



# EPA Approves Community Soil Sampling Work Plan

## East Palestine Train Derailment Emergency Response East Palestine, Ohio

### For more information

If you have questions or comments, please contact:

#### EPA Information Line

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Visit:

[www.epa.gov/oh/east-pal-estine-ohio-train-derailment-emergency-response](http://www.epa.gov/oh/east-pal-estine-ohio-train-derailment-emergency-response)



For more information on dioxins, visit:

[www.epa.gov/dioxin/learn-about-dioxin](http://www.epa.gov/dioxin/learn-about-dioxin)



[www.atsdr.cdc.gov/ToxProfiles/tp104-c1.pdf](http://www.atsdr.cdc.gov/ToxProfiles/tp104-c1.pdf)



On March 7, EPA approved Norfolk Southern's plan for sampling soil at residential, commercial, recreational and agricultural properties in East Palestine and in nearby Pennsylvania areas. The plan focuses on sampling soils at these properties to help identify if contaminants caused by the train derailment, including dioxins, are present. Sampling agricultural properties is a high priority given the upcoming planting season for area farmers. Norfolk Southern contractors will conduct the sampling, and EPA personnel will be present to oversee and make sure the work is done properly. EPA will also collect samples alongside Norfolk Southern to verify results. People in the community can expect to see and hear from work crews in the next few days as they begin the soil sampling work.



*EPA crew members collecting soil samples*

### What are we looking for?

Crews will be out in the community to assess whether the area's soil has been contaminated from the fire. Specifically, crews will be looking for ash and soot from the burn that may have been carried by wind away from the derailment site. You may see crew members wearing nitrile gloves and other protective equipment (PPE) to prevent contaminating the samples. Crew members will send the samples to an accredited lab, where the samples will be analyzed for semi-volatile organic compounds (SVOCs) and dioxins. This is a first round of sampling designed to provide an overview of the situation in the East Palestine area. EPA's order requires Norfolk to conduct more comprehensive soil sampling later, and EPA will collect its own samples again at that time.

## What are SVOCs?

Semi-volatile organic compounds (SVOCs), including many pesticides, oil-based products and fire retardants, are more likely to be liquids or solids at lower temperatures. SVOCs can deposit on outdoor surfaces. Volatile organic compounds (VOCs) are a group of chemicals that can readily transform into vapor (a gas) at lower temperatures. VOCs are more likely to be dispersed (and monitored for) in the air. You can see the list of SVOCs that crews will be testing for on page 4.

## What are dioxins and how do they pose a risk to the community?

Dioxins are a large family of chemical compounds that are often present in very low levels everywhere in the environment. They occur naturally after forest fires or volcanic eruptions. Man-made sources can contain dioxins as well, such as by-products created when fuels, other organic chemicals, or plastics are burned—including car exhaust. Some dioxins are toxic, and exposure to high concentrations have been linked to cancer, reproductive and developmental problems, as well as immune and hormonal issues. More than 90% of typical human exposure is estimated by EPA to be through the intake of animal fats, dairy products, fish, and shellfish. You can learn more about dioxins by visiting [www.epa.gov/dioxin/learn-about-dioxin](http://www.epa.gov/dioxin/learn-about-dioxin) or scan the relevant QR codes on the other side of this fact sheet.

***EPA heard directly from East Palestine area farmers and families who are concerned about dioxins.*** We want to be clear that the input and perspective of the East Palestine community is essential to our ongoing response efforts. EPA has been monitoring the air, soil, and water for “indicator chemicals” that would likely appear if dioxins had been formed after the vent and burn. Test results to date and other data suggest a low probability for a risk to health from dioxin from this incident. However, to address concerns from agricultural stakeholders and residents, EPA is requiring Norfolk Southern to sample directly for dioxins, focusing on soils to help identify if dioxins are present and attributable to the incident. Review of these results will inform the next steps.

## Where will crews be collecting soil samples?

EPA and Norfolk Southern contractors have identified an inspection zone that focuses on a one-mile radius around the site, with a larger 2-mile radius to the southeast from the site to account for how ash and soot may have traveled based on wind modeling and observation. See a map of the proposed area on the next page. Crews will perform a minimum of 277 inspections in the area. A portion of those inspected areas will be sampled. Crews will decontaminate tools and equipment after collecting samples, and all work will comply with established health and safety plans.

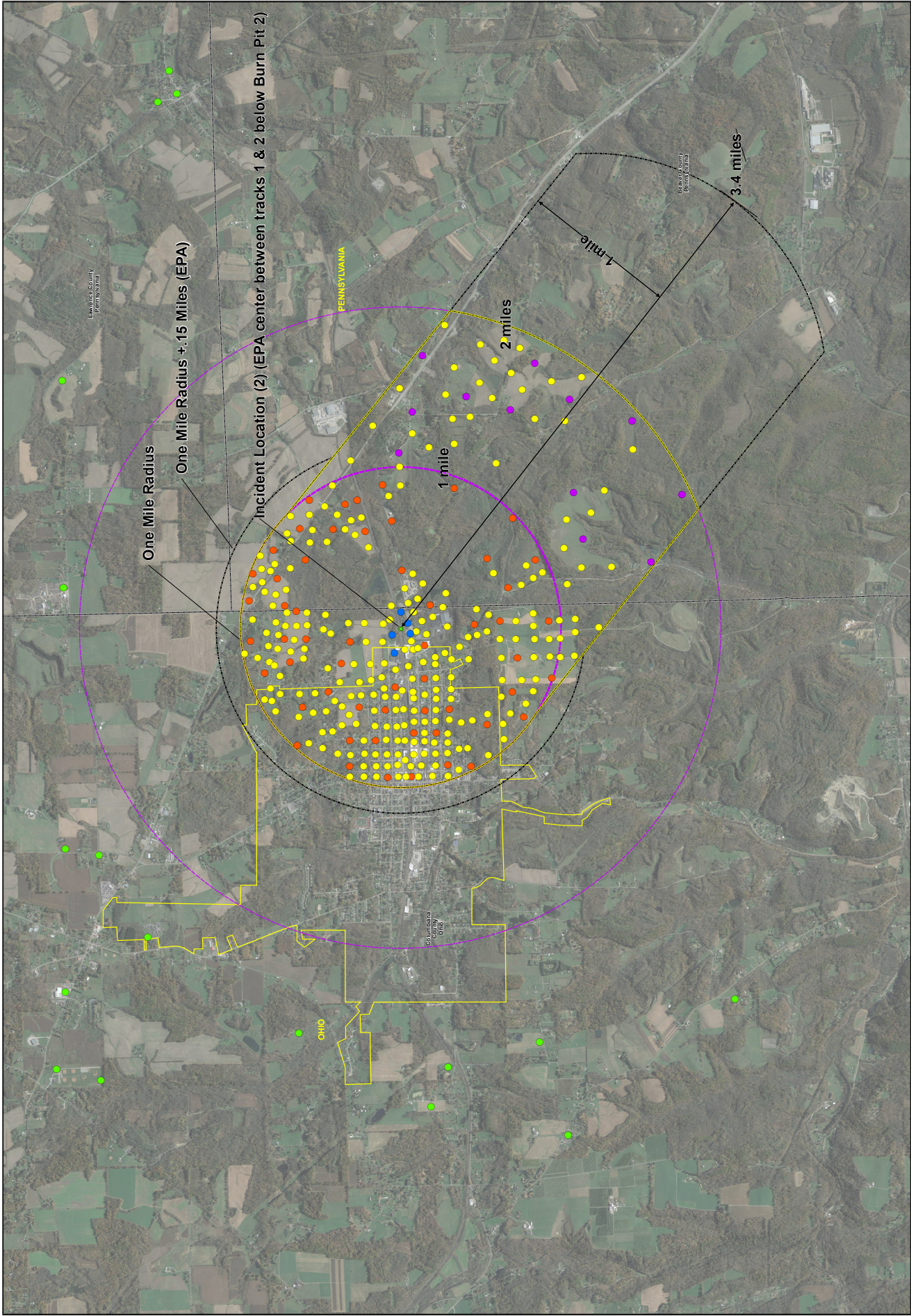
Soil sample locations for this work plan are represented by yellow and red dots. Green dots show locations of background control soil sample collection sites. Blue dots show locations of derailment site sample locations. The one- and two-mile radius areas are represented by the black and purple circles. The East Palestine city boundary is outlined in yellow.

**Note:** this sampling work plan does not address soil close to the derailment site that may have been contaminated with hazardous liquids and other releases directly from rail cars, as this contamination is being addressed in a separate work plan.

## What are the next steps?

EPA and Norfolk Southern contracting teams will inform property owners and the public about results from soil sampling. Residents should expect a turnaround time of roughly 21 calendar days for final results after samples are gathered. This sampling plan will guide the EPA's future work and environmental monitoring in the East Palestine area.





- Legend**
- East Palestine City Boundary
  - Soil Sampling Target Area
  - Radius from Incident Location
  - Overall Evacuation Area
  - Derailment/Inspection/Soil Sample
  - SE Area Soil Sample
  - Background/Inspection/Soil Sample
  - Inspection/Designated Sample Location
  - Inspection/Soil Sample



**Table 1. Summary of Laboratory Analyses and Analytes,  
Phase I Preliminary Residential/Commercial/Agricultural Soil Sampling Work Plan  
East Palestine Train Derailment Site, East Palestine, Ohio.**

Analyte	CAS number	
<b>Focused Semivolatile organic Compounds (SVOCs) (8270E)</b>		
2,4,5-Trichlorophenol	95-95-4	
2,4,6-Trichlorophenol	88-06-2	
2,4-Dichlorophenol	120-83-2	
2-Chlorophenol	95-57-8	
2-Methylnaphthalene	91-57-6	
4-Chloro-3-methylphenol	59-50-7	
4-Chlorophenyl phenyl ether	7005-72-3	
Acenaphthene	83-32-9	
Acenaphthylene	208-96-8	
Anthracene	120-12-7	
Benzo[a]anthracene	56-55-3	
Benzo[a]pyrene	50-32-8	
Benzo[b]fluoranthene	205-99-2	
Benzo[g,h,i]perylene	191-24-2	
Benzo[k]fluoranthene	207-08-9	
Chrysene	218-01-9	
Dibenz(a,h)anthracene	53-70-3	
Fluoranthene	206-44-0	
Fluorene	86-73-7	
Hexachlorobenzene	118-74-1	
Indeno[1,2,3-cd]pyrene	193-39-5	
Naphthalene	91-20-3	
Pentachlorophenol	87-86-5	
Phenanthrene	85-01-8	
Phenol	108-95-2	
Pyrene	129-00-0	
<b>Dioxins and Furans (8290A)</b>		
2,3,7,8-tetrachlorodibenzo-p-dioxin	2,3,7, 8-TCDD	1746-01-6
1,2,3,7,8-pentachlorodibenzo-p-dioxin	1,2,3,7, 8-PeCDD	40321-76-4
1,2,3,4,7, 8-hexachlorodibenzo-p-dioxin	1,2,3,4,7, 8-HxCDD	39227-28-6
1,2,3,6,7, 8-hexachlorodibenzo-p-dioxin	1,2,3,6,7, 8-HxCDD	57653-85-7
1,2,3,7,8,9-hexachlorodibenzo-p-dioxin	1,2,3,7, 8,9-HxCDD	19408-74-3
1,2,3,4,6,7, 8-heptachlorodibenzo-p-dioxin	1,2,3,4,6,7,8-HpCDD	35822-46-9
1,2,3,4,6,7, 8,9-octachlorodibenzo-p-dioxin	OCDD	3268-87-9
2,3,7,8-tetrachlorodibenzofuran	2,3,7,8-TCDF	51207-31-9
1,2,3,7,8-pentachlorodibenzofuran	1,2,3,7, 8-PeCDF	57117-41-6
2,3,4,7,8-pentachlorodibenzofuran	2,3,4,7,8-PeCDF	57117-31-4
1,2,3,4,7, 8-hexachlorodibenzofuran	1,2,3,4,7, 8-HxCDF	70648-26-9
1,2,3,6,7, 8-hexachlorodibenzofuran	1,2,3,6,7, 8-HxCDF	57117-44-9
1,2,3,7,8,9-hexachlorodibenzofuran	1,2,3,7, 8,9-HxCDF	72918-21-9
2,3,4,6,7, 8-hexachlorodibenzofuran	2,3,4,6,7, 8-HxCDF	60851-34-5
1,2,3,4,6,7, 8-heptachlorodibenzofuran	1,2,3,4,6,7,8-HpCDF	67562-39-4
1,2,3,4,6, 8,9-heptachlorodibenzofuran	1,2,3,4,7, 8,9-HpCDF	55673-89-7
1,2,3,4,6,7, 8,9-octachlorodibenzofuran	OCDF	39001-02-0