:

Repairs Made:

Absorbent Boom: Lineal Feet Deployed:

Anchored to Bank Properly:

Staining/Oil Present:

Lineal Feet Replaced:

Additional Notes/Comments:

Time: 1600

Inspector: Patterson

Hard Boom:

Sheen/Oil Present at Riverbank:

No Sheen

Lineal Feet Deployed:

Anchored to Bank Properly

Tears/Damage Present:

Repairs Made:

Absorbent Boom:

Lineal Feet Deployed:

Anchored to Bank Properly:

Staining/Oil Present:

Lineal Feet Replaced:

Additional Notes/Comments:

Time: 2000

Inspector: Patterson

Hard Boom:

Sheen/Oil Present at Riverbank:

No Sheen

Lineal Feet Deployed:

Anchored to Bank Properly

Tears/Damage Present:

Repairs Made:

Absorbent Boom:

Lineal Feet Deployed:

Anchored to Bank Properly:

Staining/Oil Present:

Lineal Feet Replaced:

Additional Notes/Comments:

Email daily to: Todd.bachand@duke-energy.com



~~Daily Boom Inspection Form~~
River Bank Inspections

Client: Duke Energy
Location: East End Gas Plant, Ohio River Bank, 39.12081, -84.45449

Date: 8-8-19
Job Number: 9932.05001

Time: 0800

Sheen/Oil Present at Riverbank:

No Sheen

Inspector: Gant

Hard Boom:

Lineal Feet Deployed: _____

Anchored to Bank Properly _____

Tears/Damage Present: _____

Repairs Made: _____

Absorbent Boom:

Lineal Feet Deployed: _____

Anchored to Bank Properly: _____

Staining/Oil Present: _____

Lineal Feet Replaced: _____

Additional Notes/Comments: _____

Time: 1200

Sheen/Oil Present at Riverbank:

No Sheen

Inspector: Gant

Hard Boom:

Lineal Feet Deployed: _____

Anchored to Bank Properly _____

Tears/Damage Present: _____

Repairs Made: _____

Absorbent Boom:

Lineal Feet Deployed: _____

Anchored to Bank Properly: _____

Staining/Oil Present: _____

Lineal Feet Replaced: _____

Additional Notes/Comments: _____

Time: 1600

Inspector: Berikmeyer

Hard Boom:

Sheen/Oil Present at Riverbank:

NO Sheen

Lineal Feet Deployed:

Anchored to Bank Properly

Tears/Damage Present:

Repairs Made:

Absorbent Boom:

Lineal Feet Deployed:

Anchored to Bank Properly:

Staining/Oil Present:

Lineal Feet Replaced:

Additional Notes/Comments:

Time: 2000

Inspector: Berikmeyer

Hard Boom:

Sheen/Oil Present at Riverbank:

NO Sheen

Lineal Feet Deployed:

Anchored to Bank Properly

Tears/Damage Present:

Repairs Made:

Absorbent Boom:

Lineal Feet Deployed:

Anchored to Bank Properly:

Staining/Oil Present:

Lineal Feet Replaced:

Additional Notes/Comments:

Email daily to: Todd.bachand@duke-energy.com



~~Daily Boom Inspection Form~~
River Bank Inspections

Client: Duke Energy
Location: East End Gas Plant, Ohio River Bank, 39.12081, -84.45449

Date: 8-9-19
Job Number: 9932.05001

Time: 0800

Sheen/Oil Present at Riverbank: NO Sheen

Inspector: Berkmeyer

Hard Boom: Lineal Feet Deployed: _____

Anchored to Bank Properly: _____

Tears/Damage Present: _____

Repairs Made: _____

Absorbent Boom: Lineal Feet Deployed: _____

Anchored to Bank Properly: _____

Staining/Oil Present: _____

Lineal Feet Replaced: _____

Additional Notes/Comments: _____

Time: 1200

Sheen/Oil Present at Riverbank: NO Sheen

Inspector: Berkmeyer

Hard Boom: Lineal Feet Deployed: _____

Anchored to Bank Properly: _____

Tears/Damage Present: _____

Repairs Made: _____

Absorbent Boom: Lineal Feet Deployed: _____

Anchored to Bank Properly: _____

Staining/Oil Present: _____

Lineal Feet Replaced: _____

Additional Notes/Comments: _____

Time: 1600

Inspector: Patterson

Hard Boom:

Sheen/Oil Present at Riverbank:

NO Sheen

Lineal Feet Deployed:

Anchored to Bank Properly

Tears/Damage Present:

Repairs Made:

Absorbent Boom:

Lineal Feet Deployed:

Anchored to Bank Properly:

Staining/Oil Present:

Lineal Feet Replaced:

Additional Notes/Comments:

Time: 2000

Inspector: Ber Kemeyer

Hard Boom:

Sheen/Oil Present at Riverbank:

NO Sheen

Lineal Feet Deployed:

Anchored to Bank Properly

Tears/Damage Present:

Repairs Made:

Absorbent Boom:

Lineal Feet Deployed:

Anchored to Bank Properly:

Staining/Oil Present:

Lineal Feet Replaced:

Additional Notes/Comments:

Email daily to: Todd.bachand@duke-energy.com

Attachment 4

Chemicals of Concern – Benzene & PAH's

Polycyclic Aromatic Hydrocarbons (PAHs) - ToxFAQs™

This fact sheet answers the most frequently asked health questions (FAQs) about polycyclic aromatic hydrocarbons (PAHs). For more information, call the CDC Information Center at 1-800-232-4636. This fact sheet is one in a series of summaries about hazardous substances and their health effects. This information is important because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Exposure to polycyclic aromatic hydrocarbons usually occurs by breathing air contaminated by wild fires or coal tar, or by eating foods that have been grilled. PAHs have been found in at least 600 of the 1,430 National Priorities List (NPL) sites identified by the Environmental Protection Agency (EPA).

What are polycyclic aromatic hydrocarbons?

(Pronounced pŏl'i-sī'klīk ār'ə-măt'īk hī'drə-kar'bənz)

Polycyclic aromatic hydrocarbons (PAHs) are a group of over 100 different chemicals that are formed during the incomplete burning of coal, oil and gas, garbage, or other organic substances like tobacco or charbroiled meat. PAHs are usually found as a mixture containing two or more of these compounds, such as soot.

Some PAHs are manufactured. These pure PAHs usually exist as colorless, white, or pale yellow-green solids. PAHs are found in coal tar, crude oil, creosote, and roofing tar, but a few are used in medicines or to make dyes, plastics, and pesticides.

What happens to PAHs when they enter the environment?

- PAHs enter the air mostly as releases from volcanoes, forest fires, burning coal, and automobile exhaust.
- PAHs can occur in air attached to dust particles.
- Some PAH particles can readily evaporate into the air from soil or surface waters.
- PAHs can break down by reacting with sunlight and other chemicals in the air, over a period of days to weeks.
- PAHs enter water through discharges from industrial and wastewater treatment plants.

- Most PAHs do not dissolve easily in water. They stick to solid particles and settle to the bottoms of lakes or rivers.
- Microorganisms can break down PAHs in soil or water after a period of weeks to months.
- In soils, PAHs are most likely to stick tightly to particles; certain PAHs move through soil to contaminate underground water.
- PAH contents of plants and animals may be much higher than PAH contents of soil or water in which they live.

How might I be exposed to PAHs?

- Breathing air containing PAHs in the workplace of coking, coal-tar, and asphalt production plants; smokehouses; and municipal trash incineration facilities.
- Breathing air containing PAHs from cigarette smoke, wood smoke, vehicle exhausts, asphalt roads, or agricultural burn smoke.
- Coming in contact with air, water, or soil near hazardous waste sites.
- Eating grilled or charred meats; contaminated cereals, flour, bread, vegetables, fruits, meats; and processed or pickled foods.
- Drinking contaminated water or cow's milk.
- Nursing infants of mothers living near hazardous waste sites may be exposed to PAHs through their mother's milk.

Polycyclic Aromatic Hydrocarbons

How can PAHs affect my health?

Mice that were fed high levels of one PAH during pregnancy had difficulty reproducing and so did their offspring. These offspring also had higher rates of birth defects and lower body weights. It is not known whether these effects occur in people.

Animal studies have also shown that PAHs can cause harmful effects on the skin, body fluids, and ability to fight disease after both short- and long-term exposure. But these effects have not been seen in people.

How likely are PAHs to cause cancer?

The Department of Health and Human Services (DHHS) has determined that some PAHs may reasonably be expected to be carcinogens.

Some people who have breathed or touched mixtures of PAHs and other chemicals for long periods of time have developed cancer. Some PAHs have caused cancer in laboratory animals when they breathed air containing them (lung cancer), ingested them in food (stomach cancer), or had them applied to their skin (skin cancer).

Is there a medical test to show whether I've been exposed to PAHs?

In the body, PAHs are changed into chemicals that can attach to substances within the body. There are special tests that can detect PAHs attached to these substances in body tissues or blood. However, these tests cannot tell whether any health effects will occur or find out the extent or source of your exposure to the PAHs. The tests aren't usually available in your doctor's office because special equipment is needed to conduct them.

Has the federal government made recommendations to protect human health?

The Occupational Safety and Health Administration (OSHA) has set a limit of 0.2 milligrams of PAHs per cubic meter of air (0.2 mg/m^3). The OSHA Permissible Exposure Limit (PEL) for mineral oil mist that contains PAHs is 5 mg/m^3 averaged over an 8-hour exposure period.

The National Institute for Occupational Safety and Health (NIOSH) recommends that the average workplace air levels for coal tar products not exceed 0.1 mg/m^3 for a 10-hour workday, within a 40-hour workweek. There are other limits for workplace exposure for things that contain PAHs, such as coal, coal tar, and mineral oil.

Glossary

Carcinogen: A substance that can cause cancer.

Ingest: Take food or drink into your body.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 1995. Toxicological profile for polycyclic aromatic hydrocarbons. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Where can I get more information?

For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Human Health Sciences, 1600 Clifton Road NE, Mailstop F-57, Atlanta, GA 30329-4027.

Phone: 1-800-232-4636.

ToxFAQs™ Internet address via WWW is <http://www.atsdr.cdc.gov/toxfaqs/index.asp>.

ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

Benzene - ToxFAQs™

CAS # 71-43-2

This fact sheet answers the most frequently asked health questions (FAQs) about benzene. For more information, call the CDC Information Center at 1-800-232-4636. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It is important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Benzene is a widely used chemical formed from both natural processes and human activities. Breathing benzene can cause drowsiness, dizziness, and unconsciousness; long-term benzene exposure causes effects on the bone marrow and can cause anemia and leukemia. Benzene has been found in at least 1,000 of the 1,684 National Priority List (NPL) sites identified by the Environmental Protection Agency (EPA).

What is benzene?

Benzene is a colorless liquid with a sweet odor. It evaporates into the air very quickly and dissolves slightly in water. It is highly flammable and is formed from both natural processes and human activities.

Benzene is widely used in the United States; it ranks in the top 20 chemicals for production volume. Some industries use benzene to make other chemicals which are used to make plastics, resins, and nylon and other synthetic fibers. Benzene is also used to make some types of rubbers, lubricants, dyes, detergents, drugs, and pesticides. Natural sources of benzene include emissions from volcanoes and forest fires. Benzene is also a natural part of crude oil, gasoline, and cigarette smoke.

What happens to benzene when it enters the environment?

- Industrial processes are the main source of benzene in the environment.
- Benzene can pass into the air from water and soil.
- It reacts with other chemicals in the air and breaks down within a few days.
- Benzene in the air can attach to rain or snow and be carried back down to the ground.
- It breaks down more slowly in water and soil, and can pass through the soil into underground water.
- Benzene does not build up in plants or animals.

How might I be exposed to benzene?

- Outdoor air contains low levels of benzene from tobacco smoke, automobile service stations, exhaust from motor vehicles, and industrial emissions.
- Vapors (or gases) from products that contain benzene, such as glues, paints, furniture wax, and detergents, can also be a source of exposure.
- Air around hazardous waste sites or gas stations will contain higher levels of benzene.
- Working in industries that make or use benzene.

How can benzene affect my health?

Breathing very high levels of benzene can result in death, while high levels can cause drowsiness, dizziness, rapid heart rate, headaches, tremors, confusion, and unconsciousness. Eating or drinking foods containing high levels of benzene can cause vomiting, irritation of the stomach, dizziness, sleepiness, convulsions, rapid heart rate, and death.

The major effect of benzene from long-term exposure is on the blood. Benzene causes harmful effects on the bone marrow and can cause a decrease in red blood cells leading to anemia. It can also cause excessive bleeding and can affect the immune system, increasing the chance for infection. Some women who breathed high levels of benzene for many months had irregular menstrual periods and a decrease in the size of their ovaries, but we do not know for certain that benzene caused the effects. It is not known whether benzene will affect fertility in men.

Benzene

CAS # 71-43-2

How likely is benzene to cause cancer?

Long-term exposure to high levels of benzene in the air can cause leukemia, particularly acute myelogenous leukemia, often referred to as AML. This is a cancer of the bloodforming organs. The Department of Health and Human Services (DHHS) has determined that benzene is a known carcinogen. The International Agency for Research on Cancer (IARC) and the EPA have determined that benzene is carcinogenic to humans.

How can benzene affect children?

Children can be affected by benzene exposure in the same ways as adults. It is not known if children are more susceptible to benzene poisoning than adults.

Benzene can pass from the mother's blood to a fetus. Animal studies have shown low birth weights, delayed bone formation, and bone marrow damage when pregnant animals breathed benzene.

How can families reduce the risks of exposure to benzene?

Benzene exposure can be reduced by limiting contact with gasoline and cigarette smoke. Families are encouraged not to smoke in their house, in enclosed environments, or near their children.

Is there a medical test to determine whether I've been exposed to benzene?

Several tests can show if you have been exposed to benzene. There is a test for measuring benzene in the breath; this test must be done shortly after exposure. Benzene can also be measured in the blood; however, since benzene disappears rapidly from the blood, this test is only useful for recent exposures.

In the body, benzene is converted to products called metabolites. Certain metabolites can be measured in the urine. The metabolite S-phenylmercapturic acid in urine is a sensitive indicator of benzene exposure. However, this test must be done shortly after exposure and is not a reliable indicator of how much benzene you have been exposed to, since the metabolites may be present in urine from other sources.

Has the federal government made recommendations to protect human health?

The EPA has set the maximum permissible level of benzene in drinking water at 5 parts benzene per billion parts of water (5 ppb).

The Occupational Safety and Health Administration (OSHA) has set limits of 1 part benzene per million parts of workplace air (1 ppm) for 8 hour shifts and 40 hour work weeks.

References

Agency for Toxic Substances and Disease Registry (ATSDR) 2007. Toxicological Profile for Benzene (Update). Atlanta, GA: U.S. Department of Public Health and Human Services, Public Health Service.

Where can I get more information?

For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Human Health Sciences, 1600 Clifton Road NE, Mailstop F-57, Atlanta, GA 30329-4027.

Phone: 1-800-232-4636

ToxFAQs™ Internet address via WWW is <http://www.atsdr.cdc.gov/toxfaqs/index.asp>.

ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

Attachment 5

Incident Photos



July 18, 2019 Sheen Photo



July 18, 2019 Sheen Photo



Aqua Gate Installation July 29, 2019



Reactive Core Mat Installation July 29, 2019



Fencing & Concrete Curbing Installation July 31, 2019



River Bank Mitigation Completed July 31, 2019

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Summary: Testimony Shawn Fiore SSF-5 Attachment (Part 2) electronically filed by Mrs. Debbie L Gates on behalf of Duke Energy Ohio Inc. and D'Ascenzo, Rocco O. Mr. and Kingery, Jeanne W and Vaysman, Larisa