



Update to EPA Report Submitted Pursuant to Section 2(b) of Executive Order 14108

***Executive Order 14108 on Ensuring the People of East
Palestine Are Protected Now and in the Future¹***

December 20, 2023

¹ See 88 FR 66265 (9/26/23).



East Palestine, Ohio, Train Derailment Response
Site Overview Map

Executive Summary

Since February 2023, EPA has been directing and overseeing the extensive cleanup activities conducted by Norfolk Southern Railway Co. after a train derailed in East Palestine, Ohio, releasing hazardous substances and oil, causing a massive fire, and leading to the temporary evacuation of thousands of residents.

This is the second report pursuant to section 2(b) of Executive Order 14108 (*Executive Order on Ensuring the People of East Palestine Are Protected Now and in the Future*). It provides updates on activities and developments since EPA submitted the first report² on October 20, 2023. Since then, there have been several significant developments:

- On October 18, 2023, EPA issued a Clean Water Act administrative order to Norfolk Southern requiring the company to remove sediments in culverted areas of Sulphur Run, and to further delineate, characterize, and, as necessary, remove oil and CWA hazardous substances from the sediments in Leslie and Sulphur Runs. Sediment and sheen sampling efforts required by the order are complete, and cleanup is complete in four of five culverts.
- On October 23, 2023, East Taggart Street – a major route in and out of town – was reopened to regular traffic.
- On October 30, 2023, excavation of contaminated soil from the derailment site was completed, reaching one of the most significant goals of the cleanup. Ultimately, more than 175,000 tons (more than 350 million pounds) of contaminated soil was excavated and transported out of East Palestine for disposal.
- The structure indoor cleaning program, which started in August 2023 to address concerns about dust generated by the cleanup work, concluded in mid-November 2023, cleaning 83 homes and other structures under EPA oversight.
- With soil excavation activities complete, Norfolk Southern has announced that its temporary relocation assistance for East Palestine residents would conclude February 9, 2024.
- The final site-wide confirmation soil sampling effort – a final doublecheck to ensure that the cleanup has been fully successful and that no contamination has spread due to cleanup activities – is underway and will continue through the mid-2024.



Figure 1. On October 23, East Taggart Street – a major route in and out of town – was reopened to regular traffic.

The status of air, soil, surface water, groundwater, and drinking water has not changed significantly since October 2023. Air monitoring and sampling still occur during all derailment-area cleanup activities at the specific location of that work. More than 115 million air monitoring data points, and more than 45,000 samples across all media have been collected. Since the evacuation order was lifted on February

² https://www.epa.gov/system/files/documents/2023-11/eo_14108_report_10202023-final.pdf

8, 2023, ongoing data collection and science-based reviews show that residents of East Palestine are not at risk from surface water, soil or air impacted by the derailment. No air monitoring readings or analytical results for the contaminants of concern (vinyl chloride, n-butyl acrylate, and over 70 additional monitored chemicals) have been found above standards established for the site.

As reported in October 2023, almost no CERCLA³ hazardous substances have been detected in water in surface streams since mid-May 2023. In October 2023, EPA issued a Clean Water Act administrative order related to the discharge of oil and Clean Water Act hazardous substances requiring sheen and sediment characterization. Samples from the sheen and sediment characterization are currently being analyzed, and preliminary results are expected by the end of the year. Drinking water samples have consistently shown no impacts from the derailment and continue to meet drinking water safety standards.

Communication with the surrounding communities and with state and local leaders continues to be a priority for EPA. Representatives from Ohio EPA, the Village of East Palestine, and Columbiana County are active participants in the Unified Command for the cleanup. In addition, Ohio EPA is actively involved with assisting with oversight of the cleanup, primarily with groundwater, potable water, streams, and final soil sampling efforts. EPA's Welcome Center in downtown East Palestine remains open and available to answer questions from residents by appointment. Residents can still call the information line or send an email to talk to a representative during business hours. The Agency updates its website on cleanup progress weekly; hosts recurring community stakeholder meetings; and keeps the community informed through the regular print newsletter, now published on a monthly basis. EPA remains committed to the people of East Palestine, to the successful completion of the cleanup, and to the revitalization of the community.



Figure 2. EPA's Welcome Center in downtown East Palestine remains open and available to answer questions from residents by appointment.

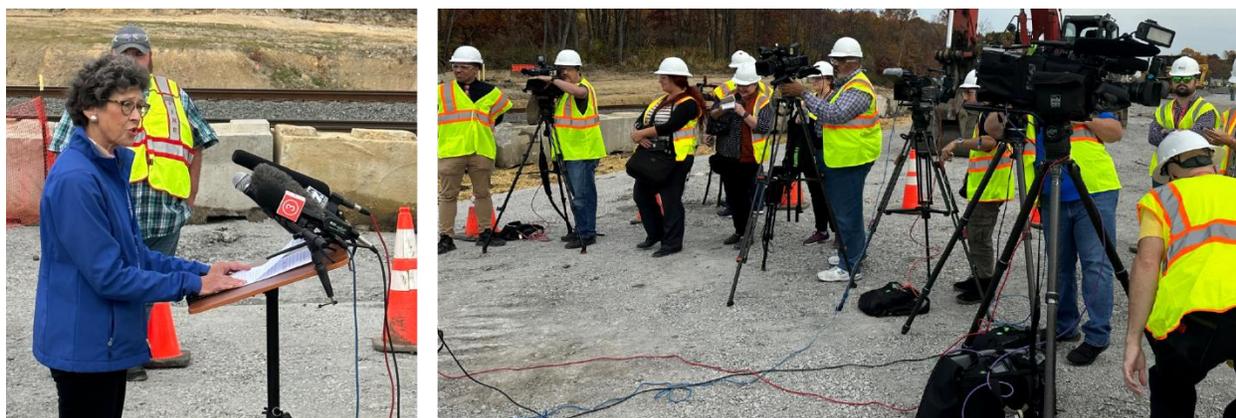


Figure 3. On October 26, 2023, EPA Region 5 Administrator Debra Shore invited news media on-site for a press conference to announce the completion of major excavation work.

³ CERCLA is the Comprehensive Environmental Response, Compensation, and Liability Act, the law which authorizes EPA to respond to releases or threatened releases of hazardous substances into the environment. Learn more at <https://www.epa.gov/superfund/superfund-cercla-overview>

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Introduction

On September 20, 2023, President Joseph Biden issued Executive Order 14108 (*Executive Order on Ensuring the People of East Palestine Are Protected Now and in the Future*). The order directed EPA to provide a report to the President within 30 days on the cleanup efforts, on Norfolk Southern’s compliance with the federal unilateral administrative order to address the imminent and substantial endangerment caused by the company’s derailment, and on the status of air, soil, and water monitoring. EPA was also directed to provide the President with an updated report every 60 days until all cleanup, assessment, and monitoring work required by EPA’s order has been completed. EPA submitted the first report pursuant to the executive order on October 20, 2023. This is the first update to the initial report.

Status of Cleanup Efforts

Cleanup efforts began almost immediately after the end of initial response. EPA’s CERCLA unilateral administrative order required Norfolk Southern to submit a comprehensive *Removal Work Plan*, which it did on March 6, 2023. The removal work plan included 13 separate work plans, addressing a wide variety of different aspects of the cleanup, including a plan for health and safety of cleanup site workers, a site security plan, and plans for sampling of air, surface water, groundwater, and soil. The work plan for the cleanup of the derailment site itself is detailed in the *Main Line Soil Removal Work Plan (Appendix D)*. As the cleanup has progressed, additional work plans have been added to the *Removal Work Plan*. EPA (with input and assistance from the Unified Command) has approved all but one work

plan (*Community Impact Mitigation Plan*), and all approved work plans have been implemented or are currently being implemented.

Since EPA's October 20, 2023, report, there have been several significant developments in the cleanup:

- Contaminated soil excavation at the derailment site was completed on October 29, 2023, and the last truck of hazardous soil was shipped on October 30, 2023. Some previously excavated material remains in roll-off boxes and will be disposed of as schedule permits. In total, 175,224 tons of contaminated soil – more than 350 million pounds – have been excavated and shipped out of East Palestine for disposal.
- With excavation work complete, EPA and Norfolk Southern have adjusted air monitoring equipment around the community, demobilizing equipment that is no longer needed to monitor air quality at the excavation worksite. Air monitoring and sampling efforts continue at work-specific activities in and around the community.
- The structure cleaning program concluded on November 12, 2023, with a total of 83 structures cleaned by Norfolk Southern contractors working under close EPA supervision.
- Additional work related to the discharge of oil and CWA hazardous substances has been initiated pursuant to the Clean Water Act unilateral administrative order that EPA issued on October 18, 2023. Sheen sampling and sediment sampling in creeks were initiated in late October and are now complete. Sediment removal in five culverts in Sulphur Run is currently in progress, with four of five culverts now complete.
- East Taggart Street, a main road in East Palestine that had been closed since the derailment, was re-opened to the public on October 23, 2023. (This was the second phase of its reopening – on September 25, 2023, East Taggart Street had been opened to traffic during evening hours.) More than 3,000 cars and trucks travel along that stretch of road daily under normal conditions.
- Sampling for the *Characterization Work Plan for Derailment Area Soil (Appendix E)* pursuant to the CERCLA unilateral administrative order began on September 11, 2023, and remains in progress.
- On December 7, 2023, Ohio EPA discovered an additional area of derailment-related waste while conducting a site walk and informed EPA and informed Norfolk Southern. Norfolk

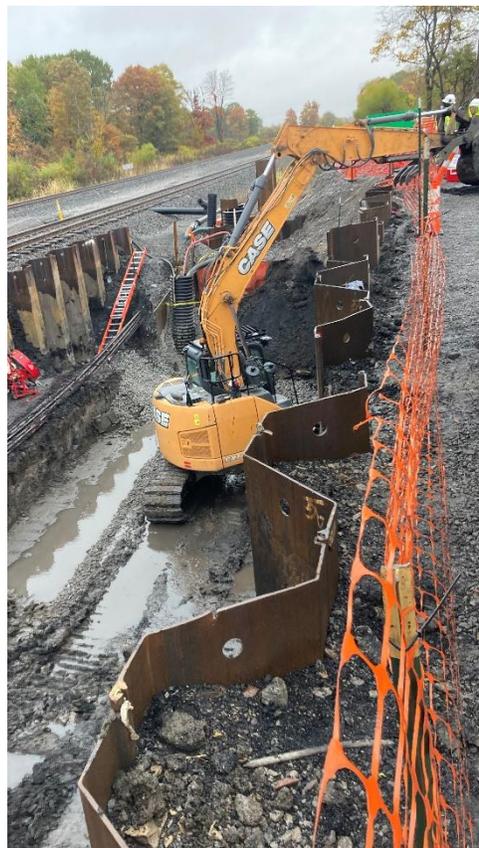


Figure 4. Contaminated soil excavation at the derailment site was completed on October 29, and the last truck of hazardous soil was shipped on October 30.

Southern promptly began removing the material and excavated approximately 500 cubic yards of derailment related material. This material was not located in a public area.

Actions currently being performed by the company under EPA direction include:

- Temporary storage, transportation, and disposal of contaminated liquids.
- Treatment of hazardous wastewater via an on-site treatment system along with off-site disposal of that treated non-hazardous wastewater.
- Delineating groundwater contamination through continued groundwater well installation and sampling.
- Monitoring drinking water through sampling of private and public water supplies, and the installation and sampling of sentinel monitoring wells.
- Delineating surface water contamination and system recovery through continued sampling of the tributary system to the Ohio River.
- Community and worker air monitoring, sampling, and analysis at derailment-related work zones.
- Coordination regarding community concerns including conducting public outreach events.
- Cleanout of sediment from remaining culverts on Sulphur Run pursuant to the administrative order under Section 311(c) of the CWA.

As of December 19, 2023, more than 175,000 tons of contaminated soil and more than 35 million gallons of contaminated liquid have been shipped offsite for disposal. To date, EPA and Norfolk Southern have collected more than 28,000 air samples, more than 200 sediment samples, and more than 5,300 soil samples. The EPA's state and local partners⁴, along with Norfolk Southern, have collected more than 300 monitoring-well samples, 3,700 surface water samples, and more than 1,100 private well samples; and they have conducted 43 rounds (more than 250 samples) of drinking water sampling from the public well supply. Available data continue to show that no contaminants of concern have been detected at levels of concern in the air in the affected communities at sustained levels since the evacuation order was lifted on February 8, 2023. Almost no contaminants⁵ related to the derailment have been detected at levels of concern in water in surface streams since early May. Raw water and treated municipal drinking water show no detection of contaminants associated with the derailment. To date, sampling indicates that residential groundwater wells have not been affected by chemicals associated with the derailment.

⁴ Ohio EPA, Columbiana County Health Department, and the Pennsylvania Department of Environmental Protection

⁵ While almost no contamination related to the derailment has been detected in the water column of the surface waters, oil and CWA hazardous substances have been detected in the sheen and sediments.

Status of Progress of Individual CERCLA Work Plans

Under EPA's CERCLA unilateral administrative order, Norfolk Southern was required to submit a Removal Work Plan, which it did on March 6, 2023. In its appendices, the Removal Work Plan included 13 separate work plans (Appendix A through Appendix M), addressing a wide variety of different aspects of the cleanup, including a plan for health and safety of cleanup site workers, a site security plan, and plans for sampling of air, surface water, groundwater, and soil.

Health and Safety Plan (Removal Work Plan Appendix A)

No significant update. The health and safety of the responders continue to be a focus of Unified Command and the Occupational Safety and Health Administration continues to provide support. To date there have been no major reportable OSHA or Federal Railroad Administration incidents.

Site Security Plan (Removal Work Plan Appendix B)

With the re-opening of East Taggart Street on October 23, 2023, Norfolk Southern has updated the Site Security Plan, removing security checkpoints from the roadways to allow traffic flow.

Air Sampling and Analysis Plan (Removal Work Plan Appendix C)

With the conclusion of Appendix D work (*Main Line Soil Removal*) on October 29, 2023, an adjustment to the air monitoring and sampling network was implemented, demobilizing equipment that was no longer needed to monitor air quality around the excavation site. This adjustment took into account all the air monitoring and sampling data to date from the 24-hour network previously in place. In accordance with the revised plan, air monitoring and sampling is now being conducted only in areas where derailment area work activity is taking place (such as the wastewater treatment plant, culvert cleaning, equipment decontamination, etc.). The air monitoring extends into the nearby community area as appropriate. Techniques used include many of the same previously used; however, the mobile air monitoring laboratories have been demobilized from site. EPA and Norfolk Southern have retained some air monitoring and sampling assets on site in the event a more robust network is needed due to unforeseen circumstances.

Main Line Soil Removal Work Plan (Removal Work Plan Appendix D)

The *Main Line Soil Removal Work Plan (Appendix D)* describes plans and procedures for excavation and soil sampling in the track areas and other areas directly affected by the derailment, and has been a major focus of the cleanup efforts. Excavation work under *the Main Line Soil Removal Work Plan (Appendix D)* was completed on October 29, 2023, achieving a major cleanup goal. Excavation work was conducted along a cleanup area more than 3,000 linear feet – more than ½ mile – in length. After contaminated soils were excavated, confirmation sampling was conducted and excavated areas were backfilled. As previously noted, more than 175,000 tons of contaminated soil from the derailment area have been excavated and transported off-site for disposal under this plan. Restoration of the areas alongside the tracks where contaminated soil was excavated and stored is expected to be complete by the end of January 2024.

Characterization Work Plan for Derailment Area Soil (Removal Work Plan Appendix E)

The *Characterization Work Plan for Derailment Area Soil* is the final comprehensive soil sampling effort of the derailment site, adjacent support areas, and other locations in the Village of East Palestine, and is intended to ensure that the cleanup has been fully successful and as a double-check to ensure that contamination has not spread because of response activities. Work under this plan began on September 11, 2023. To date, approximately 21.2 percent of the areas to be sampled have been completed with EPA oversight. Work under the *Characterization Work Plan for Derailment Area Soil (Appendix E)* is expected to be mostly complete by March 2024, but some of the work will extend into August 2024.

Phase I — Preliminary Residential/Commercial/Agricultural Soil Sampling Plan (Removal Work Plan Appendix F)

No significant update. As noted in the initial report, work under this plan is complete. The sampling effort was completed on April 14, 2023, and a report summarizing findings was provided to the public on October 2, 2023.

Surface Water Sampling and Analysis Plan (Removal Work Plan Appendix G)

The original *Surface Water Sampling and Analysis Plan (Appendix G)* was approved on June 29, 2023. Data and reports generated for work conducted under this plan are currently being reviewed by EPA and Ohio EPA. To date, 3,717 surface water samples have been collected. Preliminary results indicate that the sheening produced on the surface waters is a result of oil compounds remaining in the sediments. As noted above, EPA issued a Clean Water Act administrative order on October 18, 2023, which requires Norfolk Southern to further evaluate the sheen produced on the surface water (see pages 9 and 11 for further details).

Sediment Characterization Work Plan (Removal Work Plan Appendix H)

The original *Sediment Characterization Work Plan (Appendix H)* was approved on July 12, 2023. Data and reports generated for work conducted under this plan are currently being reviewed by EPA and Ohio EPA. More than 50 sediment samples have been collected under this plan. Preliminary results indicate that the contamination remaining in the sediments is oil compounds which produce sheen on the surface water when disturbed. As noted above, EPA issued a Clean Water Act administrative order on October 18, 2023, which required Norfolk Southern to further evaluate the sediments in Leslie Run and Sulphur Run and to provide a work plan on how to address the remaining contamination related to oil and CWA hazardous substances in the sediments (see pages 9 and 11 for further details).

Groundwater Characterization Work Plan (Removal Work Plan Appendix I)

Norfolk Southern has installed and sampled twenty-three shallow and 7 deep groundwater monitoring wells. Ohio EPA and EPA are evaluating the data generated from these wells to determine if any derailment-related chemicals have contaminated the groundwater in the vicinity of the site. To date, 309 samples have been collected and, according to Ohio EPA, no derailment-related chemicals have been detected. There are 7 shallow groundwater wells that remain to be installed in the area surrounding the derailment; however, their installation is on hold due to pending site-related activity in the planned installation area.

Potable Water Sampling Work Plan (Removal Work Plan Appendix J)

No significant update. Under this plan, more than 1,100 private potable well samples (including multiple rounds) have been collected, and 43 rounds of sampling of the public municipal wells have been conducted. There have been no detections of derailment-related chemicals in any of the potable well samples collected. State and local agencies will continue to provide oversight of Norfolk Southern efforts to sample all potable wells.

Sentinel Well — Monitoring Well Installation and Groundwater Sampling Work Plan (Removal Work Plan Appendix K)

To date, 528 sentinel well samples have been collected, and 10 of the 11 required sentinel wells have been installed. The final sentinel well installation is expected to be completed in mid-December 2023. Data generated from these wells will be evaluated in conjunction with the data from the potable well sampling program to help determine what future potable well sampling will entail.

Waste Sampling and Management Plan (Removal Work Plan Appendix L)

Work continues under this plan. More than 175,000 tons of contaminated soil, 42 million gallons of contaminated wastewater, and 201 drums of miscellaneous material have been properly managed and transported off site for disposal. Most soil/debris disposal has taken place via truck transportation (8,917 loads). All wastewater transportation has taken place either via truck or truck-to-rail line (8,005 loads). Work under this plan will continue until all site wastes have been properly transported off site for disposal.

Community Impact Mitigation Plan (Removal Work Plan Appendix M)

A *Community Impact Mitigation Plan* is being finalized that incorporates response mitigation measures already conducted by Norfolk Southern and any further proposed actions. The plan should be completed by March 2024.

Other Work Plans

The original removal work plan submitted on March 6, 2023, included the 13 work plans discussed above. During the course of the response, there have been numerous other work plans, memos, and procedures that were reviewed and approved by EPA. Two of these other work plans are notable and will be discussed here.

Structure Cleaning Program: Cleaning Protocol

Norfolk Southern offered the structure cleaning program to address potential dust emissions that may have been generated as part of the train derailment and cleanup work to add an additional layer of comfort for people returning to their homes and places of business. Work under this program generated significant positive feedback from the community and was completed on November 12, 2023. In all, 83 structures were cleaned by Norfolk Southern with EPA oversight.

Wastewater Treatment and Contained-In Determination Operational Summary

Norfolk Southern constructed an on-site wastewater treatment plant to remove any residual vinyl chloride from wastewater generated onsite. To date, more than 6.2 million gallons of wastewater have

been treated on-site and been granted a determination for disposal as non-hazardous waste. The wastewater treatment plant was shut down on November 28, 2023, for operational inspections and winterization of the plant. Operation of the plant will resume once winterization is completed and any necessary operational improvements are made. Once the wastewater treatment system resumes operations, onsite wastewater treatment will continue until the derailment area has been fully characterized and the regulatory agencies are satisfied that there is no longer any potential for surface water running onto the site to become contaminated.

Clean Water Act Administrative Order Work Plans

As previously noted, EPA issued a Clean Water Act administrative order on October 18, 2023, which required Norfolk Southern to further evaluate the sediment in Leslie Run and Sulphur Run, to remove sediment from culverts located in Sulphur Run, and to provide a work plan to address the oil remaining in the sediment.

Comprehensive Sheen and Sediment Investigation Work Plan – Sulphur Run and Leslie Run

This work plan describes procedures for Norfolk Southern to fully evaluate the sediment and resulting surface water sheen in Sulphur Run and Leslie Run (approximately 5 miles of waterway). Under this plan, Norfolk Southern was required to qualitatively assess sheen produced when sediment was disturbed, collect samples of sediment that produced sheen and collect samples of the resultant sheen. These assessments occurred every 25 feet along the length of the waterways. This effort was completed on December 1, 2023, with 776 qualitative assessments, 168 sediment, and 83 sheen samples collected.

Sulphur Run Culvert Sediment Removal Plan

This plan describes procedures for Norfolk Southern to remove sediment located in 5 culverts in Sulphur Run, totaling 1,410 feet. As part of the work plan, Norfolk Southern used robotic means to test the air quality and evaluate the integrity of the culverts prior to sending people in them. Sediment removal in 4 of the 5 culverts has been completed. The remaining culvert is more than 800 feet long and there are safety considerations with conducting sediment removal in that culvert. EPA, Norfolk Southern contractors, and OSHA have evaluated the remaining culvert and are currently preparing a plan to sample and quantify any remaining contamination in the culvert. Data generated from the sampling will determine the next steps related to the sediment removal from the final culvert.



Figure 5. Sheen and sediment investigation in Leslie Run



Figure 6. Mudge the robotic sampling "dog" entering a confined space culvert underneath East Palestine.

Status of Norfolk Southern’s Compliance with Orders

CERCLA Unilateral Administrative Order and Norfolk Southern Requirements Under the Order

On February 21, 2023, EPA issued a CERCLA unilateral administrative order⁶ to Norfolk Southern, ordering it to conduct all necessary actions associated with the cleanup of the February 3, 2023, derailment in East Palestine, Ohio. The effective date of the administrative order is February 27, 2023. Specifically, the order requires Norfolk Southern to develop a removal work plan⁷ to identify and clean up contaminated soil and water resources; to mitigate impacts to the community caused by the work being done at the site; to pay EPA’s costs incurred under the order; and to provide financial assurance to demonstrate that Norfolk Southern has adequate financial resources available to complete the required cleanup work. EPA continues to closely monitor and evaluate Norfolk Southern’s compliance with the CERCLA order and all approved work plans. Based on EPA’s oversight, the Agency believes that Norfolk Southern is in compliance with the order.⁸ This assessment of compliance may change as there are some obligations which have not yet been triggered and certain obligations which are continuing.

Norfolk Southern requirements under the CERCLA unilateral administrative order			
Paragraph	Requirement	Due Date	Date of Performance
30	Notification of intent to comply with the order	2/27/23	2/24/23
31	Submission of contact information and qualifications of the personnel, contractors, and laboratories to be used for the cleanup work and submission of the contractor’s quality management plan.	3/2/23	2/28/23
32	Designation of a project coordinator.	3/2/23	2/27/23
38	Submission a draft removal work plan for EPA review and approval.	3/6/23	3/6/23
38.e.	Compliance with EPA approved plans, reports, specifications, schedules, etc.	Various dates based on dates of EPA’s approvals	Ongoing
40	Submission of a sampling and analysis plan for EPA review and approval.	3/6/23	3/6/23
41	Submission of a health and safety plan to EPA for review and comment.	3/6/23	3/6/23

⁶ The UAO was amended by EPA on March 27, 2023. This amendment made several minor changes to the UAO.

⁷ The removal work plan consists of 13 separate appendices addressing various kinds of work including, but not limited to, soil excavation under the main line; residential, commercial, and agricultural soil sampling; waste sampling; potable water sampling; groundwater characterization; and surface water and sediment characterization.

⁸ EPA’s compliance evaluation is current as of December 20, 2023.

44	Submission of weekly progress reports.	Weekly	Ongoing
51.a.	Submission of a draft notice to successors-in-title regarding the removal action and the UAO.	3/14/23	3/13/23
	Recording of the notice to successors-in-title within 10 days of EPA's approval of the draft notice.	5/23/23 ⁹	5/23/23
	Submission of a certified copy of the recorded notice to successors-in-title.	6/2/23	5/24/23
60	Submission of a written certification that there has been no destruction of records relating to potential liability regarding the site and full compliance with any requests for information regarding the site.	3/6/23 ¹⁰	3/2/23
75	Submission of general commercial liability insurance.	Extended due to negotiations	10/18/23
78	Submission of a draft financial assurance mechanism for EPA review and approval.	4/20/23 ¹¹	4/20/23
	Submission of finalized financial assurance mechanism.	5/17/2023 ¹²	5/17/23

Clean Water Act Administrative Order and Norfolk Southern Requirements Under the Order

On October 18, 2023, EPA issued a Clean Water Act § 311 administrative order to Norfolk Southern, requiring the company to remove contaminated sediments in culverted areas of Sulphur Run and to further delineate, characterize, and, as necessary, remove oil and Clean Water Act hazardous substances from the sediments in Leslie and Sulphur Runs. The effective date of the Clean Water Act order is October 18, 2023 – the date Norfolk Southern received the order. EPA continues to closely monitor and evaluate Norfolk Southern's compliance with the Clean Water Act order and all approved work plans. Based on EPA's oversight, the agency believes that Norfolk Southern is in compliance with the Clean Water Act order.¹³

Norfolk Southern requirements under the Clean Water Act administrative order			
Paragraph	Requirement	Due Date	Date of Performance
49	Notification of intent to comply with the order.	10/18/23	10/19/23

⁹ EPA approved Norfolk Southern's draft notice to successors-in-title on May 11, 2023. The due date, which was May 22, 2023, was extended to allow for delivery of the notice to the records office.

¹⁰ The due date falls on Saturday, March 4, 2023. Per the terms of the UAO, the due date is extended to the next business day.

¹¹ EPA provided the cost estimate to Norfolk Southern on March 31, 2023.

¹² EPA approved the draft financial assurance mechanism on April 27, 2023.

¹³ EPA's compliance evaluation is current as of December 20, 2023.

51	Submission of work plan to perform a comprehensive sheen and sediment survey for EPA review and approval.	10/25/23	10/25/23
53	Initiation of implementation of the approved sheen and sediment survey work plan. ¹⁴	11/4/23	11/2/23
54	Completion of implementation of sheen and sediment survey work plan.	12/1/23	12/1/23
55	Submission of a report describing the results of the comprehensive sheen and sediment survey ¹⁵	12/11/23 (sediment survey analytical data) ¹⁶ 12/27/23 (sheen survey analytical data) ¹⁷	
56	Submission of a full sheen and sediment survey report with final data and validated analytical data. ¹⁸	12/18/23 ¹⁹ (validated sediment analytical data) 1/19/24 ²⁰ (full survey report and validated sheen analytical data)	
59	Submission of a Culvert Removal Plan for EPA review and approval.	11/1/23	11/1/23
61	Submission of a report describing the work conducted under the Culvert Removal Plan.	12/20/23 ²¹	
64	Submission of a final report summarizing all work conducted under the CWA administrative order.	TBD	

¹⁴ EPA approved the Comprehensive Sheen and Sediment Survey Work Plan on November 1, 2023.

¹⁵ Following issuance of the CWA administrative order, the sheen and sediment survey reporting timelines were separated from one another by a [December 1, 2023, directive from unified command modifying completion dates set forth in the order.](#)

¹⁶ The deadline for submission of sediment survey analytical data remains December 11, 2023.

¹⁷ The deadline for submission of the sheen survey analytical data was extended from December 11, 2023, to December 27, 2023, by directive from unified command.

¹⁸ Following issuance of the CWA administrative order, the deadlines for submission of validated data from the sediment surveys was separated from the requirement to submit a full report for both surveys accompanied by validated analytical data.

¹⁹ The deadline for submittal of validated sediment analytical data was extended by unified command from December 15, 2023, to December 18, 2023.

²⁰ The deadline for submittal of a full report summarizing the sheen and sediment surveys and submittal of validated sheen analytical data was extended by unified command from December 15, 2023, to January 19, 2024.

²¹ This deadline was extended by unified command from December 1, 2023, to December 20, 2023.

Status of Air, Soil, Surface Water, Groundwater, and Drinking Water

Air

No significant update. None of the more than 115 million monitoring readings or more than 28,000 analytical results have been reported in the community above any site-established action levels since the lifting of the evacuation. As noted above, with the completion of excavation of contaminated soil under the Main Line Soil Removal Work Plan, the 24/7 air monitoring network around the derailment site has been discontinued. Air monitoring and sampling resources remain available in the event they are needed, and air monitoring is conducted, as appropriate, during any intrusive site-related work activity.

Soil

No significant update. Work under the Main Line Soil Removal plan was completed on October 27, 2023. Excavated areas were sampled to ensure they met the clearance criteria and will be re-assessed under the *Characterization Work Plan for Derailment Area Soil (Appendix E)*, which is the final step in determining if all contamination that resulted from the derailment has been remediated and will identify areas requiring further study. As noted in EPA's October 20, 2023, report, results from soil investigation under *Phase I – Preliminary Residential/Commercial/Agricultural Soil Sampling Plan (Appendix F)* was completed on April 14, 2023, and results from the assessment indicated that semi-volatile organic chemicals and dioxins were within typical background concentrations for rural and urban/suburban soil. A report summarizing these findings was provided to the public on October 2, 2023, and no further community-wide sampling is expected to be conducted.

Surface Water and Sediment

Surface water and sediment investigations in the tributaries leading from the derailment area to the Ohio River have been completed under the CERCLA administrative order. The report detailing the findings of these investigations is being evaluated; however, preliminary findings (presence of sheen upon disturbance of sediment) indicate that oil contamination remains in Leslie Run and Sulphur Run as a result of the oil discharged from the derailment.

Ohio EPA and Ohio DNR have been evaluating the biological recovery of the waterways since early spring 2023. From a biological standpoint (fish and other aquatic wildlife), the waterways have generally recovered to pre-derailment conditions.

EPA issued a Clean Water Act administrative order to Norfolk Southern on October 18, 2023, to further evaluate the sediment and resultant surface water sheen in Leslie Run and Sulphur Run. A qualitative sheen survey performed over the 5 miles of Leslie Run and Sulphur Run waterways (disturbance of sediments every 25 feet) resulted in over 800 data points, approximately 11% of which indicated moderate to heavy sheen (mostly in Sulphur Run). Sediment samples and resultant sheen samples were collected and the data is being evaluated as it becomes available with all validated results due in mid-January 2024.

Also under the Clean Water Act order, Norfolk Southern is required to clean the sediment from 5 culverts in Sulphur Run which run through the Village of East Palestine (approximately 1,410 feet of culverts). To date, sediment removal has been completed in 4 of the culverts with more than 140 cubic yards of sediment removed.

A work plan under the Clean Water Act order to address the remaining contamination in the sediments is due on January 8, 2024.

Groundwater

Complete characterization of the groundwater will be completed once all wells are installed (installation of the final wells are on hold due to ongoing site-related work). All wells must be installed and sampled to generate the conceptual site model to understand the site features and subsurface conditions. Once this model is developed, the agencies will use the sampling data to determine if there is any derailment-related groundwater contamination near the site and where that contamination may travel (i.e., fate and transport).

Review of the sampling data generated to date indicates that there has been no oil or chemical layer observed in the aquifer.

Once all wells are installed, future temporal sample collection activities (samples collected at the same time) will be conducted. After review of the data, some of these wells will be made permanent and require long-term sampling and some of these wells will be abandoned.

Data generated from these sampling events (near-term and long-term) will also help identify if there are any potential vapor intrusion pathways.

Potable Water

No significant update. There have been no detections of contaminants related to the derailment in any of the potable water samples collected. Local and state agencies continue to provide oversight of Norfolk Southern's work for this effort. After review of the data from these sampling events, the local and state regulatory agencies will determine future efforts.

Remaining Timeline and Conclusion

Over the past ten months, EPA has directed and overseen Norfolk Southern's cleanup activities in coordination with the unified command. Since EPA's last report on October 20, 2023, several key milestones have been achieved. Most significantly, excavation of more than 175,000 tons of contaminated soil from the derailment site has been completed. East Taggart Street – a major thoroughfare into and out of East Palestine – has been fully reopened, reducing truck traffic and the presence of contractors in town. The structure cleaning program completed its work, ultimately cleaning over 83 structures. With excavation complete, the focus of the cleanup has shifted to work on the final full-site characterization, and the work required under EPA's Clean Water Act order. EPA has also begun

to reduce the scale of its on-the-ground support infrastructure, demobilizing its “trailer city” in Columbiana and consolidating operations into its forward operations base in East Palestine.

EPA anticipates that significant cleanup operations will continue through mid-2024:

- Restoration of the main line track areas is anticipated to be complete by the end of January 2024. Restoration of other work and support areas will likely be complete by mid-2024.
- Work under the *Characterization Work Plan for Derailment Area Soil* – the final comprehensive soil sampling effort of the derailment site, adjacent support areas, and other locations in the Village of East Palestine – is expected to be mostly complete by March 2024 and fully complete by August 2024.
- A vapor intrusion study of several commercial buildings near the derailment site is underway and samples will be collected each quarter to complete the study. This effort is anticipated to have final sampling in August 2024.
- Although excavation and disposal of known soil contamination resulting from the derailment was completed on October 30, 2023, some management and disposal of site-related wastes continues, although at a greatly reduced scale. A small number of roll-off boxes containing hazardous soil and other materials remain on-site, and these are being shipped based on landfill availability. Additional materials are being generated during sampling efforts, and these are being handled appropriately.
- Work under EPA’s Clean Water Act administrative order, issued on October 18, 2023, remains underway. Cleanout of 4 of 5 culverts is complete, and cleanout of the remaining culvert will likely be complete before the end of December 2023. Sheen assessment, sediment sampling and sheen sampling have also been completed, and preliminary results are currently being evaluated. Final data and reports are due in January 2024, along with a work plan to address remaining contamination.
- Sampling of potable water and sentinel wells has been ongoing. Sampling is scheduled to be completed by the end of December 2023, and results should be available in January 2024. The review of that work will determine if the sampling effort is complete or needs to continue.
- Treatment of wastewater generated or captured on-site has been ongoing and is projected to last through January 2024. This date may be extended if derailment-related contaminants are identified in the ongoing full-site assessment.
- The worker health and safety program will continue through project end. EPA anticipates Norfolk Southern will have a presence on site through much of 2024 finalizing restoration and study activities. Any long-term monitoring efforts will be covered by specific health and safety protocols from Norfolk Southern once the unified command is dissolved.
- A comprehensive air monitoring and sampling plan has been in place since the early hours of the incident. The air monitoring and sampling program was reduced to normal air monitoring for environmental assessment activities and worker protection shortly after the completion of excavation and off-site shipment of the last of the stockpiled contaminated soils.

- A *Community Impact Mitigation Plan* is being finalized that incorporates response mitigation measures already conducted by Norfolk Southern and any further proposed actions. There is currently no projected end point for this activity.

EPA's timeline for final completion of the cleanup will be determined by conditions on the ground, and operations in East Palestine will continue as long as necessary to protect human health and the environment in East Palestine and nearby communities. As directed under Executive Order 14108, EPA will continue to report to the President every 60 days until all cleanup, assessment, and monitoring work required by EPA's unilateral administrative order has been completed.

Appendix – Initial Incident and Response Efforts

Initial Incident and Response Efforts

On the evening of February 3, 2023, a Norfolk Southern train carrying hazardous materials derailed in the Village of East Palestine, located in Columbiana County in the State of Ohio. At least 11 rail cars contained hazardous materials, including vinyl chloride, ethylene glycol monobutyl ether, ethyl-hexyl acrylate, butyl acrylates, benzene residue, and isobutylene. There was also a discharge of oil. Some cars caught fire, and some spilled their loads onto the ground. These substances traveled into local waterways, including Sulphur Run and Leslie Run, and flowed miles downstream. East Palestine’s fire department and several other fire departments responded. On the evening of February 5, 2023, Norfolk Southern’s spill response contractors observed a dramatic temperature increase in a derailed tanker rail car containing vinyl chloride. Norfolk Southern expressed serious concern that the temperature change could lead to a catastrophic tanker rail car failure, which could cause a boiling liquid expanding vapor explosion (BLEVE) with the potential of deadly shrapnel traveling up to one mile. The East Palestine Fire Chief (as Incident Commander), along with State response officials in coordination with Norfolk Southern, made the decision that the safest course of action was to conduct a controlled burn of the chemicals. Within hours of the Norfolk Southern train derailment, EPA deployed a team to East Palestine to support State and local emergency and environmental response efforts. EPA’s initial role in the response was as a supporting agency to conduct air monitoring reporting to the Incident Commander (the East Palestine Fire Chief).

EPA Issues CERCLA Unilateral Administrative Order

On February 21, 2023, EPA issued a unilateral administrative order for removal actions pursuant to CERCLA, as amended, 42 U.S.C. § 9606(a). The company was ordered to take actions necessary to protect human health and the environment related to the spill of hazardous substances. The CERCLA order detailed the tasks required of the company, which included fully participating in the on-site response organization with all appropriate agencies, developing and implementing work plans to fully characterize and clean up the spilled hazardous substances, and cleaning up dust in building interiors which was generated by response efforts.

With the issuance of the CERCLA order, EPA assumed the lead Incident Commander role in unified command. EPA has continued to direct and supervise Norfolk Southern’s cleanup to protect the health, safety, and future of the East Palestine community and other affected communities. Norfolk Southern and its contractors are performing the cleanup under the order. Working closely with Federal, state, and local partners, EPA continues to lead and direct cleanup efforts, air quality monitoring, soil sampling, and water sampling; to ensure the protection of human health and the environment; to keep residents of East Palestine and nearby areas of Ohio and Pennsylvania updated on these and other ongoing efforts; and – importantly – to hold Norfolk Southern fully accountable under CERCLA for the cleanup operation.

Unified Command and Cleanup Activities Under Unified Command

EPA initially joined a unified command under the Incident Command System by coordinating with Norfolk Southern, Ohio EPA, Columbiana County Emergency Management Agency, the Village of East Palestine, the Ohio Department of Natural Resources, Federal Emergency Management Agency, representatives of the Commonwealth of Pennsylvania, and other agencies. As noted above, with the issuance of the CERCLA UAO, EPA assumed the lead Incident Commander role in unified command. The unified membership has changed over time, but has included EPA Regions 3 and 5, FEMA, Ohio EPA, Village of East Palestine, Columbiana County Emergency Management Agency, Pennsylvania Department of Environmental Protection, and Norfolk Southern. Many other agencies and stakeholders have been officially recognized as assisting and cooperating agencies as part of the command structure at the site.

The unified command established a full Incident Command System process and continues to follow the planning cycle for meetings to produce incident action plans which direct the work on the cleanup. Regular meetings are held to ensure that work activities proceed efficiently and safely. As work has progressed at the site, all actions being performed by Norfolk Southern have been directed and overseen by EPA with the input and assistance of the unified command.

EPA Issues Clean Water Act Administrative Order

On October 18, 2023, EPA issued a Clean Water Act administrative order to Norfolk Southern. The company was ordered to take actions necessary to protect human health and the environment related to the discharge of oil and Clean Water Act hazardous substances. The Clean Water Act administrative order further detailed the tasks required of the company, which included a full evaluation of Leslie Run and Sulphur Run (approximately 5 miles) and removal of sediment in 5 Sulphur Run culverts. In addition, the evaluation of Leslie Run and Sulphur Run will lead to a work plan to address the contamination remaining in the sediments.