EXHIBIT G

PETTY REBUTTAL REPORT

Plaintiff(s): CeramFab, Inc., CeramSource, Inc, Yonggong, LLC, WYG Refractories, LLC and CeramSource, Inc.

vs.

Defendant(s): Norfolk Southern Corporation and Norfolk Southern Railway Company (Defendants).

In the U.S. District Court for the Northern District of Ohio

Case No. 4:2023cv02206.

Prepared for:

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May 29, 2026

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APPENDICES

1.0 SCOPE OF WORK:

My overall Scope of Work was to review Defense reports (Exhibits 181-183) criticisms of my April 6, 2026, Expert Report (Exhibit 180) and respond to relevant criticisms.

This includes responses to ongoing claims by Defendants that the contamination on/near Plaintiff's property was from other sources and/or not associated with releases from the train derailment incident and subsequent burning of the vinyl chloride tanks during the February 3-6, 2023, timeframe. It also includes the discussion of additional sampling results which further validate Plaintiffs' opinions and rebut Norfolk Southern's ("NS") arguments that (1) the properties were not contaminated, (2) if there was contamination that it was not from NS related activities, (3) if there was contamination it was fully delineated and remediated, (4) if there was contamination that it is not still present, and/or (5) it was unreasonable for Plaintiffs to be concerned about the contamination.

2.0 GENERAL OBSERVATIONS OF CRITICISMS OF MY WORK FROM EXHIBITS 181-183:

Defendants produced the following reports, that at least, in part, criticized my April 6, 2026, report (Exhibit 180) or the opinions offered:

- May 15, 2026, Expert Report of Michael Lunsford. Case No.: 4:23-CV-02206-BYP Trial United States District Court, Northern District of Ohio – Eastern Division. Judge Benita Y. Pearson.
- May 15, 2026, Expert Report of Brent Finley, Ph.D. Case No.: 4:23-CV-02206-BYP Trial United States District Court, Northern District of Ohio – Eastern Division. Judge Benita Y. Pearson.
- May 15, 2026 ,Expert Report of Adam H. Love, Ph.D. Case No.: 4:23-CV-02206-BYP Trial United States District Court, Northern District of Ohio – Eastern Division. Judge Benita Y. Pearson.
- May 15, 2026 ,Expert Report of Ryan Stifter, M.S. Case No.: 4:23-CV-02206-BYP Trial United States District Court, Northern District of Ohio – Eastern Division. Judge Benita Y. Pearson.
- May 15, 2026 ,Expert Report of George Wharton, P.E. Case No.: 4:23-CV-02206-BYP Trial United States District Court, Northern District of Ohio – Eastern Division. Judge Benita Y. Pearson.

General observations of the Defense reports' (Exhibits 181-183) criticisms of my April 6, 2026, report (Exhibit 180) include, but are not explicitly limited to:

i) Their doubling down on Norfolk Southern's argument that all contamination of Plaintiff's properties was not from the derailment and subsequent release and burning of the five (5) vinyl chloride cars but was instead from other sources or historic activities.

ii) Ignoring my criticisms for which they did not present a defense (e.g., lack of complete chain of custody's, use of plastic bags and use of tap water in their sampling activities, and speculative argument that benzene was from historic service station operations).

iii) Addition of a new speculative reason benzene was found in the air of the CeramFab building (i.e., combustion engines operating in the CeramFab building not provided in the original delineation report).

iv) Conflicts of opinions between the Love and Finley reports (e.g., delineation of dioxins on the CeramFab property). For example, Love agrees only one sample was taken, whereas Finey suggests the property was delineated regarding dioxins.

v) Norfolk Southern's other experts ignored Love's agreement and concession with my original opinions that the CeramFab facility was not delineated regarding dioxin contamination and that multiple contaminants found at/near Plaintiffs properties exceeded screening levels.

Detailed responses to criticisms of my report by the three reports are addressed in Tables 2-1 through 2-3 that follow:

Detailed comments on Adam H. Love, Ph.D's recent report follow:

Table 2-1: Specific Comments on Adam H. Love, Ph.D.'s May 15, 2026, Report

Locations of Text	Text or Summary of Statements	Rebuttal Comments on Text or Statements
Pg. v, v ¶	v. The sampling plans developed by Norfolk Southern[1] were consistent with the standard of practice in the environmental industry, and were consistent with US EPA guidance documents for the Remedial Investigation process under CERCLA. The remediation methods employed by Norfolk Southern's contractor, Arcadis, were also consistent with the standard of practice in the environmental industry, and were consistent with US EPA's Unilateral Administrative Order ("UAO") that required Norfolk Southern to conduct removal actions. Arcadis's work was reviewed and approved by US EPA. Any impacts associated with the Derailment that posed a potential risk to human health or the environment at or near the Plaintiffs' properties were part of the overall cleanup remedy implemented by Norfolk Southern with oversight and approval by US EPA. Mr. Petty's criticisms of Arcadis's sampling plans and remediation methods are inconsistent with the standard of practice in the environmental industry and contradict the approvals and concurrence from US EPA.	Overall Opinion #v: In general, plans consistent with standard practices is not the issue. The issue is whether or not they were followed. As discussed in Finley Issue #4 below, implementation of the plans was violated by lack of complete Chain of Custodies (CoCs), use of plastic bags for soil samples, use of tap water to clean tools, etc. Section 6-1 – pgs. 27-36 – see Figures 6-1 and 6-7 (flawed sampling locations based on wind directions). Section 6-2 – pgs. 36-38 – (overemphasis on deeper soil sampling). Section 6-3 – pgs. 38-39 – (use of tap water rather than distilled water to clean tools). Section 6-4 – pgs. 39-42 – (initial placement of soil samples in plastic bags rather than glass jars – not noted in the chain of custody - COC). Section 6-5 – pgs. 42-45 – (samplers often not identified – incomplete COC). It must be remembered that NS is the responsible party in this matter, not the USEPA – clearly Love is continuing NS's "empty chair" argument – blame others for their own deficiencies. That is neither appropriate or reasonable and is often based on pure speculation by Love and NS's other designated experts.

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Pgs. V, vi ¶	vi. The work summarized in the CeramFab Area Delineation Completion Request Memorandum ("Delineation Memo") was directed by, and overseen by, US EPA and Ohio EPA under the Unified Command Structure, as well as numerous cooperating and assisting regulatory agencies.[2] The vapor intrusion investigations were performed consistent with US EPA and Ohio EPA guidance documents for evaluating vapor intrusion and consistent with the broader standard of practice in the environmental industry. Mr. Petty's criticism of the Delineation effort is contradictory to the standard of practice in the environmental industry for vapor intrusion investigations and ignores US EPA's concurrence with the Delineation Memo.	Overall Opinion #vi: Based on available evidence, as discussed below in Finely Issues #12 and #15, it remains my opinion that delineation of soil contamination on both Plaintiff's sites has not been adequately completed. Love agrees that only a single soil sample was taken on only one of the two Plaintiff properties. But then he, and (Finley) double down on stating the contaminant levels on the CeramFab and WYG properties have been fully delineated despite only a single soil dioxin sample taken on one of the properties (CeramFab) by NS, Arcadis or NS's experts. And when making the decision to perform additional sampling in 2026 which might have supported their opinions, NS explicitly (and curiously) chose not to take any soil sampling. Something which Plaintiffs have done to rebut NS's spurious arguments and opinions here. I, therefore, continue to disagree with NS's assertion that this represents delineation of the contamination on these properties. Again, it must be remembered that NS is the responsible party in this matter, not the USEPA – clearly the "empty chair" argument – blame others for their own deficiencies.
Pg 1, 2nd ¶	The conclusions stated herein represent the application of my education, training, and experience within the disciplines of engineering, geology, hydrogeology, chemistry, fate and transport, human health risk assessment, and environmental forensics to the facts and conditions associated with the site involved with this litigation. My opinions for this report are informed particularly by my decades of providing scientific and technical guidance for the cleanup of contaminated sites across the United States, as well as analyzing ongoing cleanup efforts in East Palestine, Ohio. The conclusions set forth in this report are based, in part, upon the facts, information, and data that have been provided to me by Counsel and/or which I obtained during my investigation. To the extent that any of the underlying facts, information, or data change or are amended, or additional facts, information, or data become available, I reserve the right to modify my conclusions and opinions. I also reserve the right to amend or supplement my opinions, as appropriate, following receipt of any additional information related to Plaintiffs' expert disclosures.	There is no evidence Dr. Love has ever been physically on the East Palestine, OH site and he instead fully relied upon the experiences of others before offering his opinions.
Pg 1, Section 3.1.1.	**3.1.1 Geology and Hydrogeology** East Palestine is in the northeast portion of Columbiana County within the Glaciated Allegheny Plateau. The area is characterized by varying thickness of Holocene Wisconsin-age ice-contact deposits and numerous buried valleys, consisting of poorly sorted gravel and sand with inclusions of silt, clay, and till lenses.[7] The regional geology is characterized by shales, sandstones, conglomerates, and coal seams. The local geology of the Derailment Site is consistent with the glacial ice-contact deposits and buried valleys bound below and laterally by Pennsylvanian-age Pottsville and Allegheny group interbedded sandstones and shale. The surficial deposits (0-10 feet below ground surface ("bgs")) consist of poorly sorted fill, gravel, and sand with silt and clay inclusions. From 10-15 feet bgs to 45 feet bgs, there is a fine-grained floodplain till deposit comprised of clay interbedded with silty sand.[8]	Dr. Love, with a degree in geosciences, agrees that the site geology is as follows: " "The local geology of the Derailment Site is consistent with the glacial ice-contact deposits and buried valleys bound below and laterally by Pennsylvanian-age Pottsville and Allegheny group interbedded sandstones and shale. The surficial deposits (0-10 feet below ground surface ("bgs")) consist of poorly sorted fill, gravel, and sand with silt and clay inclusions. From 10-15 feet bgs to 45 feet bgs, there is a fine-grained floodplain till deposit comprised of clay interbedded with silty sand." Thus, the top ~10' below ground surface (bgs) consists of fill, gavel, sand with silt and clay inclusions and the from ~10/15' to ~45 bgs consists of clay embedded with sand. Dr. Love agrees with me that local geology (i.e., boring logs – my report – Exhibit 180, Section 7.3/7.3.1, pgs. 75-88 & Figures 7-15 and, 7-17 through 7-24) shows any coal deposits at/near these sites defeating the Delineation Report argument that SVOCs/PAHs were from coal (see also Finely Issue #2 response).

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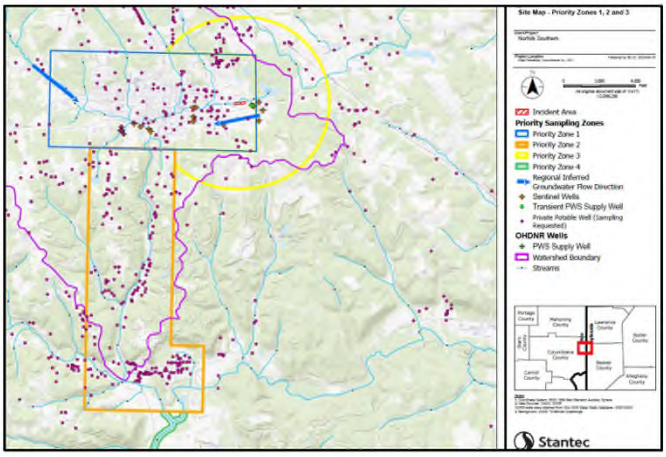
Pg. 6. Figure 2 and Section 3.1.2 Surface Water	Figure 2 depicts the general shallow aquifer groundwater flow direction.  **Figure 2. Regional Inferred Groundwater Flow in East Palestine, Ohio** **3.1.2 Surface Water** Surface water from Columbiana County is within the Little Beaver Creek Watershed of the Ohio River drainage basin. East Palestine is drained by tributaries Sulphur Run and Leslie Run, which generally flow to the south through East Palestine.[12] Wetlands and State Line Lake are located immediately northeast of the Derailment Site.[13] Surface water drainage along the train tracks flows toward two ditches (north and south) aligned parallel to the Mainline tracks and flowing west for approximately 1,000 feet before discharging into Sulphur Run. Sulphur Run joins Leslie Run about one-half mile to the west-southwest, then flows into Bull Creek, and continues to the North Fork of Little Beaver Creek and Little Beaver Creek before discharging to the Ohio River.[18]	Dr. Love's description of shallow groundwater flow reflects general references but appears to ignore actual flow information from monitoring well data (Petty Report – Exhibit 180, pgs. 48-49 & Figure 7.6 – Exh. 55) where Arcadis shows flow to the west/southwest:  Engineering & Expert Services, Inc.® 49 April 6, 2026 to the west/southwest or toward/under the CeramFab building from the major derailment/clean-up areas (see also Exhibit 151, Figures 1, 4-6): CeramFab Building Groundwater Flow Direction ARCADIS **Figure 7-6: Arcadis Drawing of Derailment Area Groundwater Flow Direction to SW (see lower left) (Exhibit 55)** Thus, released contaminants to the north and east would likely flow toward the Plaintiff's buildings.
Pg. 50 (see same comments on pg. 84)..	**Benzene** While benzene was not documented to have been released during the Derailment, Norfolk Southern has evaluated and treated benzene as a potential Derailment-related chemical during its environmental response activities, as directed by EPA.[162] Benzene in air data from the outdoor air in the vicinity of the CeramFab property and indoor air within the CeramFab property are presented in Graph 6 (A and B). The NIOSH has a recommended occupation exposure limit[163] of 0.1 ppm or 319 µg/m^3.[164] The USEPA commercial indoor air VISL for benzene is 1.57 µg/m^3. After February 8, 2023, measured benzene concentrations in outdoor air were never above the NIOSH recommended occupation exposure limit in the vicinity of the CeramFab property, although the outdoor air was routinely above the indoor air VISL for benzene. Indoor air data from the CeramFab property collected by Arcadis in 2023 and 2024 also had some exceedances of the applicable indoor air VISL for benzene, although the Haley & Aldrich indoor air sampling data in 2026 reported no VISL exceedances for benzene.	Contrary to his argument here, just because benzene was not documented as having been released does not exclude it from happening given the weight of the other evidence. In epidemiology a common phrase is that "absence of evidence is not evidence of absence" In fact, as detailed in my responses to Finely Issues #7, #8, #9 and #11, the totality of evidence, in my opinion, suggests benzene found below/in the CeramFab building more likely than not was from the derailment. I state, in part, that: "Given the locations of these findings, the fact that two detailed cars likely contained residual benzene, that the groundwater flow is toward Plaintiffs buildings, given the benzene levels below the CeramFab building are greater than the air in the building (see also Love report response) and given that no other non-speculative sources have been identified, it is my opinion, that more likely than not the derailment was the source of the benzene." Regarding measurement of benzene in outdoor air. Measurement of a volatile like benzene in the outdoor air would likely not be found weeks, months and years after it was released into the air (see also Finely response to Issue #11). Instead, any remaining benzene would be that which sorbed/absorbed on soils and surface/shallow waters (also see Petty VOC data and plots for benzene later in this report).

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Pg. 51. Pg. 129.	Furthermore, as shown in Table 2 below, the benzene concentrations measured in the CeramFab property and in its vicinity occur with co-detections of toluene, ethylbenzene, and xylenes. This grouping of substances Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) are well-known to be associated with petroleum fuel and exhaust from gasoline/diesel engines. In addition, a chemical inventory evaluation performed by Arcadis during the vapor intrusion investigation identified numerous potential non-Derailment sources of benzene to indoor air.[168] As such, the benzene observed in the CeramFab property and its vicinity does not appear to be a Derailment-related chemical, but instead associated with the petroleum fuel, exhaust from gas powered machinery and equipment, and other materials inside the property that contain benzene. In addition, the presence of benzene without any co-occurrence of other Derailment-related substances further supports the conclusion that the benzene detections in the CeramFab property and its vicinity are not related to the Derailment. As discussed in Opinion 1, benzene was not released as part of the Derailment and the CeramFab building has petroleum-based substances in its inventory. In addition, the BTEX data suggest benzene measured in the subsurface and inside the CeramFab building is likely sourced from either fuel or vehicle emissions. As such, Mr. Petty's suggestion that the benzene measured in the subsurface and inside the CeramFab building is Derailment-related is incorrect.	Dr. Love doubles down on his opinion that the benzene found under and in the CeramFab building adds another potential source (beyond the Delineation Report) of "petroleum fuel and exhaust from gasoline/diesel engines." He references Table 2 to suggest the presence of other BTEX components to suggest the benzene found at CeramFab is from historic sources (e.g., leaking underground storage tanks (USTs). However, MTBE, a known component of gasoline fuel, and known to move rapidly in groundwater from release sites, was not found in any samples and I tested for it (see MTBE sample results and Plots later in this report.) Furthermore, the responses I make to Finely's Issues #7 and #8 follow and would apply here, as well. Dr. Love also fails to address any of the relevant factors in my 24-page analyses (Exhibit 180, Section 7.2, pgs. 52-75). NS/Arcadis speculatively claimed, without proof, that the benzene found under/in the CeramFab building was either from i) historic leaks of fuel from underground storage tanks (USTs) or ii) from benzene-containing products found in the CeramFab building. In my report, I showed it was highly unlikely that benzene from USTs (BUSTR data search for leaking USTs in the area and local clay geology) and that no discovery had shown benzene to be on the labels or MSDSs/SDSs of any of the products speculated to contain benzene. In fact, NS conceded that it had no MSDSs/SDSs to produce and there was no indication any such materials were ever collected or provided (see my report, pg. 54, Exhibit 102). Moreover, in this report, I show that in no sampling was the gasoline component methyl-tert-butyl-ether (MTBE) found. Thus, with known facts showing these sources (UST releases and benzene-containing products) were probably not sources of benzene at the facility, Love's and NS/Arcadis's speculation that it came from these sources, remains, in my opinion, unsupportable conjecture – at best. On the other hand, as shown in the benzene soil and groundwater tables and plots shown later in this report, benzene was found at/near the CeramFab building. Given the locations of these findings, the fact that two detailed cars contained, by NS's own concession, at least residual benzene, that the groundwater flow is toward the Plaintiffs' buildings, given the benzene levels below the CeramFab building are greater than the air in the building (see also Love report response), and given that no other non-speculative sources have been identified - it is my opinion, that, more likely than not, the derailment was the source of the benzene. In my report, I stated as a minimum, NS failed to obtain MSDSs/SDSs (not just that they failed to review them – they didn't obtain or

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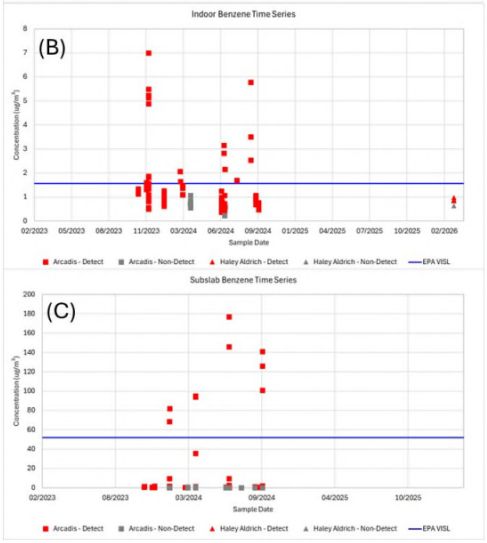
		collect such information) or read container labels to determine at a cursory level whether or not any of the products identified contained benzene. Dr. Love used the word "association" in his response. This word is used in specific causation scenarios as a possibility, but is not used to meet the burden of specific causation opinions as "more likely than not." So, his speculative association arguments for other materials or sources is not reliable rules-based evidence that the benzene objectively found at the CeramFab property "more likely than not" came from "petroleum fuel and exhaust from gasoline/diesel engines" and was instead unreliable and unsupported conjecture.
Pg. 53. Pgs. 131-132.	 **Graph 6. Benzene Time Series Detections (November 2023–October 2024) at CTEH, Arcadis, and Haley & Aldrich Monitoring Locations Proximate to the CeramFab Property** vapor sources unrelated to site contamination."[346] To support evaluations of indoor air, the US EPA VI Technical Guide recommends conducting a building survey for potential sources of indoor air vapors, identifying information regarding outdoor vapor sources related to the site (e.g., chemical storage), identifying information regarding outdoor vapor sources unrelated to the site (e.g., cars, other properties), and collecting data regarding local ambient air quality.[347] Additionally, the US EPA VI Technical Guide recommends collection of contemporaneous samples of sub-slab soil gas and indoor air to assess whether the vapor concentrations are the result of vapor intrusion, or if the source of the vapor concentrations are the result of indoor vapor sources.[348] In particular, and relevant to the CeramFab data, the US EPA VI Technical Guide states that: If a vapor-forming chemical is present with an elevated concentration in indoor air, but is not present or is negligibly present in sub-slab soil gas samples (or representative samples of the subsurface vapor source), then the presence of this contaminant in indoor air may not arise from the vapor intrusion pathway, but rather from indoor sources or other background sources (e.g., ambient air). In these circumstances, EPA recommends considering additional attempts to identify and temporarily eliminate indoor sources, where practical, and re-sample indoor air and sub-slab soil gas after doing so.[349]	Interestingly, Figure 6, while difficult to read here, shows sub-slab benzene levels approach 180 µg/m^3 while indoor values approached 7 µg/m3. Both plots show values above EPA VISLs. More importantly, in my opinion, the much higher peak values in the sub-slab samples – upwards of a factor of factor of 26x higher – would make it implausible that the benzene was moving from inside the building down into the sub-slab soil gas vapor. See also my response to Finely Issue #9 where Finely concedes that the number of exceedances in the subsurface slab locations (4) under the CeramFab building exceed those found in the building (1) supporting the position that benzene is present in the soils and/or waters below the building and rising up through the slab. This, too, was my observation. As Love shows in his report, the levels in the subsurface sample are greater than above the slab as one would expect (see Love report responses). Finally, he also states that benzene was located at one location, but that area was remediated. This statement is inconsistent with my benzene sampling results shown elsewhere in this report. This is available to move in the shallow groundwaters under Plaintiffs' buildings given the known direction of shallow groundwater flow (see pg. 6 response above). This is another odd example of text by Dr. Love cites Guide language that soil gas vapor (benzene vapor in this case) must be present in soil gas to include it as a pathway to (benzene) vapor seen above the slab in the indoor air. This is the scenario he cited in his report and supports the position that benzene from the derailment flowed in the surface/surface groundwaters under the building into the soil gas vapor (see also response to Finely Issue #7). Interesting, a recent set of 10 indoor and 2 outdoor samples were taken by a Defense

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		contractor to measure contaminants in the indoor and outdoor air at both the WYG and CeramFab buildings (Exhibit 193 – March 5, 2026, sampling and April 2026 Summary Report). Nine of ten (90%) of the indoor samples measured were above the outdoor air samples; the 10% sample could not be included because it was taken with reported failed equipment. The avg. of the 9 indoor samples was 0.9268 µg/m^3 vs 0.5275 µg/m^3 for the 2 outdoor samples, an increase of ~75%.
Pgs. 59, 61, 62-63, 64-65, 66-67, 70	**Vinyl Chloride** As shown on Figure 18, the concentration of vinyl chloride in soil exceeded the soil screening level in a few sporadically distributed locations near the CeramFab property. These limited number of exceedances are primarily located within the adjacent track corridor where the derailment response occurred and where CeramFab workers would not be expected to operate. Specifically, no soil samples with concentrations exceeding the applicable screening level were identified in areas where workers are reasonable expected to operate. These soil exceedances were addressed through excavation and **Butyl Acrylate** As shown on Figure 19, the concentration of butyl acrylate in soil exceeded the soil screening level in a few sporadically distributed locations near the CeramFab property. These limited number of exceedances are primarily located within the adjacent track corridor where the derailment response occurred and where CeramFab workers would not be expected to operate. Specifically, no soil samples with concentrations exceeding the applicable screening level were identified in areas where workers are reasonable expected to operate. These soil exceedances were addressed through excavation and occurred and where CeramFab workers would not be expected to operate. Specifically, no soil samples with concentrations exceeding the applicable screening level were identified in areas where workers are reasonable expected to operate. These soil exceedances were addressed through excavation and **Benzene** As shown on Figure 21, the concentration of benzene in soil exceeded the applicable soil screening level; however, these exceedances are sporadically distributed in outdoor areas of the CeramFab property and are in areas where workers are not reasonably expected to operate. There were no benzene soil screening level exceedances within the adjacent track corridor where the Derailment response occurred. As discussed above, the benzene detections on the CeramFab property are detected along with other BTEX substances, which likely indicates on-site fuel source of the soil impacts and not Derailment-related substances. In addition, the Delineation Memo documents that localized soil exceedances on the CeramFab property were delineated and subsequently removed through excavation activities completed between 2023 and 2024, with confirmation sampling demonstrating no remaining exceedances of applicable screening levels.[188] **Ethylene Glycol Monobutyl Ether** As shown on Figure 22, the concentrations of ethylene glycol monobutyl ether in soil exceeded the soil screening level in a few sporadically distributed locations near the CeramFab property in the area where cleanup contractor staging occurred and in the vicinity of the CeramFab property. These limited number of exceedances are primarily located within the adjacent track corridor where the Derailment response occurred and where CeramFab workers would not be expected to operate. A few instances of	Dr. Love agrees that soil exceedances for vinyl chloride, butyl acylate, benzene, ethylene glycol, monobutyl ether and PAHs were observed at the derailment site and were at/near the Plaintiffs' properties. However, he then makes a speculative statement that these values are where either "the CeramFab workers would not be expected to operate" or "not reasonably expected to operate." While very limited testing of soils (e.g., one (1) dioxin sample) were conducted on Plaintiffs' actual sites, it would be reasonable to expect that substantially similar, or nearly similar, contamination found on other proximate properties that were not remediated would also have bearing on Plaintiffs' properties. In fact, additional limited data, and data from 2026 (shown later in this report), find just that - on-going soil contamination from NS's derailment and vent & burn activities.

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	PAHs PAH soil concentrations in the CeramFab vicinity were evaluated by determining the corresponding Benzo[a]pyrene (BaP)-equivalent concentrations (BaP_{eq}) and comparing these to the BaP_{eq} screening-level for potential occupational soil contact (2,110 µg- BaP_{eq} /kg).[195] As shown on Figure 24, there are a few locations where the concentrations of PAHs in soil exceeded the soil screening level that are sporadically distributed on the CeramFab property and in the vicinity of the CeramFab property. These limited number of exceedances are located within the adjacent track corridor where the Derailment response occurred and where CeramFab workers would not be expected to operate. A few exceedances of PAHs were measured within the CeramFab property. There is no indication that employees of CeramFab were ever exposed to any of these sporadic outdoor soil exceedances in the vicinity of the CeramFab building and no indication that air quality in the CeramFab building was impacted by the few locations of impacted soil outside. Consistent with post-excavation data, no Derailment-related constituents of concern remain at these locations.[196] Derailment-related soil exceedances were addressed through excavation and off-site disposal completed by late June 2023 under EPA oversight, with confirmation sampling indicating that affected soil had been removed.[197] As a result,	
Pg. 72.	**Dioxins** Dioxin soil concentrations in the CeramFab vicinity were evaluated by determining the corresponding 2,3,7,8-tetrachlorodibenzo-p-dioxin ("2,3,7,8-TCDD") toxicity equivalents ("TCDD-TEQ") and comparin these to the screening-level for potential occupational soil contact (21.6 ng-TEQ/kg).[201] As shown on Figure 25, there are a few locations where TCDD-TEQs in soil exceeded the soil screening level that are sporadically distributed on the CeramFab property and in the vicinity of the CeramFab property. Some of these limited number of exceedances are located within the adjacent track corridor where the Derailment response occurred where CeramFab workers would not be expected to operate There have been a few exceedances of TCDD-TEQs measured within the CeramFab property. There is no indication that employees of CeramFab were ever exposed to any of these sporadic outdoor soil exceedances in the vicinity of the CeramFab building and no indication that air quality in the CeramFal building was impacted by the few locations of impacted soil outside. Consistent with post-excavation data, no residual Derailment-related chemical exceedances remain at these locations.[202] Derailment-related soil exceedances were addressed through excavation and off-site disposal completed by late June 2023 under EPA oversight, with confirmation sampling indicating that affected soil had been removed.[203] As a result, Derailment-related substances above applicable soil screening levels do not remain in soil, and there is no completed soil exposure pathway that could pose a risk to on-site workers. [204] Remaining soil exceedances on the CeramFab property were evaluated by Arcadis in the Delineation Memo and determined to be consistent with the background levels of dioxins given the long-standing industrial land use and background sources.[205] The US EPA's assessment of dioxins and their background sources in East Palestine established a cutoff of 51 pg TEQ/g soil for dioxins samples that would require further investigation.[206] As with PAHs, Plaintiffs' Experts, Mr. Petty and Dr. Rosenfeld, incorrectly inflate the dioxin concentrations in soils by assuming there are concentrations in soil for individual dioxin substances --- [201] EPA, *Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, Residential soil screening level for dioxins and furans, expressed as 2,3,7,8-TCDD toxic equivalents (TEQ)* (Nov. 2024), https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables (last visited Apr. 2026).	This Section on dioxins seemingly ignored my entire discussion of background level measurement locations by NS/Arcadis, my background sample analysis results (avg. value of 2.3 ng/kg) and USEPA published background levels (1.0 to 1.8 with medium of 1.2 ng/kg). It is also addressed with my rebuttal of Finley, Including: From Finely Issue #3 response: More importantly, Arcadis/NS continued to perform background sampling in an arc from the west to the northeast (see Petty Report Exhibit 180, Figures 7-5 and 7-6 – background samples are colored green) suggesting (falsely) that the plume was to the southeast. Since the plume went in these other directions, their work would overestimate background levels simply because they were not background levels. From Finely Issue #4 response: i) Background samples were likely not background samples, but included samples taken on soils below which the plume passes – this author concedes this point – see responses to Issue #3 above (i.e., Petty Report Exhibit 180, Figures 7-5 and 7-6 – background samples are colored green and reference to IMAAC plume plot. From Finely Issue #12 response: The argument that exceedances outside the property were not elevated compared to background levels is spurious in that it still doesn't address actual levels on the Plaintiffs' properties and utilized an elevated commercial background level (51 ng/kg) when compared to historic levels measured in Ohio and by this author (see Section 9.6.1, pgs. 239-242). Petty analyses showed background dioxin levels averaged 2.3 ng/kg and the USEPA background levels in Ohio ranged from 1 to 1.8 with a medium value of 1.2 ng/kg (Exh. 92). Moreover, a Petty statistical analysis of various samples clearly showed background levels were statistically lower than East Palestine measured soil concentrations. As discussed elsewhere, Love in his report (pgs. 72, 95) notes that EPA uses a Regional Commercial Background Screening Level for dioxins of
Pgs. 95-96.	**Dioxins** Dioxin soil concentrations in the CeramSource/WYG vicinity were evaluated using by determining the corresponding 2,3,7,8-tTetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) toxicity equivalents (TCDD-TEQ) and comparing these to as the a screening-level for potential occupational soil contact (21.6 ng-TEQ/kg).[233]	

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Pg. 120.	**Opinion 5: The sampling plans developed by Norfolk Southern were consistent with the standard of practice in the environmental industry, and were consistent with US EPA guidance documents for the Remedial Investigation process under CERCLA. The remediation methods employed by Norfolk Southern's contractor, Arcadis, were also consistent with the standard of practice in the environmental industry, and were consistent with US EPA's UAO that required Norfolk Southern to conduct removal actions. Arcadis's work was reviewed and approved by US EPA. Any impacts associated with the Derailment that posed a potential risk to human health or the environment at or near the Plaintiffs' properties were part of the overall cleanup remedy implemented by Norfolk Southern with oversight and approval by US EPA. Mr. Petty's criticisms of Arcadis's sampling plans and remediation methods are inconsistent with the standard of practice in the environmental industry and contradict the approvals and concurrence from US EPA.** The Remedial Investigation ("RI") step of the Superfund process determines the nature and extent of contamination at the site so an appropriate cleanup remedy can be chosen. The RI is the fact-finding and analytical phase of the CERCLA remedial process. Its core purpose is to develop a defensible understanding of site conditions necessary to support remedy selection, but not to select or implement a remedy itself. At a high level, the RI is intended to: • Characterize the nature and extent of contamination • Understand fate and transport mechanisms • Assess risks to human health and the environment • Provide the technical basis for remedy evaluation The various elements of the RI and removal action process were discussed in Section 3.2.2. Norfolk Southern's RI and removal action were consistent with the standard of practice in the environmental industry and overseen and approved by US EPA at each step. It is important to note that CERCLA does not require cleanup to concentrations below ambient or background levels,[310] and that where site	21.6 ng/kg. Arcadis, in their Soil Characterization Work Plan, used an approved residential screening level of 4.8 ng/kg (Petty report – Exhibit 180, Section 7.5, pg. 105). *It is constructive to consider the work by Ohio/Pennsylvania University Research Consortium in my report (Exhibit 180, pgs. 127-132 & Figure 7-37) to evaluate these screening values between 4.8 and 51 ng/kg. They define a cancer risk of 1 in a million at exposure levels <4.8 ng/kg and the non-cancer risk of 1 in a million at an exposure level of 51 ng/kg. Thus, the lower level is associated with the risk of getting cancer and the higher risk a disease other than cancer. Thus, there is no "conflating" of screening values, but a recognition in my report of the difference between cancer and non-cancer screening levels for dioxins.* Lester (Exhibit 191), notes that US EPA in 2010, using only two cogeners, set a PRG value for dioxins at 3.7 ppt (ng/kg): Another way to assess if concentrations of dioxins are significant and warrant action is to use EPA's guidelines to calculate the total toxic equivalent (TEQ) value for the combination of the dioxins with the highest toxicity, 2,3,7,8-TCDD and 1,2,3,7,8-PeCDD. These calculations can be compared to EPA's proposed (in 2010) Preliminary Remediation Goal (PRG) for dioxin of 3.7 parts per trillion (ppt) TEQ for residential soil. Doing this would provide a conservative estimate of the total TEQ value since only two congeners would be included in the TEQ calculation. This would underestimate the total TEQ value. Perhaps the most insightful statement made by Finely in this Issue is as follows: "Both reports included multiple sampling locations within the derailment area and its vicinity, including immediately north of the CeramFab facility, and demonstrated that the derailment did not result in elevated dioxin/furan concentrations *relative to background conditions*." As outlined at length in other responses, the samples declared as background by NS/Arcadis would most likely have been elevated because the plume was known to have passed over areas declared by NS as being areas where background samples were taken. In short, NS is falsely arguing that contamination readings resulting from the derailment activity plume should then be used to downplay other contamination results from those same derailment activities. Moreover, neither USEPA nor Petty analyses show background dioxin levels near 51 ng/kg. Oddly, the author continues to use the proverbial "empty chair" defense that the "USEPA" reviewed and/or approved their plans/reports. The responsible party was NS and their contractor, Arcadis, not the USEPA. Furthermore, Lester (Exhibit 191) comments that in 40 years this was the most vague and subjective soil sampling plan he'd seen: The most striking aspect of the dioxin soil sampling effort was the approach used to determine where to collect samples. The sampling plan was developed by Arcadis, a contractor for Norfolk Southern, and approved by EPA. This plan was highly unusual and did not follow standard procedures for investigating contaminated sites or areas. Norfolk Southern's approach involved walking the area and "inspecting" the surface soil for evidence of ash or other debris from the derailment and subsequent intentional burn as the primary way of identifying where samples will be taken (Arcadis Report, p. 1). This approach is unscientific and unprofessional primary because it is highly subjected and subject to bias that can influence the results. This is not what one would expect in a situation like the one in East Palestine. In fact, in fact, in over 40 years of evaluating contaminated sites, I've never seen EPA approve a soil sampling plan that was this vague and subjective. This criticism of sampling soils based on ash

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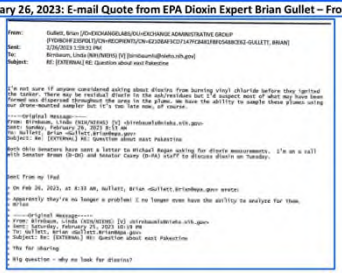
		deposits was consistent with those in my report (Exhibit 180, pgs. 33-34 & Figures 6-8 and 6-9). Lester further details NS/Arcadis started sampling soils before addressing some USEPA concerns while wholly ignoring others: In the March 13, 2023 letter to EPA, the community asked that the agency lead the dioxin sampling "to provide transparency, rebuild public trust and comprehensively address the possible releases of dioxins from the disaster." Included in this letter were requests for the following information: • Goals and objective of the sampling plan; • What environmental media – soil, dust, water, sediment, air – will be sampled; • Sample locations for each medium type. It must include communities that were in the path of the plume; • The number of samples that will be collected for each medium type; • Sample collection procedures for each medium type; • Detection limits for each medium type; • Analytical procedures for each medium type; • Which suite of dioxins will be analyzed. Total polychlorinated dioxins and furans should be measured as well as PCBs, especially the dioxin-like PCBs; and • Details on quality control/quality assurance procedures. Unfortunately, Norfolk Southern began collecting samples before EPA responded to this letter and most of these requests were ignored. The laboratory that conducted the sample analyses Regarding the timeliness and sample depths used by NS/Arcadis, USEPA's Gullet (Exhibits 185/186) also expressed concerns as early as February 26, 2023: February 26, 2023: E-mail Quote from EPA Dioxin Expert Brian Gullet – From FOIA *"I'm not sure if anyone considered asking about dioxins from burning vinyl chloride before they ignited the tanker."* *There may be residual dioxin in the ash/residues but I'd suspect most of what may have been formed was dispersed throughout the area in the plume. We have the ability to sample these plumes using our drone-mounted sampler but it's too late now, of course."* Brian Gullet – EPA Scientist and Dioxin Expert February 26, 2023: E-mail Quote from EPA Dioxin Expert Brian Gullet – From FOIA  From FOIA and/or Documents Received by Scott Smith: EPA Dioxin Expert Brian Gullet March 6, 2023 E-mail Addresses Questionable Norfolk Southern Composite Samples (Composite Samples are mixing soil at different depths and locations together)  *"Chlorinated dioxins/furans are virtually insoluble in water. Even if it rained, it'd be extremely unlikely that they'd be in the soil 6" deep."* Brian Gullet
Pgs. 72-73.	As with PAHs, Plaintiffs' Experts, Mr. Petty and Dr. Rosenfeld, incorrectly inflate the dioxin concentrations in soils by assuming there are concentrations in soil for individual dioxin substances where none were detected. Their treatment of sample results with ND as possessing concentrations at half the detection limit of the dioxins results in unsupported TCDD-TEQ screening level exceedances for samples with high detection limits. Again, this approach using concentrations at half the detection limit of the various dioxins may be appropriately used in order to account for the ambient levels of dioxins in local soils, but the inference by Mr. Petty and Dr. Rosenfeld that all the dioxins are Derailment-related misapplies this approach for treatment of ND data. Mr. Petty and Dr. Rosenfeld's handling of the ND data by inferring that such samples include Derailment-related dioxins exceeding soil screening levels is incorrect.[207]	This is the first of several examples (see also pgs. 94 and 96 of his report) where Dr. Love misleadingly, and incorrectly, suggests that using half the detection limit for chemicals is improper. Regarding the alleged misleading part of my response, in all cases I calculated both BaP_E and TEQ values using both detection limit (DL) values as zero (0) and using 50% of the DL values, not just 50% as stated by Dr. Love (see for example Petty Report – Exhibit 180, Section 9, Tables and Figures and pages 210 to 272.) Love's attempt to ignore and

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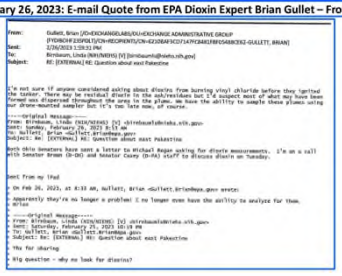
		misrepresent this point that two sets of calculation Tables and Figures using both 0% DL, and 50% DL values was performed, and given over 60 pages where this is shown, is inexplicable and demonstrates both poor methodology and unacceptable scientific rigor. Interestingly, using dioxin soil TEQ calculation results (Tables 9-18, 9-22, 9-23 and 9-24 for Data Sets #1, #2, #3 and #4 respectively), the TEQ results when using DL values at 0% or 50% typically show little or no differences. This is because the DL values typically provide little or no contribution to the overall TEQ result. And contrary to the criticisms levelled by NS's expert, while using zero for the DL values is certainly very conservative, it is the accepted convention to use 50% of the DL values in samples such as these (see for example *Glass and Gray*, 2001 in my references, OECD, pg. 32 - https://one.oecd.org/document/ocde/gd(97)148/en/pdf, and USEPA - https://assessments.epa.gov/risk/document/&deid%3D351126 (threshold/2 least biased).
Pg. 75 and Pgs. 77-88 that follow. Pg. 98.	site-specific sampling that have occurred at or near the CeramSource/WYG Refractories property that can be used to assess the potential for worker exposures. There are multiple air and soil datasets from CeramSource/WYG-specific sampling conducted by CTEH and Haley & Aldrich data filtered to locations within the vicinity of the CeramSource/WYG property, extending approximately 250 feet north and south, 800 feet east, and 350 feet west, that were used to assess the potential for worker exposures. Available Air Data • Air monitoring data collected by CTEH throughout the emergency response phase and environmental response and recovery phase of Norfolk Southern cleanup.[208] ○ 933 sampling events at 28 locations that span from February 4, 2023 to June 21, 2024.[209] • 2026 Haley & Aldrich air sampling.[210] ○ One number of sampling events at four locations on March 5, 2026. Air During the Derailment emergency response (February 3 through February 8), direct volatilization of spilled liquids and fires potentially released a range hazardous substances. Within hours of the Derailment, Norfolk Southern and US EPA initiated air monitoring for indicator compounds including VOCs, PM 2.5, phosgene, hydrogen cyanide, and hydrogen chloride. US EPA reported collecting in total (stationary and mobile) over 115 million air monitoring data points and samples.[237] Air monitoring data collected in the surrounding community documented that exposures to hazardous air pollutants significantly diminished after February 8, 2023, allowing Ohio Governor Mike DeWine to lift the evacuation order and allow residents to return to their homes.[238] The geographic extent and time series of air data collected is detailed in **Appendix D.**	While a large number of air samples were taken from February 4, 2023, to June 21, 2024, and a limited number in March 5, 2026, it would be unlikely that weeks, months, and years after the incident, released contaminants would be found in the air – which is why NS should have performed additional soil sampling in 2026 instead of air sampling if it truly was concerned with determining continuing contamination levels. On pg. 98 of his report, Love admits "exposures to hazardous air pollutants significantly diminished after February 8, 2023." The focus, therefore, on air sampling after this date is inexplicable, particularly in isolation, in order to determine the actual contamination status. Even EPA's Gullet (a dioxin expert) makes this point (Exhibits 185/186) – see excerpt below: February 26, 2023: E-mail Quote from EPA Dioxin Expert Brian Gullet – From FOIA *"I'm not sure if anyone considered asking about dioxins from burning vinyl chloride before they ignited the tanker."* *There may be residual dioxin in the ash/residues but I'd suspect most of what may have been formed was dispersed throughout the area in the plume. We have the ability to sample these plumes using our drone-mounted sampler but it's too late now, of course."* Brian Gullet – EPA Scientist and Dioxin Expert February 26, 2023: E-mail Quote from EPA Dioxin Expert Brian Gullet – From FOIA  Note that Gullet is the EPA's dioxin expert (see for example Exhibits 187-190).

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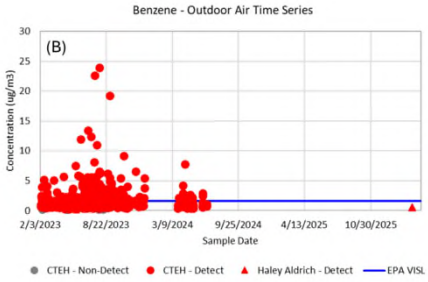
		Dr. Love further illustrates this point in his outdoor air plot of benzene with time (Exhibit 183, pg. 87):  Note that rapid decrease of benzene levels in this time as expected. This doesn't mean the soils and groundwaters, where one would expect to see incident chemicals reside with time, aren't present or still a risk. Instead, a noted in my report (Exhibit 180), released contaminates would most likely be found in the surface soils and surface/shallow surface groundwaters. In 2026, one would not expect to find released contaminants in outdoor air and it is spurious that NS has continued asserting this emphasis as opposed to sampling soils and waters for released contaminants – see later testing results later in this report to support this point.
Pg. 96.	As shown on Figure 36, there are a few locations where TCDD-TEQs in soil exceeded the soil screening level that are sporadically distributed on the CeramSource/WYG property and in the vicinity of the CeramSource/WYG property. Dioxin exceedances identified outside the CeramSource/WYG property were not located in the immediate vicinity of the property and would not be expected to result in worker exposure. Within the CeramSource/WYG property, two soil samples were analyzed for dioxins, and one sample exhibited a concentration of 22.8 pg TEQ/g, which is below the EPA background threshold of 51 pg TEQ/g used to identify samples requiring further investigation. Although this value slightly exceeded the occupational soil Regional Screening Level of 21.6 pg TEQ/g, the soil exceedances on the CeramSource/WYG property were evaluated by Arcadis in the Delineation Memo and determined to be consistent with the background levels of dioxins given the long-standing industrial land use and background sources.[23]	First, see responses to pg. 72's line item, above, and Finely responses to Issues #4, #12, and #15 below. As discussed in more detail earlier and below, the NS/Arcadis "background" samples were likely not background levels so comparison to these levels would be a flawed strategy. This is especially true when comparing background levels provided by USEPA for Ohio and Petty background levels and analyses. The statement provided by NS's expert is either flawed or incorrect. With the exception of 1 soil sample on the CeramFab property, no dioxins samples were taken by NS/Arcadis on the Plaintiffs' properties, so Dr. Love cannot adequately comment on dioxin levels in soils on these two properties absent pure speculation on his part. Moreover, as discussed, the 4.8 ng/kg value is a cancer screening value and 51 ng/kg is a non-cancer screening level. Dr. Love's statements on the various levels also misrepresent the terminology used by USEPA and others on screening level terms and values as cited in earlier responses.

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Pgs. 99-100.	Soil In addition to the soil investigation and remediation performed in the Derailment and Mainline track area as discussed in Opinions 1 and 2, Norfolk Southern investigated the potential for soil impacts in the wider community as a result of aerial dispersion and deposition during the Derailment-fires and vent and burn. This wider Phase I – Residential/Commercial/Agricultural soil sampling ("Phase I Soil Investigation") was near and in a general downwind direction from the Derailment Site. The purpose of the sampling effort was to address the potential accumulation of SVOCs and dioxins/furans in surface soil from the deposition of ash or soot originating from the Derailment fires and vent and burn.[240] Arcadis inspected 357 locations for visual evidence of ash, soot, or debris related to the incident, and no ash or soot was observed at any of the locations. Nineteen of the locations had evidence of debris that may have been related to the controlled vent and burn. Arcadis collected surface (0-1 inch bgs) and near-surface (1-6 inches bgs) soil samples for SVOC and dioxin/furan analyses from 146 of the 357 inspection locations.[241] US EPA collected split samples from 25% of the sample locations. All soil sample analytical results were compared to background soil concentrations.[242] Thus, the Phase I Soil Sampling determined that no discernable impacts from Derailment fires had occurred via deposition of airborne soot, ash, and byproducts of combustion. All Phase I Soil Sampling data were determined to be within anthropogenic background ranges or unrelated to the Derailment.	As noted earlier (pg. 72 response), Lester and Gullet (and Petty) criticized the NS/Arcadis soil sampling plan based, at least in part, on burn deposits: Lester (Exhibit 191) comments that in 40 years this was the most vague and subjective soil sampling plan he'd ever seen and criticism of NS's/Arcadis' sampling soils based on ash deposits. Lester further details NS/Arcadis started sampling soils before addressing USEPA concerns and others were ignored: The most striking aspect of the dioxin soil sampling effort was the approach used to determine where to collect samples. The sampling plan was developed by Arcadis, a contractor for Norfolk Southern, and approved by EPA. This plan was highly unusual and did not follow standard procedures for investigating contaminated sites or areas. Norfolk Southern's approach involved walking the area and "inspecting" the surface soil for evidence of ash or other debris from the derailment and subsequent intentional burn as the primary way of identifying where samples will be taken (Arcadis Report, p. 1). This approach is unscientific and unprofessional primary because it is highly subjected and subject to bias that can influence the results. This is not what one would expect in a situation like the one in East Palestine. In fact, in fact, in over 40 years of evaluating contaminated sites, I've never seen EPA approve a soil sampling plan that was this vague and subjective. In the March 13, 2023 letter to EPA, the community asked that the agency lead the dioxin sampling "to provide transparency, rebuild public trust and comprehensively address the possible releases of dioxins from the disaster." Included in this letter were requests for the following information: • Goals and objective of the sampling plan; • What environmental media – soil, dust, water, sediment, air – will be sampled; • Sample locations for each medium type. It must include communities that were in the path of the plume; • The number of samples that will be collected for each medium type; • Sample collection procedures for each medium type; • Detection limits for each medium type; • Analytical procedures for each medium type; • Which suite of dioxins will be analyzed. Total polychlorinated dioxins and furans should be measured as well as PCBs, especially the dioxin-like PCBs; and • Details on quality control/quality assurance procedures. Unfortunately, Norfolk Southern began collecting samples before EPA responded to this letter and most of these requests were ignored. The laboratory that conducted the sample analyses
Pg. 125.	While the sampling plan also included sampling for background soil concentrations for comparison purposes, the majority of samples collected were sought to characterize the potentially most impacted locations in order to determine the geographic extent and magnitude of Derailment-related impacts from aerial dispersion. See Section 3.2.2.2. Mr. Petty also takes issue with the "use of visible ash as an indicator of surface deposition."[323] Mr. Petty fails to recognize that sampling was conducted specifically to determine if there were measurable amounts of chemical compounds deposited in soot and ash from the "vent and burn" operation on February 6.[324] Visible ash was reasonably expected to represent locations with the greatest deposition of Derailment-related particles. While Derailment-related substances other than visible ash were likely deposited also, the areas with visible ash provided an indicator of locations with the greatest likelihood of Derailment-related chemical detection on deposited surfaces and in deposited soils.	Regarding sampling soils for dioxins down to 6" bgs, USEPA's Gullet (Exhibits 185/186) expressed concerns as early as February 26, 2023, consistent with criticisms stated in my report (Exhibit 180, Section 6-2, pgs. 36-38): From FOIA and/or Documents Received by Scott Smith: EPA Dioxin Expert Brian Gullet March 6, 2023 E-mail Addresses Questionable Norfolk Southern Composite Samples (Composite Samples are mixing soil at different depths and locations together) *"Chlorinated dioxins/furans are virtually insoluble in water. Even if it rained, it'd be extremely unlikely that they'd be in the soil 6" deep."* Brian Gullet
Pg. 125.	**Mr. Petty incorrectly asserts that the sampling had an inappropriate emphasis on subsurface rather than surface soils.** Based on my experience, Arcadis's soil sampling and analysis approach is common when evaluating aerial deposition onto soils. The coupled surface and subsurface samples allows the determination of whether or not there is a noticeable difference between surface and at-depth concentrations, indicating whether or not the compounds were likely present before the Derailment.[325] In fact, US EPA recently used this technique to evaluate surface soil impacts resulting from aerial deposited lead dispersed during the 2025 LA Fires in Altadena and Pacific Palisades. Mr. Petty does not recognize that the soil sampling sought to evaluate the potential surface impacts from aerial deposition of Derailment-related substances. The nature of PAHs and dioxins allows for the reasonable expectation the recently deposited particles would remain in the top one inch of soil. The deeper samples were used as a reference point for background levels at each sampling site, such that surface soil impacts could be identified if concentrations in surface soils were noticeably greater than in the soil beneath. See Section 3.2.2.2.	Dr. Love continues to double down that my criticism's of too much emphasis on deeper surface sampling is incorrect. As illustrated above, USEPA's Gullet, however, agrees with my opinion (see above). This again calls into question the reliability of Love's own methodology and opinions and the extent to which he researched this topic before providing his report for NS.
Pg. 100	US EPA concluded that based on the results of the Phase I Soil Investigation, SVOC concentrations were within anthropogenic background ranges. Regarding dioxin/furan concentrations, US EPA stated the following: "...the vast majority of results fell within typical background ranges for rural and urban/suburban soil. A few outlier data points were associated with commercial/industrial properties or located on the public right-of-way (next to a road/highway). There was no noticeable difference between surface and at-depth concentrations, indicating that the compounds were likely present before the train Derailment."[243]	This statement, attributed to a USEPA report does not address a series of issues related to NS/Arcadis's sampling such as: Collecting and mixing soil samples in plastic bags before placing them in jars. Lack of identification of the sampler in the chain of custody for many samples. Use of tap water to clean tools.

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Pg. 125.	These results enabled US EPA to conclude that "the vast majority of results fell within typical background ranges for rural and urban/suburban soil" and that a "few outlier data points were associated with commercial/industrial properties or located on the public right-of-way (next to a road/highway)." [326]	Neither the lab, nor the USEPA were likely aware of these issues; one questions whether or not the report statement would be different had they know of these issues, especially related to soil sample collection and CoCs. Purported background samples likely not being true background samples also would affect the USEPA's statement. Moreover, the lack of a quality sampling plan (see Lester's comments) and not accounting for USEPA's comments prior to the start of sampling affected locations would have an impact on this conclusion. Dr. Love continues to rationalize/justify NS/Acradis' decision by invoking approval by the USEPA. However, the USEPA's input was not always adopted before sampling began (see Lester – Exhibit 191 above). Moreover, all the sampling/CoC/background sample locations issues discussed previously likely would not have all been known to the USEPA.
Pg. 129.	**Mr. Petty's rejection of contaminant background levels and source alternatives is unsupported.** As discussed above, cleanup guidance documents do not require cleanup below background conditions. Mr. Petty criticizes the methodology used to assess and calculate what background levels are reasonably expected. Mr. Petty claims that Arcadis's Phase I sampling plan "would result in the NS/Arcadis background samples having higher levels which would cause them to conclude that background levels were higher than where they assumed that the plume traveled. Moreover, the majority of sampling would be in the wrong areas." [339] However, background sample locations were selected in all directions around East Palestine at an appropriate distance away from the Derailment area to collect sufficient sample results to characterize the variation in background conditions. US EPA reviewed and ultimately utilized the Phase I Soil	As discussed above, and in other responses below, NS/Arcadis background sampling locations are, at least in part, in the areas of the plume deposition and this calls into question the actual legitimacy of these background sample values being used for any comparisons. Also, contrary to Love's criticism, I have never suggested one has to remediate to background levels - just that true background levels and remediation levels must be determined before using them for any comparative analysis. The statement that: "background sample locations *were selected in all directions around East Palestine* at *an appropriate distance away from the Derailment area* to collect sufficient sample results to characterize the variation in background conditions." After reading my report, Dr. Love seemingly simply dismisses all the information and analyses of where the plume actual went and that background samples were inappropriately taken under the plume. Why one would take background samples in all directions is illogical; samples under the plume are not background samples and would provide a false (in NS's favor) baseline. Moreover, Love and NS have failed to define how far away is a sufficient distance to obtain background samples. No value is provided, and a review of NS/Arcadis background sampling plots in my report (Exhibit 180, Figures 6-7 and 6-9) suggest the distances were inappropriately short given the plume distance projections.
Pgs. 101-102	Figures in Appendix D depict the analytical results for vinyl chloride, acrylates, glycols, and benzene in groundwater samples. Only minor detections of vinyl chloride, acrylates, and glycols have been detected in shallow groundwater near or below the Derailment Site. There are no detections of Derailment-related COCs in deeper groundwater which is reasonably expected given the documented clay layer that is geographically extensive between the shallowest perched groundwater and any deeper groundwater utilized for water supply. Benzene has not been detected in any monitoring well.	Dr. Love admits vinyl chloride, acrylates and glycols were found in shallow groundwaters at/below the derailment site. This is consistent with my findings in my report and detailed in the VOC sample data results tabled and plotted later in this response report.

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	Appendix D also includes figures that depict the results of PFAS sampling for on-site wells nearest the Derailment location. The PFAS detections are from samples collected from shallow wells and regarding one of the PFAS compounds, PFOA, are believed to be indicative of fire suppressant substances applied during the emergency response. PFAS have not been detected in deeper monitoring wells and the source (the fire suppressant substances) has been removed from the Mainline track area.	Nothing in Dr. Love's discussion of PFAS's suggests my report observations and opinions are incorrect. The statement "one of the PFAS compounds, PFOA, are believed to be indicative of fire suppressant substances" is a meaningless statement given the chemistry of PFASs I outlined in my report (Exhibit 180, Section 7.4) and simply ignores my opinion that: "[Arcadis' statement that the only PFAS was PFOA seems highly unlikely knowing PFAS chemistry and the fact that PFOA either is a trace ingredient in the AFFF-forming ingredients or forms later through the slow degradation process.]" or that the Arcadis statements that the PFASs present were not associated with the incident based on their chemistry argument is unsupported/speculative.
Pg. 101	Figures in Appendix D depict the analytical results for vinyl chloride, acrylates, glycols, and benzene in groundwater samples. Only minor detections of vinyl chloride, acrylates, and glycols have been detected in shallow groundwater near or below the Derailment Site. There are no detections of Derailment-related COCs in deeper groundwater which is reasonably expected given the documented clay layer that is geographically extensive between the shallowest perched groundwater and any deeper groundwater utilized for water supply. Benzene has not been detected in any monitoring well.	As discussed by Dr. Love in his initial description of the site geology, shallow groundwaters are stopped from moving downward by a confining clay layer. Again, this provides no supportable or reliable information to conclude coal was present in the local geology in any capacity that it could have been the source of the sampling findings on Plaintiffs' property. Dr. Love also confirms my observation that movement of contaminants from the incident would be constrained by a confining clay layer around ~10' bgs. Movement of contaminants would be through shallow groundwaters and the movement would generally be to the west/southwest - toward the Plaintiff facilities as discussed earlier and in my report (Exhibit 180).
Pgs. 101-102.	• Petroleum Lubricating Oil: The UNEP Toolkit provides only air emission factors under Source Category 6b, ranging from 2–30 µg-TEQ/t. However, measured studies of uncontrolled waste-oil combustion report much higher total TEQ formation—typically hundreds to about 1,000 µg-TEQ/t—most of which is retained in ash rather than emitted to air. For example, Gullett et al.[297] reported average PCDD/PCDF emissions of 1.2 ± 1.0 ng-TEQ/kg oil consumed, comparable to values measured during in-situ Gulf of Mexico burns. Zhang et al.[298] observed hundreds to a few thousand µg-TEQ/t (total air + ash) from poorly controlled incineration, with ash dominating TEQ retention. EPA's "Locating and Estimating Air Emissions from Sources of Dioxins and Furans"[299] likewise identifies waste oil as emitting more PCDD/PCDFs than clean biomass but far less than chlorinated hazardous waste. Although no per-ton EPA factor is published, available measurements consistently place total TEQ formation in the hundreds of micrograms per ton, depending on chlorine content and combustion quality. I therefore selected a very conservative order-of-magnitude value of **1,000 µg-TEQ/t**.	Dr. Love quotes Dr. Gullet's work on measuring dioxins in petroleum oil and thus, appears to view Dr. Gullet as a reliable and quotable dioxin scientist. What Dr. Love fails to recognize when quoting this paper from the Gulf crude oil spill and the low TEQ values of 1.2 - 1.0 ng/kg, or essential background dioxin TEQ values, however, is that crude oil does not contain chloride. This is well understood by me (for example see my report – Exhibit 180 - Figure 5-1 and my paper on Crude Oil on Water) as a graduate chemical engineer, and others in my field, including Dr. Gullet based on his writings and other papers. *In sum, to form a chlorine combustion product from a hydrocarbon, the hydrocarbon must contain chlorine*. Dr. Gullet clearly understands this as well because it is evidenced by his paper on burning chlorinated hydrocarbons (Exhibit 187); a paper curiously not cited by Dr. Love because it would undermine his and Arcadis' arguments on this point. In this later paper (Exhibit 187), where the dioxin levels found were much higher when burning chlorinated hydrocarbons - as would be expected. Note that Gullet also has two Patents on Dioxins and Chlorinated Wastes (Exhibits 189 and 190) which further support

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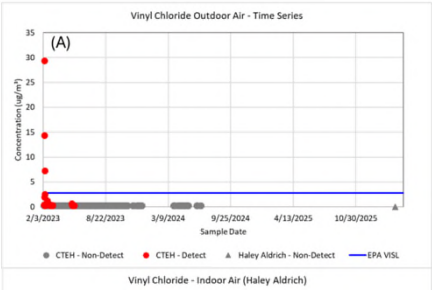
		my position and undermine any critique by Love.
Pgs. 121-122.	**Response to Plaintiffs' Expert, Mr. Petty** Despite the initial emergency response and environmental response/recovery processes following traditional response steps and CERCLA removal action steps, Mr. Petty has numerous unfounded criticisms of its execution. **Mr. Petty is wrong when he asserts that Arcadis's sampling plans were flawed because they were not designed to determine actual contaminants released.** For example, as soon as February 4, 2023 (the day after the Derailment), US EPA monitored for VOCs. Despite this evidence, Mr. Petty opines that "VOCs in the air would need to be sampled for in the first few days after the Derailment or they will be lost to dilution, dissipation, and/or rain events."[316] He notes that "[t]hey monitored VOCs using photo ionization detectors (PIDs) measuring for total (not specific) VOCs at ppm levels (factor of 1,000 higher than needed)."[317] Mr. Petty fails to recognize that the PIDs were used for emergency response air monitoring and screening level evaluation where contractors to Norfolk Southern and US EPA sought to identify locations that might have concerning exposure levels to Derailment-related substances. PID measurements were not intended to characterize ambient air concentrations relevant to low-level long-term chronic exposure scenarios. See Section 3.2.1. After the Emergency Response phase of the Derailment, air sampling was performed throughout the community to assess the potential for low-level long-term air quality impacts. In addition, Mr. Petty does not explain why information on VOC concentration in air at the ppb levels was so important to collect or how such information supports the Plaintiffs' claim of ongoing impacts to the CeramFab and CeramSource/WYG properties. Mr. Petty does not explain what analysis he would have additionally performed if VOC concentration in air at the ppb levels in the first few days were available to him or how that data would support the Plaintiff's claims of ongoing Derailment-related impacts. He also fails to recognize the first few days after the Derailment were still an Emergency	In reading these responses, Dr. Love continuously seems to incorrectly suggest he can read my mind (e.g., Mr. Petty fails to recognize…) while he also seemingly agrees with my statements and criticisms on the use of PIDs, but then rationalized using non-specific low resolution PIDs because it was still an emergency situation. This, however, is not a scientifically supportable position to take by him. His logic that having a non-chemical specific, relatively low resolution, PID used to perform screening for locations to then do later, better monitoring to determine what was released is inherently irrational and inconsistent with his own report where he argues chemicals in the air would have been dissipating by February 8th (pg. 80):  In essense, he is argung tha it was ok to get poor PID readings early when that would have been the best (and possibly only) time to get an accurate air reading. And since the PID instrument was not specific for any hydrocarbon, it would not have been an effective screening tool since it could not effectively screen for individual chemicals of concern such a benzene, vinyl chloride, 2-ethylhexal acrylate or n-butyl acetate. Note that the USEPA documents indicate it was troubled about the lack of specific monitoring of the air amid concerns it was dissapating away before sampling was beng adequately recorded (Exhibits 195/196): **February 26, 2023: E-mail Quote from EPA Dioxin Expert Brian Gullet – From FOIA** *"I'm not sure if anyone considered asking about dioxins from burning vinyl chloride before they ignited the tanker."* *There may be residual dioxin in the ash/residues but I'd suspect most of what may have been formed was dispersed throughout the area in the plume. We have the ability to sample these plumes using our drone-mounted sampler but it's too late now, of course."* **Brian Gullet – EPA Scientist and Dioxin Expert** Gullet indicated by February 26, 2023, it was too late to sample the air plume. While not my job nor needed for my own contamination analysis, Dr. Love is apparently critical of my report because I didn't better specifically tell NS/Acradis how they should

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		have done their early sampling jobs. Yet instrumentation like a portable FID with chemical specific (e.g., benzene) sensors, or a Proton Transfer Reaction Mass Spectrometer [PRT + MS], are equipment that is available and which Arcadis/NS (and presumably Love) should have been familiar, but they chose not to employ this method of sampling despite was was expected to have been released from the derailment and vent and burn..
Pg. 122.	In addition, Mr. Petty does not explain why information on VOC concentration in air at the ppb levels was so important to collect or how such information supports the Plaintiffs' claim of ongoing impacts to the CeramFab and CeramSource/WYG properties. Mr. Petty does not explain what analysis he would	This statement that my concerns were for the lack of VOC measurements in the air misses my entire argument - which was that VOCs in the air must be measured in the days immediately following the incident and that PIDs were not an appropriate or accurate method to perform that sampling at that time. The limitations of PIDs are something which NS/Arcadis should have been aware, and could have addressed, if they had wanted to get a true and accurate picture of the extent of contaminate releases. Moreover, by the time I arrived on site, my experienced opinion was that residual VOCs were most likely to be found in the surface soils and surface waters/shallow groundwater – which demonstrated to be the case.
Pgs. 122-125	**Mr. Petty incorrectly asserts that the sampling plans were flawed because they were not designed to determine the actual locations of contaminants.** As described in Opinions 1 and 2, data was collected for both air and soil resources from the Derailment Site and extending throughout the East Palestine community, including the CeramFab property. The sampling plans were appropriately designed to determine the geographic locations of any Derailment-related substances. Nonetheless, Mr. Petty opines that "NS and Arcadis appear not to have taken actual wind directions at the time of the [vinyl chloride] tank car burns on February 6, 2023, adding not only to my criticism that the burn should not have taken place since the evacuation zone was to the wrong direction (i.e., extended to the SE), but NS doubled down by focusing their sampling program on this same (~1 mile x ~2 mile) evacuation zone." [318] Mr. Petty also opines that "NS/Arcadis proposed that the majority of sampling be completed in the evacuation zone to the southeast of East Palestine, OH." [319] The evacuation zone represented the prevailing winds leading up to the vent and burn. The winds were initially towards the southeast, and later shifted towards the north and northwest.[320] US EPA's plume map reconstructing aerial deposition from the vent and burn shows the primary soil impacted area was reasonably expected to be southeast of the Derailment Site.	Here, Dr. Love doubles down on his support of the inaccurate sampling plan based on the false assumption the winds were to the southeast during the burn. Also, see Finley response to Issue #3, repeated in part below: Interestingly, no mention is made by Love of the date of the IMAAC model relative to when the March Arcadis sampling plan was initiated. However, the dates of the reports for this modeling are found in pg. 30 of my report (Exhibit 180) and are May 31, 2023 (Exhibit 93) and July 3, 2025 (Exhibit 91) – both apparently after the Arcadis sampling was completed. A review of the actual timing of events is important to show that this wind modeling report was dated after the sampling occurred (Section 6-1 of my report – Exhibit 180) so Arcadis/NS could not have relied upon it when planning their sampling plans: 3-6-2023: Arcadis Sampling Plan (Figure 6-1 of my report). 4-18-2023: Arcadis Revised Sampling Plan (Figure 6-5 of my report) 5-19-2023: Arcadis Sampling Results Report (Figure 6-7 of my report). 5-31-2023: IMAAC Wind Modeling Report 1st Issued. More importantly, Arcadis/NS continued to perform background sampling in an arc from the west to the northeast (see Petty Report Exhibit 180, Figures 7-5 and 7-6 – background samples are colored green) suggesting (falsely) that the plume was to the southeast. Since the plume went in these other directions, however, their work would overestimate

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	Mr. Petty fails to recognize that the soil sampling workplan that Arcadis implemented within the evacuation zone was the Phase I Soil Sampling Plan (See Section 3.2.2.2). That sampling plan was primarily utilized to assess impacts to surface soil samples from agricultural, commercial, recreational, and residential properties in both Ohio and Pennsylvania to determine the geographic extent of impacts of aerial deposition from Derailment-related substances. The assessment area included the 1-by-2-mile evacuation zone, an extended 1-mile area to the southeast in Pennsylvania, and 25 additional sites considered background in order to account for the wind shift during the vent and burn.[322] Therefore, these areas are where the greatest impacts from aerial deposition are reasonably expected and when impacts to soil were not observed in the evacuation zone other areas where there was modeled to be even lesser deposition would also not be expected to be impacted. While the sampling plan also included sampling for background soil concentrations for comparison purposes, the majority of samples collected were sought to characterize the potentially most impacted locations in order to determine the geographic extent and magnitude of Derailment-related impacts from aerial dispersion. See Section 3.2.2.2. Mr. Petty also takes issue with the "use of visible ash as an indicator of surface deposition."[323] Mr. Petty fails to recognize that sampling was conducted specifically to determine if there were measurable amounts of chemical compounds deposited in soot and ash from the "vent and burn" operation on February 6.[324] Visible ash was reasonably expected to represent locations with the greatest deposition of Derailment-related particles. While Derailment-related substances other than visible ash were likely deposited also, the areas with visible ash provided an indicator of locations with the greatest likelihood of Derailment-related chemical detection on deposited surfaces and in deposited soils.	background levels simply because they were not background levels and this would have tainted all of their subsequent analysis regarding the actual source (the derailment and burn) of contamination found Dr. Love also uses this term "fails to recognize" often in his critiques of my report. Not only is this statement false based on a reading of the actual language and opinions in my report, but it also assumes he can read my mind. It calls into question either Love's ability to comprehend the subject matter described or whether he actually reviewed the report (versus a summary prepared by some other individual, program, AI, or entity) before offering his own opinions Love's statements are also inconsistent based on Arcadis's own mapping shown in my report (Exhibit 180, Section 6.1, pgs. 27-34 & Figures 6-1 through 6-9). From Figure 6-5 actual sampling was predominately in the evacuation zone with limited background samples in an arc from the west to northeast (green dots). Surface ash deposits identified were shown in Figure 6-8 to the north, east and south with background sample locations to the west in an arc to the northeast further shown in Figure 6-9. Furthermore, the statement that visible ash was "reasonably expected to represent locations with the greatest deposition of Derailment-related particles" is unsupported and speculative. Reasons include the fact that: - Ash hasn't been proven as a surrogate for the PAH and Dioxin deposits. - NS/Arcadis assumed that they found all the ash deposits; however, what portion was found and what is the supporting documentation to evidence that all the ash deposits were found? The visible ash locations overlap with background sampling locations – Why? How does this assumption of background locations which are not background locations impact overall conclusions of background levels and subsequent remedial decisions? How does Dr. Love know that visible ash represents the areas of greatest derailment-related chemical deposits? If so, this would elevate the assumed background levels when the highest ash deposit areas were found to be where a portion of the background samples were identified by NS/Arcadis and taken? Given the much lower background levels for dioxins found by the USEPA in Ohio and by Petty and others, NS/Arcadis' selection of background sampling locations is more likely than not ither fundamentally flawed or simply wrong. In summary, Dr. Love's statements conflict with actual data, are inconsistent with the evidence in this case, and actually support the suggestion of a flawed sampling plan performed by Arcadis/NS as opined by Petty and others discussed elsewhere in this rebuttal

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		and the original report. These failings would have tainted the NS/Arcadis analysis and provided false justifications for NS limiting its remediation plans and/or providing the community any recommendations on the source of later sampling results (NS claiming samples were background only/ not from the derailment) or potentially safety of their exposure.
Pg. 126.	**Mr. Petty incorrectly opined that as to dioxins and furans on the CeramFab property, "it is not possible to delineate the site with a single sample!"** [327] As described in Opinion 1, the CeramFab property was not delineated with a single sample. Arcadis implemented a robust sampling methodology. The results show there are a few locations where TCDD-TEQs in soil exceeded the soil screening level that are sporadically distributed on the CeramFab property. Some of these limited number of exceedances are located within the adjacent track corridor where the Derailment response occurred and where CeramFab workers would not be expected to operate, but a few exceedances were measured within the CeramFab property. The adjacent track corridor exceedances were within the excavation area where no residual Derailment-related chemical exceedances remained as of October 2023.[328] [329] The soil exceedances on the CeramFab property were evaluated by Arcadis in the Delineation Memo and determined to be consistent with the background levels of dioxins given the long-standing industrial land use and background sources.[330]	Dr. Love does not refute the statement in my Report that only a single dioxin sample was taken on Plaintiff's properties. Instead, he makes a spurious argument that because contaminated soils with elevated levels were remediated *outside of the property*, un-remediated soils *on the property* must also have been delineated. This argument is both disingenuous and false. NS/Arcadis did not know the full extent/levels of soil contamination (nor groundwater contamination) on the Plaintiffs' properties. As just noted, the dioxin sampling on CeramFab was limited and there was (curiously) never any sampling performed by Arcadis/NS on the WYG property. His statement that the "soil exceedances on the CeramFab property were evaluated by Arcadis in the Delineation Memo and determined to be consistent with the background levels of dioxins given the long-standing industrial land use and background sources" simply repeats the speculative soundbites, without the requisite support required, at several levels: 1. Neither Dr. Love, nor NS/Arcadis know the actual extent/levels of soil contamination on the property. They took only 1 sample [CS2-DU3-A (Lab ID #: 410-171090-31] and my report (Exhibit 180, pgs. 120-124, Figures 7-34 & 7-35 and Table 7-21) shows even it has a TEQ of 10.6 ng/kg. 2. As illustrated earlier, almost certainly, NS/Arcadis background sampling methodology is flawed and likely resulted in inappropriate elevated values used for comparison purposes. 3. Dr. Love speculates on the long-term land use of the Plaintiffs' specific locations and contaminant potentially from prior operations at these two locations. However, nor does he offer specific data (e.g., Sanborn maps) on prior operations or pollutants emanating from such operations with time nor does he provide other specific supporting reliance materials to substantiate these baseless speculative statements. 4. Dr. Love speculates, as shown later, on background sources, with no specific data showing such sources emitted specific chemicals on these two properties. In this paragraph, Dr. Love also conflates several facts to misleadingly create a false argument. As discussed above, Plaintiffs' properties were not fully delineated and sampling/delineation/remediation of soils
Pg. 127.	As discussed in Opinion 1 regarding Derailment-related exposures on the CeramFab property and Opinion 5 regarding the delineation of Derailment-related impacts on the CeramFab property, Arcadis delineated impacts on the CeramFab property and in the soils in the surrounding vicinity and removed soils where Derailment-related exceedances were observed. There is no indication that any workers have had exposure to any of the measured Derailment-related soil exceedances in the vicinity of the facility.	

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Pgs. 129-130.	**Mr. Petty's environmental impact conclusion is flawed and unsupported by the data.** As described above in Opinions 1 and 2, the environmental monitoring data show that since the stabilization of environmental releases, there is no potential for human health risk from Derailment-related substances at Plaintiffs' properties. Nevertheless, Mr. Petty opines that "[a] review of data collected at and around the Plaintiffs' properties shows substantial contamination of the facilities surface soils and surface waters at/near the Plaintiff's properties." [341] The locations of Derailment-related impacts at the Plaintiff's properties and in the vicinity of those properties were remediated. Mr. Petty's assertion of significance of the detection of Derailment-related substances to surface waters at/near the Plaintiffs' properties does not recognize that eliminating those Derailment-related exposure risks to human health or the environment was part of the overall cleanup remedy implemented by Norfolk Southern. Additionally, US EPA has concurred with Arcadis' Delineation Memo that states all of the Derailment-related impacts have been addressed in the CeramFab Area.	outside the Plaintiffs' property boundaries show that neither were they. Also, the clause suggesting Plaintiffs' contaminated soils were removed is simply false. Even if CeramFab had removed every ounce of soil surrounding the CeramFab building, it is undisputed that the soil immediately surrounding the building structures, and all the soil under those buildings, was *never* touched, and certainly not remediated, by NS/Arcadis. For the CeramFab property, a March 20, 2023 Health and Safety Plan (HASP) prepared for the East Palestine Train Derailment Site, Unified Command Group (Exhibit 192) shows the property surrounded on three sides by derailment contamination zones (yellow lined boxes):  It would not be unreasonable to assume the CeramFab property was not similarly contaminated. For Love's next statement, here, I again disagree with this generic, unsupported, speculative argument - as discussed at length above. As stated repeatedly both in this rebuttal and my original report, Dr. Love states that delineation and remediation of other properties at the boundaries of the Plaintiffs' property(s) implies the Plaintiff's' properties are both delineated, remediated, and seemingly not contaminated. This is a baselessly illogical and unscientific argument. Finally, and again, Dr. Love incorrectly opines what he believes is in my mind (and presumably Norfolk Southern's minds) by stating "Mr. Petty….does not recognize that eliminating those Derailment exposure risks to human health or the environment was part of the overall cleanup remedy implemented by Norfolk Southern."

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	Mr. Petty is wrong that Arcadis's remediation methods were flawed. Arcadis's removal actions in East Palestine were reviewed and approved by US EPA and reflect the standard of practice of environmental response to spill events. See Section 3.2.2. Nonetheless, Mr. Petty claims that "Later, the NS embarked on a remediation plan to remove contaminated soil and waters below/near the tracks, but did so in a flawed manner, by removing the contamination under the two sets of tracks one at a time... the flaw with this process is that the contamination under the south track would re-contaminate new clean materials placed under the north tracks as the remediation process continued" [331] However, Mr. Petty does not recognize that the confirmation soil sampling post-excavation would have ensured that re-contamination did not occur, and that if elevated soil levels were detected additional excavation would have been required.[332] See Section 3.2.2.2.	Again, Dr. Love falsely opines on my state of mind when he says: "Mr. Petty does not recognize..." Despite Dr. Love's argumentative statement, he apparently forgets that I actually was at the site during earlier 2023 remediation efforts, directly oversaw and participated in some sampling during that time, observed the circumstances at the scene with my own eyes, and a review of photos and water sample results (water sample #70) from the west end of the north track excavation (water on clay layer) show contamination and directly support my report statements. Photo (Exhibit 27, Sample W-70):  VOC, SVOC, Glycol and Dioxin results are summarized below (Exhibit 81, Data Set #2): **Detection Summary** Client: EES Group Inc Project/Site: SIM-23-001 E. Palestine **Client Sample ID: W-70-2A-B** Analyte | Result | Qualifier | RL | MDL | Unit 2-Butoxyethanol | 800 | | 130 | 34 | ug/L **Client Sample ID: W-70-3A-C** Analyte | Result | Qualifier | RL | MDL | Unit Diethylene glycol | 2800 | | 100 | 40 | mg/L Propylene glycol | 110 | | 10 | 2.3 | mg/L **Client Sample ID: W-70-4A-B** Analyte | Result | Qualifier | RL | EDL | Unit 1,2,3,4,6,7,8-HpCDD | 18 | J I | 24 | 0.66 | pg/L 1,2,3,4,6,7,8-HpCDF | 17 | J B | 24 | 0.57 | pg/L 1,2,3,4,7,8-HxCDF | 6.3 | J I | 24 | 0.51 | pg/L 1,2,3,4,7,8,9-HpCDF | 6.1 | J I B | 24 | 0.83 | pg/L 1,2,3,6,7,8-HxCDF | 3.2 | J I | 24 | 0.46 | pg/L 1,2,3,7,8-PeCDF | 4.9 | J B | 24 | 0.21 | pg/L OCDD | 270 | I B | 100 | 0.55 | pg/L OCDF | 64 | B | 48 | 0.29 | pg/L **Detection Summary** Client: EES Group Inc Project/Site: SIM-23-001 E. Palestine **Client Sample ID: W-70-1A-C** Analyte | Result | Qualifier | RL | MDL | Unit Acetone | 3900 | | 500 | 270 | ug/L Acrolein | 190 | | 100 | 10 | ug/L 2-Butanone (MEK) | 31 | J | 50 | 5.8 | ug/L Ethyl acrylate | 12 | | 5.0 | 1.6 | ug/L 2-Ethylhexyl acrylate | 17 | J | 50 | 17 | ug/L Methyl acetate | 9.4 | J | 50 | 8.6 | ug/L n-Butyl acrylate | 97 | | 50 | 11 | ug/L Thus, water on the top of the clay layer under the west end of the north tracks had exceedances of 2-butoxy ethanol, diethylene glycol, propylene glycol, acrolein, ethyl acrylate, 2-ethylhexyl acrylate and n-butyl acetate. These waters would interact with the clean materials placed in the excavation area and continue to be available to move in the shallow groundwaters – thus re-contaminating the soil under the tracks previously removed.

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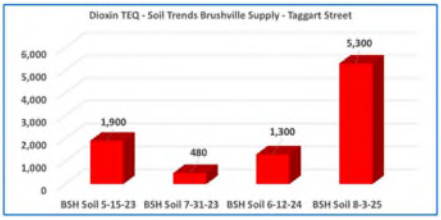
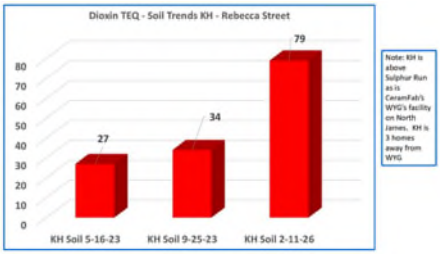
Pg. 127.	**Mr. Petty is incorrect in his statements that increased dioxin detections are occurring after remediation.** There is no evidence, as described in Opinion 1, or plausible mechanism proposed by Mr. Petty suggesting that increased dioxin detections are occurring post-remediation. Mr. Petty opines that "data from Section 9.9 appear to show that levels of dioxins in locations proximate to the Plaintiff's properties are increasing with time. Why this is occurring is not definitively known, but sampling data results show it is occurring. Ongoing remediation contamination and releases from un-remediated areas (e.g., in the areas and abutting areas to plaintiff locations on Taggart and Rebecca streets which includes the creek banks - see Section 9-10) may be at least in part reasons why contamination levels appear to be increasing with time." [335] Mr. Petty does not provide a technical basis or supporting data and analysis for his statement that dioxin levels in soils are increasing near the Plaintiffs' properties, and does not have any technical assessment of what Derailment-related effect could plausibly result in such a trend. As such, his claim appears to be without any technical merit.	Dr. Love oddly argues, without any scientific supporting basis, that I am incorrect stating levels have in fact increased over time in some cases, despite the actual experimental data plotted in my report showing the same (Section 9.9, pg. 272 & Figures 9-42 and 9-43):   The evidence is the actual sampling data and Love stating that I provided no evidence is false as would obvious by reading this Section (9.9) of my report.
Pg. 128.	**Mr. Petty fails to explain how the alleged presence of Derailment-related substances in surface waters immediately following the Derailment impacted Plaintiffs.** Mr. Petty asserts the importance of observed Derailment-related impacts to surface waters, but never connects those observations to CeramFab building impacts. Mr. Petty claims that "[a]ctual data taken from surface waters to the east and west of the CeramFab building on March 1, 2023 (Exhibit 84) demonstrate the presence of tank car specific materials" [338]	This statement is false and simply ignores information contained in my report, as discussed earlier, about contaminated near-surface groundwaters recognized to be moving toward the plaintiffs' facilities. Love's repeated errors such as this, where he completely ignores or "misses" opinions or supporting documentation/evidence cited in my report, again calls into question his methodology, the accuracy of his opinions, and whether he actually personally read the Plaintiffs' reports before issuing his criticisms for NS.
Pg. 130.	**Opinion 6: The work summarized in the Delineation Memo was directed by, and overseen by, US EPA and Ohio EPA under the Unified Command Structure, as well as numerous cooperating and assisting regulatory agencies.** [342] **The vapor intrusion investigations were performed consistent with US EPA and Ohio EPA guidance documents for evaluating vapor intrusion and consistent with the broader standard of practice in the environmental industry. Mr. Petty's criticism of the Delineation effort is contradictory to the standard of practice in the environmental industry for vapor intrusion investigations and ignores US EPA's concurrence with the Delineation Memo.**	Dr. Love inaccurately conflates delineation with vapor intrusion and then falsely states I ignored US EPA's concurrence with the Arcadis delineation report. As discussed at length both in this rebuttal report and my original report, contamination on Plaintiffs' properties has not been adequately or fully delineated, and, in fact, as shown later, remains contaminated to this day. EPA's concurrence, therefore, is based entirely on the incomplete information they had available and which was predominantly provided by NS or its contractors. Information which likely did not include all the sampling and CoC issues identified in my original report or discussed in this rebuttal report at length. Moreover, others at EPA and outside EPA are also critical of the NS sampling plan, as discussed earlier, and this further supports my position and undermines the truthfulness of Love's criticisms.

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Pg. 135.	In accordance with the US and Ohio EPA VI Technical Guides, Norfolk Southern performed a phased investigation that included multiple lines of evidence for assessing indoor air quality. The work plans and data were submitted to US EPA for its review and approval.[372] Where necessary, work plans and reports were revised based on regulatory comments and resubmitted for approval.[373]	As discussed earlier, NS/Arcadis began soil sampling and issued reports before the IMAAC wind modeling data were available (see also response to Finely Issue #2): A review of the actual timing of events is important to show that this modeling occurred after the sampling occurred (Section 6-1 of my report – Exhibit 180): 3-6-2023: Arcadis Sampling Plan (Figure 6-1 of my report). 4-18-2023: Arcadis Revised Sampling Plan (Figure 6-5 of my report) 5-19-2023: Arcadis Sampling Results Report (Figure 6-7 of my report). 5-31-2023: IMAAC Wind Modeling Report 1st Issued. Also, Lester (Exhibit 191) stated that NS/Arcadis started sampling soils before addressing USEPA concerns and others were ignored.
Pg. 135.	Responses to Plaintiffs' Expert, Mr. Petty Mr. Petty's criticisms of the Delineation Memo are documented in Section 7.0 of his report. Mr. Petty's criticisms of the vapor intrusion data and conclusions in the Delineation Memo ignore the multiple lines of evidence approach employed by Arcadis, contradict the standard of practice in the environmental industry for performing vapor intrusion studies, and disregard the concurrence by the regulators overseeing the response actions.[376] Mr. Petty fails to acknowledge that the work performed by Norfolk Southern was consistent with the regulatory guidance governing vapor intrusion investigations and industry practice, which includes performing the work in site-specific phases and which considers multiple lines of evidence. Further, Mr. Petty fails to acknowledge that the work was conducted under the direction and oversight of numerous regulatory agencies including US EPA, Ohio EPA, the Columbiana County General Health District, the [371] Arcadis, Delineation Memo at 7/28 (Sept. 25, 2025). [372] US EPA response was not provided for each individual document or dataset, but when available, US EPA approvals are noted in the Delineation Memorandum.	This series of statements by Love has been addressed earlier and are, in general, spurious and false. What is most interesting, however, is his sentence and footnote ending with "….concurrence by the regulators overseeing the response actions. [376]" A review of the footnote purportedly supporting his arguments finds the following statement: "*US EPA response was not provided for each individual document or dataset, but when available, US EPA approvals are noted in the Delineation Memorandum*." Thus, even Dr. Love admits his "empty chair" argument that the EPA approved all of NS/Arcadis' work is contradicted by the language in this footnote recognizing that the EPA was not provided with all the documents or data sets for review.

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Pgs. 136-137.	Mr. Petty makes no attempt to identify other sources of PAHs that may explain the sampling observations. PAHs are formed naturally in the type of coal bed geology prevalent in the East Palestine community and also are the potential product of numerous non-Derailment related combustion processes, such as wood burning fireplace and stoves, vehicle emissions, and industrial emissions. Similarly, as discussed in Opinion 5 above, dioxins are also the potential product of numerous non-Derailment related processes. While Mr. Petty disputes the significance of background levels of PAHs and dioxins in the East Palestine community, US EPA concurred with the Delineation Memo's conclusion that the remaining PAHs and dioxins were not Derailment-related and instead were reasonably expected to be associated with other background and/or ambient sources. See Section 3.3.2.1 Even though benzene was not documented to have been released during the Derailment, Norfolk Southern evaluated and treated benzene as a potential Derailment-related chemical during its environmental response activities at US EPA's direction. But benzene may be associated with any industrial property that uses petroleum hydrocarbon fuel to power equipment, regardless of the chemical makeup of the property's finished products. Thus, Mr. Petty's claim that because the CeramFab property makes ceramic items and ceramics, neither of which are known to contain benzene, benzene cannot be associated with products from the CeramFab property, is misplaced.[379] Mr. Petty also ignores the historical industrial operations at the property prior to Mr. Wang's acquisition and the potential historical contributions to substances measured on the property. Mr. Petty writes that speculation regarding possible CeramFab source(s) of benzene is "directly refuted by the testimony of Kevin Smith, a former general manager at CeramFab" who testified that CeramFab only worked with non-hazardous materials and that he was not aware of any benzene.[380] In response to the chemical inventory logged at the CeramFab property identifying products that are reasonably expected to contain petroleum products, Mr. Petty states that he is "an expert who has completed upwards of ~200 benzene cases and reviewed benzene content of hundreds of products over the past 25 years....[b]enzene levels in the remaining products [excluding hydraulic oil, lubricants, or coolant], if any, would be at very low levels as contaminants in other ingredients."[381] Mr. Petty goes on to criticize Norfolk Southern's failure to obtain Material Safety Data Sheets ("MSDS") for the products.[382] However, by that logic Mr. Petty, likewise, cannot dismiss the potential contribution of benzene from products like paints and mineral spirits, both of which are known to potentially contain benzene, as Mr. Petty has not obtained MSDSs nor sampled the products to quantify the possible degree of benzene contribution.[383] Mr. Petty does not explain how or why he associates benzene with being a Derailment-related substance, since benzene was not released from any of the railcars and the lube oil contained in the railcars would be reasonably expected to have similar benzene content as the lube oils and oil in the CeramFab building. In addition, as discussed in Opinion 1 and 2, Mr. Petty does not recognize the significance of benzene detection with co-detections of other BTEX substances. While benzene is often in products that result in indoor air exceedances for benzene, it is also common for gasoline or engine exhaust to increase levels of BTEX compounds in air. Mr. Petty did not evaluate the petroleum powered vehicle use in CeramFab's operations to properly assess the contribution of fuel storage or vehicle exhaust to the indoor levels of benzene.	The statement is this first sentence that I made no attempt to identify other PAH sources is refuted by my review of the local geology and Arcadis boring logs in my report (Exhibit 180, Section 7-4, pgs. 75 to 97), and is another false and unsupported argument by Love. Despite his earlier statements regarding no coal seen in local site geology, Love now parrots Arcadis/NS' original position and improperly speculates that some type of coal bed geology may be responsible for PAHs observed. Next, Love grasps with unsupported claims that non-derailment combustion may also be responsible for the PAHs observed. Again, without the requisite supporting reliance materials to make such a speculative statement. Love then stretches any credibility he has to argue NS/Arcadis' positions that any source other than those from the derailment and burn event are responsible for any and all contaminants that impact the Plaintiffs' properties, and that NS/Arcadis must be correct in that speculation because the USEPA allegedly concurred. As documented in nearly 200 pages in my original report, (Exhibit 180) and again documented in this report, this argument by Love is more likely than not correct. As an example, Love speculates that an industrial fuel used at the Plaintiffs' sites is responsible for the benzene observed but doesn't even specify the actual fuel, how much was used, when it was used, or its composition or combustion products – nor whether or not any such unspecified petroleum fuel was ever used. Dr. Love's explicit statement that "benzene *was not* released from any of the railcars" is not supported by any known testimony or reporting. Two railcars that contained benzene were undisputedly part of the derailment; the extent of residual benzene in the cars and how much may have been released are not known. However, benzene sampling data in the soils and waters at the derailment site (see below), coupled with a review of the evidence cited in my report, and conveniently ignored by Love, support my opinion that it was more likely than not that the local observed benzene source was from the derailment related events. Dr. Love would like to place the burden of evaluating his and NS's new speculative sources of benzene on Plaintiffs, but that was NS/Arcadis job (or at least Love's) before providing those same purely speculative assumptions. They didn't do this, however, yet claim still make the claim that the derailment was not one of the sources of benzene – and it must instead be this alluded to "petroleum." Aside from this speculative argument not fitting with a review of the available information in this case, my experience of working on nearly 200 other benzene or benzene-containing product cases makes it clear that this is, at

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		best, an unsupported speculative source statement being made by Love and it should not be seriously countenanced at this point.
Pg. 138.	As such, the delineation of Derailment-related impacts to the CeramFab property and conclusion that no other impacts are observed was consistent with the regulatory guidance documents, the standards of practice in the environmental industry, the NCP, and the concurrence of US EPA. Mr. Petty does not provide counter evidence to demonstrate the evaluation process and conclusions were incorrect.	This is, in my opinion, is a proverbial last minute throw away statement by Love that is scientifically unsupportable argument, purely conjecture, and calls into question what Love reviewed before issuing his opinions in this case. My original report provided over 200 pages of such evidence, information and analyses that supported my offered conclusions and opinions and I stand by that evidence and those opinions again here.

Detailed comments on Brent Finley, Ph.D.'s May 15, 2026, report (Exhibit 182) follow in Table 2-2:

Table 2-2: Specific Comments on Brent Finley, Ph.D.'s May 15, 2026, Report:

Locations of Text	Text or Summary of Statements	Comments on Text or Statements
Pg. 101 – 3rd ¶	*3. Rebuttal to Mr. Petty* Mr. Petty's nearly 500-page report relies heavily on low-quality images, uncited figures, and unformatted tables that lack sufficient context or sourcing for independent verification of his data and conclusions. Much of the information is presented without identifying its origin, governing work plan, methodology, or relevance, and requires the reader to cross-reference the exhibit list to determine its source. Furthermore, Mr. Petty repeatedly relies on data drawn from East Palestine broadly, while rarely evaluating the CeramFab delineation report that is directly relevant to this case. As a result, data from multiple, distinct investigations are conflated without clarification, and information drawn from different work plans is presented interchangeably without reason. Additionally, he presents data that he personally collected at the site; however, he omits critical information by failing to include methodological details and misrepresents his results.	The statement that I "rarely" evaluated the Arcadis Delineation Report (Exhibit 60) is simply false and again calls into question whether NS' experts actually reviewed the entirety of Plaintiffs' reports before offering their opinions in support of their client. Chapter 7 is dedicated entirely to criticisms of the Delineation Report (58 pages in length). Moreover, Chapter 9 (90 pages in length), a summary of Plaintiffs testing results, directly challenges data shown in the Delineation report. At a minimum, 148 pages of the 276-page report (excluding Ref. and Appendixes), or 54% of my report are criticisms of the delineation report – not "rarely" as Finley curiously and incorrectly claims. Information regarding sample locations, samples times, etc. was extensively presented either in the original report or can be found in the Chain of Custodies (CoCs) identified in the exhibit/reliance materials. This is the same sources for which I personally analyzed information from Arcadis samples. Samples were collected, stored/preserved in containers, shipped/taken to and analyzed by methods specified by Eurofins. In fact, Eurofins provided Petty with all containers and coolers, as well as instructions on the type and number of containers to be collected by type of sample. Distilled water was used to clean all tools, and nitrile gloves were changed between taking all samples. The samples collected were outlined in my report and the sampling was based on manifests of derailed tank car contents and knowledge as a chemical engineer of the literature of the products of combustion of chlorinated hydrocarbons. This same process was used for Data Sets #1, #3, and #4 except that the samples for Data Set #3 were sent to/analyzed by another laboratory.
Pg. 101 – Issue #1 and Response.	**Issue 1:** Regarding Mr. Petty's claim that the testing of the air by his team was unwarranted two weeks after the derailment, Mr. Petty stated that: "Since my team did not arrive on-site until February 20, 2023, our focus was on surface (soils and waters) measurements, and not air measurements since nearly two weeks had passed since air emissions had occurred" (S. Petty: p. 26). **Response to Issue 1:** Mr. Petty's reasoning for only collecting soil and water samples is consistent with the fact that derailment-related air contamination, if any, was temporary. Extensive air sampling began immediately following the derailment and to date has shown that there is no health risk associated with inhalation exposures. However, I will note that Mr. Pettty's views are inconsistent with those of the Plaintiffs, who assert that air contamination was an ongoing issue that required facility closure and continues to be an issue today, requiring demolition and reconstruction of the building.	This argumentative statement by Finley is both false and scientifically illogical. It also misrepresents the claims being made by Plaintiffs regarding the cumulative property contamination, both in time and location, that supports their claims. Contaminants from the incident would most logically be deposited to the surface soils and surface/near surface groundwaters. It is highly unlikely contaminants would have remained airborne for very long (i.e., weeks, months, years) after the incident given

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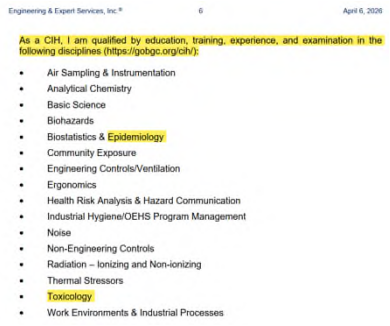
		dilution and rain events. VOCs such as benzene and vinyl chloride, if present, would be found sorbed on surface soils or absorbed in surface waters/near surface groundwaters and not predominantly in the outdoor air. SVOCs and Dioxins/Furans produced would fall to the ground and sorb on surface soils and waters as they are not volatile like VOCs. Contaminants found in the waters will move in the direction of the groundwater flow as cited by Defendants (Petty report – Exhibit 180, pgs. 48-49, Figure 7-6) and were trapped/stopped by the shallow clay layer below (see Petty report pgs. 59-60, 77-88 and Figures 7-13, 7-15, and 7-17 to 7-24) and toward/under Plaintiffs' properties. Thus, it is my opinion, for benzene for example, that an examination of all the available information would conclude that the benzene sampled was more likely than not from the derailed cars that found its way into the local soils and surface/groundwaters. [See also summaries of VOC sampling of soils and waters by Petty and plots of these data below – note that the elevated results tend to all center at the derailment site, thus supporting my opinion and undermining NS' experts'.]
Pgs. 101-102. Issue #2 and Response.	**Issue 2:** Regarding Mr. Petty's claim that evaluations of potential long-term health impacts following the derailment are "premature," Mr. Petty includes several images of an FAQ document provided to East Palestine residents following the derailment, which addresses several community concerns regarding chemical exposures and potential health effects. In the FAQ, there is a section that states that there is no risk for long-term health effects. In response, Mr. Petty stated in his report that it was "premature" to conclude that there will be no long-term health impacts following the derailment. He further asserted that researchers "simply do not know" the long-term health impacts of "all these chemicals in soils and waters" (S. Petty: p. 25). **Response to Issue 2:** This assertion is inconsistent with the wealth of environmental data that has been gathered over the three years since the derailment event. Norfolk Southern and state and federal agencies have conducted comprehensive environmental monitoring and analysis of air, soil, surface water, groundwater, and indoor environments. The results of these efforts have consistently demonstrated that exposure conditions necessary to produce long-term health effects were not present and have never been present in East Palestine. Finally, I will note that Mr. Petty is not qualified to discuss disease causation from chemical exposures as he is not a toxicologist, epidemiologist, nor a medical doctor.	In response to Finley's statement that "Mr. Petty is not qualified to discuss disease causation from chemical exposures as he is not a toxicologist, epidemiologist, nor a medical doctor" I will comment as follows: While my bio clearly shows I am not a medical doctor, Dr. Finley either did not read, or ignored Chapter 1 of my report as well as my case list history.  Engineering & Expert Services, Inc.® 6 April 6, 2026 As a CIH, I am qualified by education, training, experience, and examination in the following disciplines (https://gobgc.org/cih/): • Air Sampling & Instrumentation • Analytical Chemistry • Basic Science • Biohazards • Biostatistics & Epidemiology • Community Exposure • Engineering Controls/Ventilation • Ergonomics • Health Risk Analysis & Hazard Communication • Industrial Hygiene/OEHS Program Management • Noise • Non-Engineering Controls • Radiation – Ionizing and Non-ionizing • Thermal Stressors • Toxicology • Work Environments & Industrial Processes As a registered CIH by examination, according to the American Board of Industrial Hygiene (ABIH) I am a trained and certified expert in both toxicology and epidemiology. In fact, ~40% of the CIH exam was in the field of toxicology. This also ignores my coursework at the Ohio State University as well as training in these areas.

Locations of Text	Text or Summary of Statements	Comments on Text or Statements
		He also conflates serving as a "general" causation expert and a "specific" causation expert. While I may be precluded from being a specific causation expert on any individual's specific disease (an opinion I am not making and a claim which is not being made in this case) since I am not a medical doctor, I have routinely been qualified as a general causation or epidemiologic expert as a CIH. Moreover, I have previously, and repeatedly, been qualified by federal courts as a general causation expert as a result of *Daubert* opinions and/or hearing decisions. Based on these qualifications, I stand by my opinions in my report and this statement again calls into question whether NS' experts actually reviewed the entirety of Plaintiffs' reports (and particularly my own) before offering their often objectively false criticism opinions in support of their client.
Pgs. 101-102. Issue # 3 and Response.	**Issue 3:** Mr. Petty claimed that wind direction was not considered before the vent and burn, resulting in inaccurate background sampling locations. Mr. Petty stated: "I conclude that the NS/Arcadis sampling plan for surface/subsurface soil and water samples was fundamentally flawed by improperly accounting for actual wind directions and by effectively reversing downwind and upwind sampling locations, resulting in misassigned background sample locations" (S. Petty: p. 36). He further asserts that wind direction was not adequately considered before the vent and burn event and that the evacuation zone and background sampling locations were flipped. According to Mr. Petty, the background soil samples exhibit elevated contamination because wind shifts on the day of the vent and burn purportedly transported soot and ash away from the primary sampling area. In support of this position, he cites wind directions that he independently calculated, along with wind directions calculated by Dr. Richard Schuhmann; however, Mr. Petty does not explain if these calculations account for temporal variability or site-specific meteorological conditions. **Response to Issue 3:** As discussed in my report, these assertions are not supported by the comprehensive atmospheric dispersion and deposition modeling conducted by IMAAC. IMAAC modeling incorporated actual, time-resolved meteorological data from February 6, 2023, to identify areas of potential impact and to inform emergency response decisions, including the evacuation zone. IMAAC is led by the Federal Emergency Management Agency (FEMA) and includes subject-matter experts from multiple federal agencies. According to the IMAAC analysis, winds initially transported emissions towards the southeast and subsequently shifted towards the north and northwest over the course of the event. These shifts were explicitly incorporated into the dispersion and deposition modeling, rather than assumed to be static. As a result of the IMAAC deposition modeling outputs, the USEPA revised its work plan to prioritize sampling at	Interestingly, no mention is made by Finley of the date of the IMAAC model relative to when the March Arcadis sampling plan was initiated. However, the dates of the reports for this modeling from pg. 30 of my report (Exhibit 180) are May 31, 2023 (Exhibit 93) and July 3, 2025 (Exhibit 91) – both well ***after*** the Arcadis sampling was completed. A review of the actual timing of events is important to show that this modeling occurred after the sampling occurred and, therefore could not have been a source material to support the reliability of NS/Arcadis' plan in advance (Section 6-1 of my report – Exhibit 180): 3-6-2023: Arcadis Sampling Plan (Figure 6-1 of my report). 4-18-2023: Arcadis Revised Sampling Plan (Figure 6-5 of my report) *5-19-2023: Arcadis Sampling Results Report (Figure 6-7 of my report).* 5-31-2023: IMAAC Wind Modeling Report 1st Issued. More importantly, Arcadis/NS continued to perform background sampling in an arc from the west to the northeast (see Petty Report Exhibit 180, Figures 7-5 and 7-6 – background samples are colored green) suggesting (falsely) that the plume was to the southeast. Since the plume went in these other directions, NS/Arcadis' calculations would overestimate background levels simply because they were not actually accurate background levels. Oddly, the author says that the "USEPA" revised its work plan. The responsible party, however, was NS and their

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		contractor, Arcadis, not the USEPA. (see Love responses on this issue as well based on Gullet e-mails and the Lester letter report). This sort of "empty chair" figure pointing should not be countenanced and does not relieve NS of its responsibilities as the entity that was responsible for the derailment and related contamination event.
Pgs. 101-102. Issue # 4 and Response.	**Issue 4:** Mr. Petty stated that "the NS/Arcadis sampling plans were inherently flawed and not designed to determine actual contaminants at the time of their release and at locations where they likely deposited" (S. Petty: p. 7). In support of this assertion, Mr. Petty misinterpreted the EPA Work Plan: "if ash were not observed at a given soil location," then subsurface soil samples were collected "1 to 6 inches below ground surface" (S. Petty: p. 37). **Response to Issue 4:** This is incorrect. Both surface (0-1") and subsurface (1-6") samples were collected at every single location, regardless if ash or soot were identified. Mr. Petty seemingly misunderstood the sampling plan and assumed that the EPA regarded "subsurface samples" as being derailment related. The EPA understood that they were not, and that's why it compared the surface to subsurface concentrations and found no difference, which supported the EPA's conclusion that the derailment did not result in widespread impacts to surface soils near to or distant from the derailment.	This response is a classic misdirection play by Finley and appears to try and center on a single point of multiple points identified and discussed in my original report regarding the flawed NS/Arcadis sampling program. In fact, an entire Chapter (Chapter 6), of my report (Exhibit 160) outlined five (5) specific criticisms of the NS/Arcadis sampling plan, not one (1) as suggested by Finley: Section 6-1 – pgs. 27-36 – see Figures 6-1 and 6-7 (flawed sampling locations based on wind directions). Section 6-2 – pgs. 36-38 – (overemphasis on deeper soil sampling). Section 6-3 – pgs. 38-39 – (use of tap water rather than distilled water to clean tools). Section 6-4 – pgs. 39-42 – (initial placement of soil samples in plastic bags rather than glass jars – not noted in the chain of custody - COC). Section 6-5 – pgs. 42-45 – (samplers often not identified – incomplete COC). Some additional details supporting these criticisms and this opinion included in my original report were: i) Purported background samples were likely not accurate background samples but included samples taken on soils below which the plume passed – this author (Finley) concedes this point – see responses to Issue #3 above (i.e., Petty Report Exhibit 180, Figures 7-5 and 7-6 – background samples are colored green and reference to IMAAC plume plot. In addition, much more commentary can be found on background sampling flaws in my responses to the Love report, above). ii) The vast majority of the samples were taken in the evacuation zone, not in other directions where the plume went. iii) Soil samples were collected both at the surface and at depths to 6". The deeper composite samples would logically dilute surface deposits. My report agrees that some deep sampling was warranted to determine the depth to which surface contamination had moved; but that with limited resources, not every location should have been sampled to 6" below ground surface (bgs). Note that this was the only one of my critiques Finley referenced, however, which is an

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		incomplete and misrepresentative analysis of my criticisms of the NS/Arcadis sampling plan. iv.) Arcadis/NS plans improperly allowed for the use of tap water, rather than distilled water, to clean tools. v) Arcadis/NS soil samples were placed in plastic bags and then glass containers – but this process was not included in the chain of custody or apparently told to Eurofins, breaking the chain of custody and potentially impacting the ultimate results. vi) NS/Arcadis samplers were often not identified, breaking the COC and calling into question what happened to the samples from the time of collection until they were reported by the initial person signing off on the COC for the lab. In my opinion, samples with incomplete COCs should be invalidated - due to either a break in the COC and not knowing who collected the samples in many cases or not reporting samples were initially placed in plastic bags – a fact that would not be known to the lab. These are all breaches of good industry or scientific practices and raise serious questions about the reliability of Arcadis/NS's sampling program, while these corners were cut, and what training or instruction was provided to the samplers in advance.
Pg. 103. Issue # 5 and Response.	**Issue 5:** Mr. Petty claimed that the concentration data were insufficiently reported. Mr. Petty stated that NS/Arcadis did not properly report their data, which affected "one's ability to use sample data falling between the RL and MDL and negatively affects one's ability to report values at these levels that would be above EPA RSLs" (S. Petty: p. 45). He further stated that "values between the RL and MDL are often set by the laboratory reviewer at the RL rather than the actual value" (S. Petty: p. 45). In short, Mr. Petty alleges that the data is misleading due to the use of the RLs. **Response to Issue 5:** The RL represents the lowest concentration that can be reliably quantified with acceptable accuracy and precision, while the MDL represents the lowest concentration at which an analyte can be detected but not reliably quantified. Results reported between the MDL and RL are commonly flagged as estimated values (also referred to as J-flagged values), and the treatment of such data depends on the analytical objectives and decision context. Use of RL-based results has long been a widely accepted and transparent practice in environmental investigations. Ironically, Mr. Petty included report limits through his own curated data tables as comparison values.	Finley's statement that "Mr. Petty alleges that the data is misleading due to the use of RLs" is incorrect and simply does not reflect the differences associated with curing of sampling data using Level 2 reports (Arcadis) vs. Level 4 reports (Petty). He is either knowingly misrepresenting the positions and statements made in my original report or he does not have the requisite experience and understanding to explain and interpret the differences between Level 2 and Level 4 reports. Either of these failures, however, should be fatal to his arguments made here.
Pgs. 103-104. Issue # 6 and Response.	**Issue 6:** Mr. Petty stated that Arcadis's conclusion that "the only PFAS constituent that might be related to firefighting foam used during the derailment is PFOA" reflected "a	Finley's response contains elements that actually confirm and support my offered criticisms, misrepresent what was written in my report, are speculative, and also are somewhat incoherent. They also reflect a fundamental lack of understanding of the PFAS chemistry – unlike me, who has served as one of the lead experts in multiple PFAS litigations. Specifically: I agree with his statement that: "The CeramFab delineation report represents that PFOS was detected during the environmental testing, and the aqueous firefighting foam (AFFF), T-Storm,

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	lack of understanding of PFAS chemistry" (S. Petty: p. 98). He further asserted that Arcadis failed to employ "reliable source identification methods." He argued that evaluation of "relative branching of the chain chemistry" would have demonstrated that the detected PFAS were attributable to the emergency response (S. Petty: p. 99, 105). In support of these assertions, Mr. Petty provided a review of the history and manufacture of PFAS compounds and their use within firefighting foams, while simultaneously characterizing the topic as "confusing to lay people" (S. Petty: p. 98). He then contended that because Arcadis identified PFAS congeners in addition to PFOA (e.g., PFOS), the detected PFAS congeners must be related to the derailment. **Response to Issue 6:** The CeramFab delineation report represents that PFOS was detected during the environmental testing, and the aqueous firefighting foam (AFFF), T-Storm, applied during the emergency response is only associated with PFOA. Mr. Petty treats these statements as contradictory and characterizes the presence of PFOS as proof that PFAS detections are attributable to the derailment. This characterization ignores the report's explicit explanation and analysis that "PFAS constituents found throughout the investigation area are inconsistent with those related solely to the application of T-Storm" (Arcadis CeramFab Memo: p. 3). Extensive PFAS sampling conducted in soil, sediment, and groundwater demonstrated that observed PFOS detections were consistent with historical site operations rather than response-related activities. PFAS levels in soils proximal to firefighting foam application areas did not exceed screening levels, and groundwater PFAS concentrations were likewise below applicable screening levels, further supporting the conclusion that detected PFAS were not attributable to the derailment or emergency response.	applied during the emergency response is only associated with PFOA. *Mr. Petty treats these statements as contradictory*." I do not agree with his statement that: "Mr. Petty characterizes the presence of PFOS as proof that PFAS detections are attributable to the derailment." This is incorrect and simply baseless speculation on what I might think rather than what I actually wrote (see Section 7.4, pgs. 97-102): "[Thus, Arcadis could have characterized the PFOA through testing based on relative branching of the chain chemistry to determine the extent the chemistry was branched which determines the source and dates when the product might have been produced. There is no indication this was done, so it is speculation to suggest it came from historic sources without performing more due diligence.] [Arcadis' statement that the only PFAS was PFOA seems highly unlikely knowing PFAS chemistry and the fact that PFOA either is a trace ingredient in the AFFF-forming ingredients or forms later through the slow degradation process.]"
Pgs. 103-104. Issue # 7 and Response.	**Issue 7:** Mr. Petty stated that "…Arcadis'[s] claim that benzene observed in the subsurface and inside the CeramFab building is not from the derailment is almost pure speculation with little apparent effort to perform basic homework on their alternative claims for the source(s) of the benzene observed" (S. Petty: p. 53). He supports this position by first claiming that CeramFab only produces ceramics and that ceramics are not known to contain benzene. **Response to Issue 7:** As noted previously, there are other sources of benzene at the CeramFab facility, including fuel combustion, burnout of organic additives, and the use of solvents during maintenance activities.	Again, this response by Finley is a classic unsupported misdirection play and does not address any relevant factors in my 24-page analyses (Exhibit 180, Section 7.2, pgs. 52-75). It is true that ceramics do not contain benzene, but this use of a single line, out of context, misrepresents my opinions and knowingly ignored my entire 24-page analyses. NS/Arcadis speculatively claimed, without proof, that the benzene found under/in the CeramFab building was either from i) historic leaks of fuel from underground storage tanks (USTs) or ii) from benzene-containing products found in the CeramFab building. In my report, I showed it was highly unlikely that benzene was from USTs (BUSTR data search for leaking USTs in the area and local clay geology) and that no discovery had shown benzene to be on the labels or MSDSs/SDSs of any of the products speculated to contain benzene. In fact, NS conceded, through its lawyers, that it had no MSDSs/SDSs to produce (see my report, pg. 54, Exhibit 102), indicating that none had ever been collected or placed in the file as they would have been if they had been collected. Moreover, in this report, I show that the gasoline component, methyl-tert-butyl-ether (MTBE) was not ever found. Thus, with known facts showing these sources (UST releases and benzene-containing

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		products) were probably not sources of benzene at the facility, NS/Arcadis's position (and now Finley's) that it came from these sources, remains pure, and both factually and scientifically unsupported, speculation. Finley's report has now also further added a third speculative new set of sources (i.e., benzene from "fuel combustion, burnout of organic additives, and the use of solvents during maintenance activities.") not originally claimed or listed in the NS/Arcadis Delineation Report. These arguments are as spuriously false as those initially addressed in my report. On the other hand, as exhibited in the benzene soil and groundwater tables and plots shown in this report, benzene was found at/near the CeramFab building. Given the locations of these findings, the fact that two derailed cars likely contained residual benzene, that the groundwater flow is toward Plaintiffs' buildings, given the benzene levels below the CeramFab building are greater than the air in the building (see also Love report response), and given that no other non-speculative sources have been identified, it is my opinion, that more likely than not, NS' derailment was the source of the benzene identified in the relevant samples.
Pg. 105. Issue # 8 and Response.	**Issue 8:** Mr. Petty further asserts that Arcadis failed to properly review Safety Data Sheets (SDS) for materials present onsite to support their conclusions that benzene was present due to alternative sources. **Response to Issue 8:** Arcadis identified several products used or stored at the CeramFab facility that contained benzene, including used oil, hydraulic fluid, brake fluid, brake cleaners, and paint. These products represent plausible, facility-related sources of benzene and are consistent with routine industrial operations associated with ceramic manufacturing.	In my report, I stated, as a minimum, NS failed to obtain MSDSs/SDSs (not that they *failed to review them* – they did not obtain or collect such information) or read container labels to determine at a cursory level whether or not any of the products identified contained benzene. These statements were supported by the testimony and exhibits cited and included in my reliance list. Either Finley did not review these same sources or ignored them. Both are fatal faults to his opinion. In his response, however, Finley doubles down on the NS/Arcadis speculative position, without any evidence presented, that these products contain benzene. In fact, curiously, he uses the term "plausible" which means a probably above zero or possible, rather than the term "probable" or "more likely than not" - suggesting that in writing his report, he either does not believe it is more likely than not these products contained benzene or knows he does not have the validated source/reliance evidence to make such a statement. Again, whichever of these is the reason – both are fatal to his offered speculative opinions here. Also, see my previous response and Section 7-2 of my report.

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Pg. 105. Issue # 9 and Response.	**Issue 9:** Mr. Petty asserts that "one would expect to have observed more benzene in the subsurface soil than in the air above the slab of the building" due to "dilution effects" (S. Petty: p. 60). He further concludes that the detected benzene is the "result of changes in local soil below the slab through which benzene was trying to move," asserting that benzene "would simply follow the paths of least resistance" (S. Petty: p. 61). In essence, Mr. Petty argues that benzene is moving upward from the soil and diluting within the CeramFab building, citing the sub-slab and indoor air detections and exceedances as evidence of a subsurface source. He only attributes this interpretation to the derailment event. **Response to Issue 9:** I address benzene extensively elsewhere in my report in Opinions 1, 2, and 3. Benzene concentrations detected in soil samples were below applicable screening values, indicating no unacceptable human health risk. Only a single benzene detection, located within Car Scrapping Area 2, exceeded the screening threshold. As documented in the Arcadis work plan, this exceedance was fully delineated and removed, and follow-up sampling confirmed that removal was successful. With respect to vapor intrusion, benzene exceeded screening levels at only one of 15 indoor air locations and at four of 15 sub-slab locations. Notably, the sub-slab exceedances occurred exclusively during the second sampling event and were not reproduced during the first, third, or fourth sampling rounds. The lack of reproducibility across multiple sampling events is inconsistent with the exceedances being attributable to the derailment. Sporadic detections of benzene in sub-slab and indoor air samples are not indicative of health risks and are not related to the train derailment. Benzene is ubiquitous in the environment and it is not surprising nor concerning it was sporadically detected in the CeramFab facility.	My initial response to this Issue is to point again to my responses to Issues #7 and #8 above. Interestingly, Finley also concedes that the number of exceedances in the subsurface slab locations (4) under the CeramFab building exceed those found in the building (1) - supporting the position that benzene is present in the soils and/or waters below the building and rising up through the slab. This, too, was my observation. As Love also shows in his report, the levels in the subsurface samples are greater than above the slab as one would expect (see Love report responses) in this circumstance. Finally, Finely's statement that: "benzene is ubiquitous in the environment" is simply, in my opinion, a misleading rationalization used to blame away from NS by arguing some other unidentified source is the cause other than NS' derailment. Instead, Finley should have evaluated the totality of the evidence as I have done in my report (Exhibit 180, Section 7.2 and Finley Issues #7 through #9) – which would have then pointed to the same conclusions outlined in my opinions. Finley also states that benzene was located at one location, but that area was remediated. This statement is inconsistent with my benzene sampling results shown elsewhere in this report. These include water sampled at the top of the clay in the excavation under the north tracks and surface waters at/near the tracks. Once again, Finley, by offering this opinion, has failed to demonstrate the necessary scientific rigor or evidence review to make any arguments beyond speculative and self-serving statements that serve to absolve NS of responsibility.
Pgs. 105-106. Issue # 10 and Response.	**Issue 10:** Mr. Petty provided soil and water testing data that he personally collected from the derailment site in his Table 7-3. Mr. Petty presents benzene results from approximately 26 soil sampling locations, two sediment sampling locations, and seven water or surface water sampling locations, with multiple samples collected at each location (S. Petty: p. 63-70). In total, Mr. Petty reports benzene detections at eight soil locations, one sediment location, and five water or surface water locations. He concluded that "benzene was found in numerous soil and water samples at/near the derailment location" (S. Petty: p. 70). **Response to Issue 10:** There are missing critical elements of the dataset provided by Mr. Petty. First, the dates of the sampling events are not provided. The absence of sampling dates precludes the evaluation of any temporal relationship between these data and the derailment event, including whether the results reflect pre-derailment, emergency response, or background conditions. In addition, the table lacks explanatory context for missing samples, such as Sampling ID 2, and provides no rationale for the aggregation of samples, such as Sampling IDs 25A through 25D. As presented, the table is insufficiently documented, limiting meaningful review of the sampling methodology, data integrity, and relevance of the results.	I agree that benzene was found in numerous soil and water samples. The criticism that the sampling date is not provided in a specific summary table is not how one typically obtains first-level information regarding a sample. This is obtained from the CoCs that were made available to Finley and all NS' experts – he apparently just did not bother to look for them before offering this misplaced critique. Secondly, all reports used in my reports were Level 4 reports, rather than Level 2 reports used by NS/Arcadis. This is an important difference in which NS' experts or whoever wrote their reports, appear not to grasp or understand based on the content of their opinions offered. The results from Level 4 reports inherently

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		provide a higher level of Quality Assurance (QA)/Quality Control (QC) than Level 2 reports. Third, all Level 4 reports were sent to Laboratory Data Consultants, Inc. (LDC) for review, QA/QC compliance and data integrity compliance. The output from LDC activities was provided in Exhibits #161 through Exhibit #164. All data tables and plots in Section 9 of my report reflect QA/QC Level 4 Reports by LDC.
Pg. 106. Issue # 11 and Response.	**Issue 11:** Beyond benzene, Mr. Petty also presents soil, sediment, and water data for 2-ethylhexyl acrylate, n-butyl acrylate, isobutylene, and vinyl chloride, which were identified by the USEPA as chemicals of concern associated with the derailment. He additionally includes data for four other compounds: methyl acetate, 3-butoxy ethanol, diethylene glycol, and propylene glycol. **Response to Issue 11:** Mr. Petty asserts that his data demonstrates constituent exceedances. However, air, soil, and water in East Palestine have been sampled on a continuous basis, often weekly, since the derailment. The concentrations provided by Mr. Petty are not supported by the nearly three years of publicly available environmental monitoring data generated by state and federal agencies. When considered in the context of the full record of conducted environmental testing, Mr. Petty's data is a selective and poorly supported presentation that does not withstand technical scrutiny.	Finley's criticisms are both false and self-serving. The sample results, taken from four independent sources (i.e., Data Sets #1, #2, #3, and #4) are not "selective" but instead represented all the samples results available to me at the time of the report (see Exhibit #81 to my report). The statement that my "*presentation* …does not withstand technical scrutiny" is also unsupported and illogical. What is meant by the word "presentation" is not known nor documented, nor is his term "does not withstand technical scrutiny." Instead, whether he reviewed it or not before issuing his report, all the raw sample data files were presented in Exhibit #81 to my report (Exhibit 180), the QA/QC data by LDC in Exhibits #161 through #164 and the methods used for the calculations used were documented in Section 9 (specifically Sub-Sections 9.1, 9.2, and 9.3) of my report. This methodology was used to report results of calculations in Tables and Figures in Sub-Sections 9.4 through 9.8 and this is standard form of reporting for the field. I also disagree with his broad, general and unsupported statement that" The concentrations provided by Mr. Petty are not supported by the nearly three years of publicly available environmental monitoring data generated by state and federal agencies" and outline the reasons for this disagreement in detail in my report. For example, one will find that most data relied on by NS/Arcadis was air VOC data taken weeks, months, and years after the incident (See my report – Exhibit 180, Appendix B and compare the number of air samples vs soil/sediment/water samples reported by the USEPA.) As is illustrated, and was predictable, it would be highly unlikely VOC contaminants from the February 3-6, 2023, derailment would still be found weeks, months or years later in the ambient air. The contaminants more likely to be found would be in surface soils and waters/groundwaters and be associated with relatively non-volatile contaminants such as SVOCs and Dioxins/Furans. Finely should be aware

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		of this.
Pgs. 106-107. Issue # 12 and Response.	**Issue 12:** Mr. Petty makes several inaccurate statements regarding the availability and transparency of dioxin/furan data. For example, Mr. Petty stated that "NS/Arcadis curiously did cho[o]se not to comment directly" on dioxin/furan exceedances identified within the CeramFab delineation report (S. Petty: p. 105). **Response to Issue 12:** This assertion is inconsistent with the information within the delineation report, which presents dioxin/furan exceedances in the underlying raw data, summarizes exceedances in tabulated form, and explicitly acknowledges that the limited detections observed did not exceed background threshold values and are consistent with historical site operations rather than the derailment. Therefore, this data is both disclosed and directly addressed within the report. Mr. Petty also fails to acknowledge that on the CeramFab property, dioxins were not detected above background threshold values. While some detections exceeded the residential screening level for soil, that screening level does not apply to the CeramFab facility, which operates as an industrial warehouse. By conflating residential screening criteria and disregarding the report's explicit discussion of background conditions and historical sources, Mr. Petty mischaracterizes both the data and the conclusions presented within the CeramFab delineation report. Mr. Petty further alleges that only a single soil sample for dioxins/furans was collected on the CeramFab property and therefore a proper delineation could not have been completed (S. Petty: p. 124). However, he previously acknowledged the extensive dioxin/furan sampling efforts of the Phase I and 'Characterization of the Derailment-Area Soil' work plans. Both reports included multiple sampling locations within the derailment area and its vicinity, including immediately north of the CeramFab facility, and demonstrated that the derailment did not result in elevated dioxin/furan concentrations relative to background conditions.	Under, Issue #12, Finley stated that: "Mr. Petty makes several *inaccurate* statements regarding the availability and transparency of dioxin/furan data. For example, Mr. Petty stated that 'NS/Arcadis curiously did cho[o]se not to comment directly' on dioxin/furan exceedances identified within the CeramFab delineation report (S. Petty: p. 105)." Finley's statement that my report is "inaccurate" is wholly false. A simple example is Finley's acknowledgement that only a single dioxin sample was taken on the CeramFab property. One cannot delineate a property unless one takes more than one sample. With a single sample, NS/Arcadis cannot know the contamination levels on the other three sides of the property – even Love in his report agrees with this. Also, this undisputed that no soil remediation ever occurred immediately around or under the facilities. The argument that exceedance outside the property were not elevated compared to background levels is also spurious in that it still does not address actual levels on the property and utilized an elevated commercial background level (51 ng/kg) when compared to historic levels measured in Ohio and by this author (see Section 9.6.1, pgs. 239-242). Petty analyses showed background dioxin levels averaged 2.3 ng/kg and the USEPA background levels in Ohio ranged from 1 to 1.8 with a medium value of 1.2 ng/kg (Exh. 92). Moreover, a Petty statistical analysis clearly showed background levels were statistically lower than East Palestine measured soil vapors. As discussed elsewhere, Love in his report (pg. 72) notes that EPA uses a Regional Commercial Background Screening Level for dioxins of 21.6 ng/kg. Arcadis, in their Soil Characterization Work Plan, used an approved residential screening level of 4.8 ng/kg (Petty report – Exhibit 180, Section 7.5, pg. 105). It is also constructively helpful to consider the work by Ohio/Pennsylvania University Research Consortium cited in my report (Exhibit 180, pgs. 127-132 & Figure 7-37) to evaluate these screening values between 4.8 and 51 ng/kg. They define a *cancer* risk of 1 in a million at exposure levels <4.8 ng/kg and the *non-cancer* risk of 1 in a million at an exposure level of 51 ng/kg. *Thus, the lower level is associated with the risk of getting cancer and the higher risk a disease other than cancer. Thus, there is no "conflating" of screening values, but*

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		a recognition in my report of the difference between cancer and non-cancer screening levels for dioxins. Based on Finley's verbiage, this is a distinction that he either does not understand or is not familiar with. Again, both of these flaws are independently fatal to his incorrect criticisms. Perhaps the most insightful statement made by Finley on this issue, however, is as follows: "Both reports included multiple sampling locations within the derailment area and its vicinity, including immediately north of the CeramFab facility, and demonstrated that the derailment did not result in elevated dioxin/furan concentrations ***relative to background conditions***." As outlined at length in earlier responses, the samples declared as background by NS/Arcadis would likely have been inaccurately elevated because the plume was known to have passed over areas declared as being areas where background samples were taken. In short, NS/Arcadis was using elevated samples from the derailment event to try and then improperly discount other elevated samples from that same event. Moreover, neither USEPA nor Petty analyses show background dioxin levels near 51 ng/kg. Finally, Finley's comment that Mr. Petty stated that "NS/Arcadis curiously did cho[o]se not to comment directly" on dioxin/furan exceedances identified within the CeramFab delineation report (S. Petty: p. 105) is a complete misquotation of Section 7-5 of my report that starts on that page. The actual sentence was: "In their July 17, 2025, Delineation Report (Exhibit 60), NS/Arcadis *curiously did chose not to comment directly on the implications of the analytical results, such as whether or not they exceeded the TEQ [Dioxin TEQ (Toxic Equivalency)] of 4.8 set in Table 3, footnote 7 in their September 7, 2023, Soil Characterization Work Plan* (Exhibit 76), so these calculations were instead completed by this author for the seven samples (Tables 7-14 to 7-20)." As shown, I was commenting that NS/Arcadis did not complete the TEQ calculations for these samples to know what the TEQ values were and consequently if screening levels were exceeded.

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Pgs. 107-108. Issue # 13 and Response.	**Issue 13:** Mr. Petty calculated the toxic equivalency (TEQ) value for seven soil samples from East Palestine (S. Petty: p. 106-119). He does not explain how these seven samples were selected or whether they are representative of the broader dataset. Because all seven samples yielded calculated TEQs above the USEPA's residential cancer soil screening level of 4.8 ng/kg, Mr. Petty concluded that this demonstrated "significant contamination of soils removed, stockpiled, and disposed of near the site of the derailment" (S. Petty: p. 120). He further calculated TEQs for one soil sample taken on the CeramFab property within the Car Scrapping 2 Area (Decision Unit 3) and for one soil sample from the west end of the south trail track (S. Petty: 123, 125-126). Similarly, Mr. Petty calculated TEQs above 4.8 ng/kg for both samples and characterized these as "significant contamination" (S. Petty: p. 125, 127). Additional discussion of these analyses, including evaluation of polycyclic aromatic hydrocarbon (PAH) data, is provided by Mr. Petty on pages 208 through 273; however, he acknowledges that this material relies on the same limited subset of data discussed previously (S. Petty: p. 210). **Response to Issue 13:** In contrast, I independently evaluated the full soil sampling dataset generated under the Phase I sampling plan, including a surface versus subsurface analysis of dioxins and polycyclic aromatic hydrocarbons (PAHs), as well as the site-specific data for the CeramFab facility. These analyses are documented in detail within my report and are based on the complete dataset rather than a selectively chosen subset of samples. The Phase I soil sampling results demonstrated that no residual combustion-related contamination from the derailment or vent and burn remains in East Palestine soil, and that dioxins and PAHs do not pose a risk to human health. Because the Phase I sampling plan included multiple soil samples collected directly adjacent to the CeramFab property, these findings reasonably support the conclusion that the CeramFab property was not impacted by combustion-related releases associated with the derailment. My evaluation of the CeramFab-specific data confirms this conclusion.	Regarding Finley's statement that "He does not explain how these seven samples were selected or whether they are representative of the broader dataset" reflects that he – again – apparently ignored or did not read the opening sentence of Section 7.5: "In their July 17, 2025, Delineation Report (Exhibit 60)…" Given historic USEPA Ohio and Petty Ohio background samples (1.2 and 2.3 ng/kg), compared with the Arcadis Soil Work Plan discussed in the response to the previous Issue (#12), the 7 TEQ values calculated (82.4, 5.0, 5.8, 73.6, 25.0, 21.7, and 10.5) were all much higher than these background levels and all were higher than the cancer screening level of 4.8 ng/kg. Finely, however, doubles down on NS's unsupported arguments regarding the delineated contaminant levels on the CeramFab and WYG properties despite only a single dioxin sample taken by NS/Arcadis on one of the properties (CeramFab). As previously discussed, I disagree that this represents delineation of the contamination on these properties. See also, for completeness, earlier and later responses on this delineation issue.
Pg. 108. Issue # 14 and Response.	**Issue 14:** Mr. Petty provides a review of the screening levels utilized within the Phase I sampling plan (S. Petty: p. 132-137). Reasoning for why he provides an evaluation of this work plan, instead of the CeramFab delineation report, is not provided. He then incorporates a series of tables and figures, including more than 40 pages of a publicly available USEPA generic table of screening levels, followed by an additional summary table he curated of the generic table (S. Petty: p. 138-176). **Response to Issue 14:** The Phase I sampling plan explicitly states that soil analytical results would be "reviewed and compared" to the available USEPA regional screening levels (RSLs) set at a target cancer risk of $1x10^{-6}$ or a hazard quotient of 0.1. Where an RSL was not available for a constituent of interest, the plan specifies that a chronic screening level derived by the Agency of Toxic Substances and Disease Registry (ATSDR) would be applied in place of RSLs. The use of intermediate and chronic screening level values was therefore targeted, transparent, and appropriate within the context of the Phase I investigation.	In general, there does not seem to be any actual criticism of my work here on which to respond. Finley's statement regarding why I included Section 8.0 in my report would be answered by simply reading the Section. This analysis included a review of Arcadis'/NS' basis for screening levels for dioxins and the basis for the screening TEQ level of 4.8 ng/kg as discussed elsewhere.
Pgs. 108-109. Issue # 15 and Response.	**Issue 15:** Mr. Petty states that "the intermediate risk screen levels based on 1 year of a child's exposure do not seem to be conservative nor reflect the potential for more than 1 year of exposure to these chemicals" (S. Petty: p. 136). **Response to Issue 15:** This characterization is incorrect. The intermediate screening levels assume exposure for a child between two and six years old for one year, intentionally conservative for short-term exposure within the most sensitive population. These values incorporate high soil ingestion rates and frequent soil contact. Moreover, even if Mr. Petty's critique of the intermediate screening level was valid, chronic screening thresholds were also applied, which assumed a 26-year residential exposure. Most importantly, and as mentioned previously, Mr. Petty's analysis is limited to the screening values used in the Phase I sampling plan. He does not address the screening criteria applied in the CeramFab delineation report. In that report, residential soil screening levels were used, which are overly conservative when applied to an industrial warehouse setting. Residential soil screening levels assume daily exposure of children for 6 years, an exposure scenario that is not applicable to an industrial site but was nonetheless applied to ensure a health-protection evaluation.	Again, in general, there does not seem to be any actual criticism of my work. Most interesting, Finley does state, however, that in the NS/Arcadis Report that: "residential soil screening levels were used…. Note that the residential screening levels, as discussed in the Issue #12 response are cancer screening criteria for dioxins. But more importantly, they are also used in NS/Arcadis' own Delineation Report. Using these same residential (or cancer) screening levels as did I in those reports makes any criticisms by NS' experts that Plaintiffs also used them patently disingenuous.

Locations of Text	Text or Summary of Statements	Comments on Text or Statements
Pg. 109. Issue # 16 and Response.	**Issue 16:** Finally, Mr. Petty stated that "no data was provided for water screening level values" (S. Petty: p. 136). **Response to Issue 16:** This assertion again reflects selective reliance on the Phase I sampling plan, which focused on surface soil. He does not acknowledge the Groundwater Characterization work plan, the 'Characterization of Derailment-Area Soil' work plan, or even the CeramFab delineation report, all of which identify applicable groundwater screening levels, sampling, and evaluation.	This is a non-criticism comment and baseless. My statement is clear in terms of the NS/Arcadis report I am referring to in that Section of my report (Exhibit 180).

Detailed comments on Michael Lunsford's recent report follow in Table 2-3:

Table 2-3: Specific Comments on Michael Lunsford's Report (Exhibit 181):

Locations of Text	Text or Summary of Statements	Comments on Text or Statements
Pg. 5, 2nd ¶ #32.	32. Norfolk Southern Train 32N derailed in East Palestine, Ohio, on February 3, 2023, at 8:54 pm. Contrary to the assertions of Ceramfab's experts Georges Melhem, Patrick Reilly, Stephen Petty, Paul Rosenfeld and Michael Larrañaga, it is my opinion that Norfolk Southern's response to the derailment was swift and appropriate.	I agree that the actions taken were swift but, as with the underlying NTSB investigative findings and reliance documents, I do not agree that the actions were appropriate (see Petty Exhibit 16 and other Plaintiff expert responses). Note the following from the NTSB (Exhibit 16):
Pg. 59, ¶ #246	246. Mr. Petty claims that Norfolk Southern and its contractors rejected other tactical options and decided on a vent and burn early in the derailment.[249] This is simply not the case. As described above, Norfolk Southern and its contractors understood vent and burn to be a last option and analyzed several different tactics, all of which were either not possible or created unreasonable safety risks to personnel. In incidents where I was involved in vent and burn operations, I contacted ESI, the vent and burn contractor, relatively early in the incident to ensure they were available and to prepare for a possible vent and burn, as was done in this case. This is prudent to ensure availability of personnel and that no delays occur if the procedure is needed.	"31. Norfolk Southern Railway and its contractors continued to assert the necessity of a vent and burn after expert opinion and available evidence should have led them to re-evaluate their initial conclusions regarding polymerization. 32. Norfolk Southern Railway and its contractors compromised the integrity of the vent and burn decision by creating unwarranted urgency and not communicating expert opinions and information completely and accurately to the incident commander."
Pg. 6; ¶ #38 & #42	38. In reviewing expert reports from plaintiffs' experts Melhem, Reilly, Rosenfeld, Petty and Larrañaga, each offer several erroneous opinions regarding the emergency response. In their expert reports and CVs, none identify training, education or experience in managing hazardous material emergency incidents involving railroad tank cars. Managing a large-scale hazardous material derailment requires specialized knowledge not typically found in academia, including such topics as the construction of tank cars, tank car damage assessment, field product transfer protocols and the lessons learned from decades of emergency responses, including catastrophic failures. These experts' fundamental lack of emergency response knowledge and experience would appear to be the foundation for many, if not all, of their erroneous opinions discussed in this report, along with an apparent failure to review all pertinent documents related to this event including court testimony, other expert reports and industry reference materials. ○ The opinions of Stephen Petty regarding the reasonableness of the vent and burn (page 18 of his opinion).	Each of these opinions track my own (and other Plaintiffs' experts') and appear to be based upon the same reliance materials and testimony I observed and reviewed. Criticisms on my expertise are also false and conveniently ignore my qualifications and training. For example, note that Petty's bio and CV show that I am a Chemical Engineer graduate and to be 40-hr. Hazwopper trained. I also taught the 40-hr. Hazwopper class to others for their certifications. The commenter also ignores my 1990's railroad experiences.
Pg. 59, ¶ #246.	265. Reilly, Petty and Rosenfeld all contend that the vent and burn was not necessary because polymerization was not occurring, however none of the plaintiffs' experts have training, education or experience in railroad hazardous material incident management or tank car damage assessment.[272] None of them offer acceptable alternative tactics to the vent and burn that do not come with safety or practicality challenges already addressed. In fact, for reasons clearly already explained, the vent and burn was the correct tactical decision to bring these heavily damaged, fire-exposed, high-pressure tank cars to a state where they could not fail catastrophically, *regardless of whether polymerization was occurring*.	I have also trained and implemented OSHA Process Safety Management Plans (PSMs) and US EPA Risk Management Plans IRMPs) for Industry (i.e., Nestle) outside of litigation.

3.0 MEASURED SEMI-VOLATILE ORGANIC CARBONS (SVOCs) AND DIOXINS/FURANS MEASURED IN THE SOILS AT THE PLAINTIFFS SITES:

NS' experts continue to question the reasonableness of Plaintiffs' actions and argue that the properties, even if they were initially contaminated in 2023, are not still contaminated and/or that NS has completely and adequately remediated the contamination. These arguments are wrong and can be rebutted by both existing sampling data contained in the original report as well as with additional sampling data gathered after it was observed NS' March 2026 expert sampling was (again) seeking to avoid the search for derailment related soil contamination.

In March 2026, soils samples were taken on Plaintiff Properties (WYG and CeramFab) and analyzed for PAHs and dioxins/furans. Raw sample reports and EDD files for these samples are in Exhibit 81 and QA/QC files from LDC are in Exhibit 164.

A benzo(a)pyrene equivalent (BaP_E) values were calculated for PAH sample results and TEQ values were calculated for dioxin/furans results (see Petty Report, Exhibit 180 for the methodologies behind these calculations. Calculated results are summarized in Tables 3-1 through 3-2:

Table 3-1: Summary of Soil TPH BaP_E Calculation Results – WYG and CeramFab Samples

PAH Soil BaPE Calculation Results from Data Set #4 - CeramFab & WYG Samples						Calculation Results	
Sample ID	Sample Date	Sample #	Sample Type	Property Address	Sample Latitude-Longitude	BaP_E ND = 0 µg/Kg	BaP_E ND = 1/2 µg/Kg
410-271419-1	03/19/2026 13:29	1	Soil	CeramFab - 900 E. Taggart Street, East Palestine, OH, 44413	40.834898, -80.524664	1,053.2	1,053.2
410-271421-1	03/19/2026 13:59	2	Soil	WYG - 193 N. James Street, E. Palestine, OH 44413	40.834894, -80.537128	1,779.0	1,779.0

Table 3-2: Summary of Soil Dioxin/Furan TEQ Calculation Results – WYG and CeramFab Samples

Dioxin/Furan Soil TEQ Calculation Results from Data Set #4 - CeramFab & WYG Samples						Calculation Results	
Sample ID	Sample Date	Sample #	Sample Type	Property Address	Sample Latitude-Longitude	TEQ ND = 0 µg/Kg	TEQ ND = 1/2 µg/Kg
410-271419-1	03/19/2026 13:29	1	Soil	CeramFab - 900 E. Taggart Street, East Palestine, OH, 44413	40.834898, -80.524664	15.9	15.9
410-271421-1	03/19/2026 13:59	2	Soil	WYG - 193 N. James Street, E. Palestine, OH 44413	40.834894, -80.537128	60.0	60.0

Data from Tables 3-1 and 3-2 are illustrated in plots in Figures 3-1 and 3-2:

Ceramfab/WYG PAH Soil Samples ug-BaPeq/kg (ND=0)*

*ND=½ analysis was not necessary because there were no ND of analytes with a PEF

Figure 3-1: Plot of Soil PAH BAP_E Calculation Results for WYG and CeramFab Samples – Using 0% for DL Constituents– Note 50% Values Not Plotted as No DL's were Present

CeramFab/WYG Dioxin Soil Samples ng-TEQ/kg (ND=0)*

*ND=½ analysis was not necessary because there were no ND

Figure 3-2: Plot of Soil Dioxin/Furan TEQ Calculation Results for WYG and CeramFab Samples – Using 0% for DL Constituents – Note 50% Values Not Plotted as No DL's were Present

These plots show elevated PAH and dioxin/furans remain in the Plaintiffs' soils even in 2026. When examined in conjunction with the other sampling results discussed earlier in this rebuttal and in the original report, it again demonstrates the failures in NS' sampling plans, its continued efforts to avoid determining the true impacts of its derailment related contaminate releases (by sampling air in 2026 – during a rain event, no less – instead of soil), the fallacy of its opinions that all contamination was remediated, and NS' opinions the reasonableness or repair/remediation opinions described in Plaintiffs' other expert reports are unwarranted or unsupported.

4.0 MEASURED VOLATILE ORGANIC CARBONS (VOCs) MEASURED IN THE SOILS AND WATER AT/NEAR THE TRAIN ACCIDENT AND PLAINTIFFS SITES:

In my April 6, 2026, report (Exhibit 180, Section 7, Table 7-3), I briefly summarized VOC measurements taken from Data Set #2. It is constructive to illustrate the locations of Glycols and VOCs found in the soils and waters at/near Plaintiffs' properties vs. those away from the properties to further support my original opinions and to rebut those offered by NS' experts. These data are summarized in detail in Tables 4-1 through 4-4:

Table 4-1: Summary of Measured Diethylene Glycol Levels in Soils from Data Set #2

GPS Coordinates		Lab Sample ID	COC ID	Petty ID	Analyte	Result	Unit	Flag	High Limit	High Limit Type	Low Limit	Low Limit Type	Final Qualifier	Values Used - 0% of U	Values Used - 0% of U
Lat.	Long.														
40.835833	-80.539167	240-180819-1	S-1	S-1-3	Diethylene glycol	4.6	mg/Kg	U	11	RL	4.6	MDL	U	0	2.3
40.833889	-80.528056	240-180819-2	S-2	S-2-3	Diethylene glycol	6.1	mg/Kg	U	14	RL	6.1	MDL	U	0	3.05
40.835833	-80.519167	240-180819-3	S-3	S-3-3	Diethylene glycol	5.2	mg/Kg	U	12	RL	5.2	MDL	U	0	2.6
40.835278	-80.517778	240-180757-1	S-4A	S-4A-3	Diethylene glycol	5.7	mg/Kg	U	13	RL	5.7	MDL	U	0	2.85
40.835278	-80.517778	240-180757-2	S-4B S-5	S-5-3	Diethylene glycol	7.5	mg/Kg	U	17	RL	7.5	MDL	U	0	3.75
40.833889	-80.540556	240-180743-5	S-6A-2-3-4	S-6A-3	Diethylene glycol	6.3	mg/Kg	U	14	RL	6.3	MDL	UJ	0	3.15
40.833611	-80.540556	240-180743-6	S-6B-2-3-4	S-6B-3	Diethylene glycol	7.6	mg/Kg	U	17	RL	7.6	MDL	UJ	0	3.8
40.832778	-80.542500	240-180824-1	S-7-A	S-7A-3	Diethylene glycol	830	mg/Kg		14	RL	6.1	MDL		830	830
40.830278	-80.534444	240-180824-2	S-8	S-8-3	Diethylene glycol	6.8	mg/Kg	U	16	RL	6.8	MDL	U	0	3.4
40.852222	-80.546944	240-180825-1	S-9	S-9-3	Diethylene glycol	6.6	mg/Kg	U	15	RL	6.6	MDL	U	0	3.3
40.830000	-80.525833	240-180861-1	S-10	S-10A-3	Diethylene glycol	5.8	mg/Kg	U	13	RL	5.8	MDL	U	0	2.9
40.836111	-80.534444	240-180825-2	S-11	S-11A-3	Diethylene glycol	6.6	mg/Kg	U	15	RL	6.6	MDL	U	0	3.3
40.847500	-80.582778	240-180861-2	S-15A	S-15A-3	Diethylene glycol	5.3	mg/Kg	U	12	RL	5.3	MDL	U	0	2.65
40.836222	-80.521222	240-184170-1	S-72-1-4	S-72-3	Diethylene glycol	5.5	mg/Kg	U	13	RL	5.5	MDL	U	0	2.75
40.836194	-80.521417	240-184170-2	S-73-1-4	S-73-3	Diethylene glycol	5.7	mg/Kg	U	13	RL	5.7	MDL	U	0	2.85
40.836139	-80.521833	240-184170-3	S-74-1-4	S-74-3	Diethylene glycol	5.7	mg/Kg	U	13	RL	5.7	MDL	U	0	2.85
40.836083	-80.522306	240-184170-4	S-75-1-4	S-75-3	Diethylene glycol	5.7	mg/Kg	U	13	RL	5.7	MDL	U	0	2.85
40.836111	-80.522500	240-184170-5	S-76-1-4	S-75-3	Diethylene glycol	34	mg/Kg		13	RL	5.5	MDL		34	34
40.836083	-80.522722	240-184170-6	S-77-1-4	S-76-3	Diethylene glycol	8.4	mg/Kg	J	13	RL	5.7	MDL	J	8.4	8.4
40.836111	-80.522889	240-184170-7	S-78-1-4	S-78-3	Diethylene glycol	5.7	mg/Kg	U	13	RL	5.7	MDL	U	0	2.85
40.836139	-80.523056	240-184170-8	S-79-1-4	S-79-3	Diethylene glycol	89	mg/Kg		13	RL	5.5	MDL		89	89
40.836083	-80.523222	240-184170-9	S-80-1-4	S-80-3	Diethylene glycol	7.0	mg/Kg	U	16	RL	7.0	MDL	U	0	3.5
40.836111	-80.523472	240-184170-10	S-81-1-4	S-81-3	Diethylene glycol	21	mg/Kg	J	25	RL	11	MDL	J	21	21
40.836083	-80.523528	240-184170-11	S-82-1-4	S-82-3	Diethylene glycol	9.9	mg/Kg	U	23	RL	9.9	MDL	U	0	4.95

Table 4-2: Summary of Measured Diethylene Glycol Levels in Waters from Data Set #2

GPS Coordinates		Lab Sample ID	COC ID	Petty ID	Analyte	Result	Unit	Flag	High Limit	High Limit Type	Low Limit	Low Limit Type	Final Qualif.	Values Used - 0% of U	Values Used - 0% of U
Lat.	Long.														
40.833889	-80.528056	240-180743-1	W-2-3A-3B-3C	W-2-3a/3b/3c	Diethylene glycol	4.0	mg/L	U	10	RL	4.0	MDL	UJ	0.0	2.0
40.835278	-80.517778	240-180743-2	W-4A-3A-3B-3C	W-4a-3a/3b/3c	Diethylene glycol	4.0	mg/L	U	10	RL	4.0	MDL	UJ	0.0	2.0
40.833889	-80.540556	240-180743-3	W-6A-3A-3B-3C	W-6a-3a/3b/3c	Diethylene glycol	4.0	mg/L	U	10	RL	4.0	MDL	UJ	0.0	2.0
40.833611	-80.540556	240-180743-4	W-6B-3A-3B-3C	W-6b-3a/3b/3c	Diethylene glycol	4.0	mg/L	U	10	RL	4.0	MDL	UJ	0.0	2.0
40.832778	-80.542500	240-180824-3	W-7A-3	W-7A-3a/3b/3c	Diethylene glycol	4.0	mg/L	U	10	RL	4.0	MDL	U	0.0	2.0
40.830278	-80.534444	240-180824-4	W-8-3	W-8-3a/2b/3c	Diethylene glycol	4.0	mg/L	U	10	RL	4.0	MDL	U	0.0	2.0
40.830278	-80.534444	240-180823-3	W-8B-3	W-8B-3a/3b/3c	Diethylene glycol	4.0	mg/L	U	10	RL	4.0	MDL	U	0.0	2.0
40.852222	-80.546944	240-180825-3	W-9-3	W-9-3a/3b/3c	Diethylene glycol	4.0	mg/L	U	10	RL	4.0	MDL	U	0.0	2.0
40.830000	-80.525833	240-180861-5	W-10A-3	W-10A-3a/3b/3c	Diethylene glycol	4.0	mg/L	U	10	RL	4.0	MDL	U	0.0	2.0
40.836111	-80.534444	240-180824-5	W-11-3	W-11-3a/3b/3c	Diethylene glycol	4.0	mg/L	U	10	RL	4.0	MDL	U	0.0	2.0
40.847500	-80.582778	240-180861-6	W-15A-3	W-15A-3a/3b/3c	Diethylene glycol	4.0	mg/L	U	10	RL	4.0	MDL	U	0.0	2.0
40.847500	-80.582778	240-180861-7	W-15B-3	W-15B-3a/3b/3c	Diethylene glycol	4.0	mg/L	U	10	RL	4.0	MDL	U	0.0	2.0
40.826389	-80.517778	240-184053-2	W-29-3A,B,C	W-29-3A,B,C	Diethylene glycol	4.0	mg/L	U	10	RL	4.0	MDL	U	0.0	2.0

GPS Coordinates		Lab Sample ID	COC ID	Petty ID	Analyte	Result	Unit	Flag	High Limit	High Limit Type	Low Limit	Low Limit Type	Final Qualif.	Values Used - 0% of U	Values Used - 0% of U
Lat.	Long.														
40.835867	-80.527150	240-184138-2	W-70-3A-C	W-70-3a/3b/3c	Diethylene glycol	2600	mg/L		100	RL	40	MDL	J	2,600	2,600
40.835883	-80.526267	240-184138-5	W-72-3A-C	W-72-3a/3b/3c	Diethylene glycol	450	mg/L		10	RL	4.0	MDL	J	450	450
40.836139	-80.523278	240-184171-1	W-74-3	W-74-3a/3b/3c	Diethylene glycol	270	mg/L		10	RL	4.0	MDL	J	270	270
40.836111	-80.523472	240-184171-2	W-76-3	W-76-3a/3b/3c	Diethylene glycol	4.0	mg/L	U	10	RL	4.0	MDL	UJ	0.0	2.0
40.836056	-80.524056	240-184171-3	W-78-2-4	W-78-3a/3b/3c	Diethylene glycol	4.0	mg/L	U	10	RL	4.0	MDL	UJ	0.0	2.0

Table 4-3: Summary of Measured VOC Levels in Soils from Data Set #2

GPS Coordinates		Lab Sample ID	COC ID	Petty ID	Analyte	Result	Unit	Flag	High Limit	High Limit Type	Low Limit	Low Limit Type	Final Qualif.	Values Used - 0% of U	Values Used - 50% of U
Lat.	Long.														
40.835833	-80.539167	240-180819-1	S-1	S-1	2-Ethylhexyl acrylate	3200	ug/Kg	U	4200	RL	3200	MDL	UJ	0.0	1,600.0
40.833889	-80.528056	240-180819-2	S-2	S-2	2-Ethylhexyl acrylate	31	ug/Kg	U	65	RL	31	MDL	U	0.0	15.5
40.835833	-80.519167	240-180819-3	S-3	S-3	2-Ethylhexyl acrylate	4200	ug/Kg	U	5600	RL	4200	MDL	UJ	0.0	2,100.0
40.835278	-80.517778	240-180757-1	S-4A	S-4A	2-Ethylhexyl acrylate	37	ug/Kg	U	79	RL	37	MDL	U	0.0	18.5
40.835278	-80.517778	240-180757-2	S-4B S-5	S-4B	2-Ethylhexyl acrylate	5400	ug/Kg	U	7300	RL	5400	MDL	U	0.0	2,700.0
40.833889	-80.540556	240-180743-5	S-6A-2-3-4	S-6A	2-Ethylhexyl acrylate	3900	ug/Kg	U	5200	RL	3900	MDL	U	0.0	1,950.0
40.833611	-80.540556	240-180743-6	S-6B-2-3-4	S-6B	2-Ethylhexyl acrylate	6600	ug/Kg		5600	RL	4100	MDL		6600	6600
40.832778	-80.542500	240-180824-1	S-7-A	S-7A	2-Ethylhexyl acrylate	27	ug/Kg	U	57	RL	27	MDL	U	0.0	13.5
40.830278	-80.534444	240-180824-2	S-8	S-8	2-Ethylhexyl acrylate	37	ug/Kg	U	78	RL	37	MDL	U	0.0	18.5
40.852222	-80.546944	240-180825-1	S-9	S-9	2-Ethylhexyl acrylate	32	ug/Kg	U	67	RL	32	MDL	U	0.0	16.0
40.830000	-80.525833	240-180861-1	S-10	S-10	2-Ethylhexyl acrylate	38	ug/Kg	U	79	RL	38	MDL	U	0.0	19.0
40.836111	-80.534444	240-180825-2	S-11	S-11	2-Ethylhexyl acrylate	4800	ug/Kg	U	6400	RL	4800	MDL	UJ	0.0	2,400.0
40.847500	-80.582778	240-180861-2	S-15A	S-15A	2-Ethylhexyl acrylate	26	ug/Kg	U	56	RL	26	MDL	U	0.0	13.0
40.836222	-80.521222	240-184170-1	S-72-1-4	S-72-1	2-Ethylhexyl acrylate	36000	ug/Kg		9900	RL	7300	MDL	J	36000	36000

GPS Coordinates		Lab Sample ID	COC ID	Petty ID	Analyte	Result	Unit	Flag	High Limit	High Limit Type	Low Limit	Low Limit Type	Final Qualif.	Values Used - 0% of U	Values Used - 50% of U
Lat.	Long.														
40.836194	-80.521417	240-184170-2	S-73-1-4	S-73-1	2-Ethylhexyl acrylate	8400	ug/Kg		5000	RL	3700	MDL	J	8400	8400
40.836139	-80.521833	240-184170-3	S-74-1-4	S-74-1	2-Ethylhexyl acrylate	59000	ug/Kg		17000	RL	13000	MDL	J	59000	59000
40.836083	-80.522306	240-184170-4	S-75-1-4	S-75-1	2-Ethylhexyl acrylate	3600	ug/Kg	U	4800	RL	3600	MDL	UJ	0.0	1,800.0
40.836111	-80.522500	240-184170-5	S-76-1-4	S-76-1	2-Ethylhexyl acrylate	340000	ug/Kg		58000	RL	43000	MDL	J	340000	340000
40.836083	-80.522722	240-184170-6	S-77-1-4	S-77-1	2-Ethylhexyl acrylate	730000	ug/Kg		100000	RL	77000	MDL	J	730000	730000
40.836111	-80.522889	240-184170-7	S-78-1-4	S-78-1	2-Ethylhexyl acrylate	4300	ug/Kg	U	5800	RL	4300	MDL	UJ	0.0	2,150.0
40.836139	-80.523056	240-184170-8	S-79-1-4	S-79-1	2-Ethylhexyl acrylate	160000	ug/Kg		39000	RL	29000	MDL	J	160000	160000
40.836083	-80.523222	240-184170-9	S-80-1-4	S-80-1	2-Ethylhexyl acrylate	7100	ug/Kg	U	9500	RL	7100	MDL	UJ	0.0	3,550.0
40.836111	-80.523472	240-184170-10	S-81-1-4	S-81-1	2-Ethylhexyl acrylate	16000	ug/Kg		12000	RL	8700	MDL	J	16000	16000
40.836083	-80.523528	240-184170-11	S-82-1-4	S-82-1	2-Ethylhexyl acrylate	65	ug/Kg	U	140	RL	65	MDL	UJ	0.0	32.5
GPS Coordinates		Lab Sample ID	COC ID	Petty ID	Analyte	Result	Unit	Flag	High Limit	High Limit Type	Low Limit	Low Limit Type	Final Qualifier	Values Used - 0% of U	Values Used - 50% of U
Lat.	Long.														
40.835833	-80.539167	240-180819-1	S-1	S-1	Benzene	160	ug/Kg	J	420	RL	71	MDL	J	160	160
40.833889	-80.528056	240-180819-2	S-2	S-2	Benzene	0.91	ug/Kg	U	6.5	RL	0.91	MDL	U	0.0	0.5
40.835833	-80.519167	240-180819-3	S-3	S-3	Benzene	99	ug/Kg	J	560	RL	94	MDL	J	99	99
40.835278	-80.517778	240-180757-1	S-4A	S-4A	Benzene	1.1	ug/Kg	U	7.9	RL	1.1	MDL	U	0.0	0.6

GPS Coordinates		Lab Sample ID	COC ID	Petty ID	Analyte	Result	Unit	Flag	High Limit	High Limit Type	Low Limit	Low Limit Type	Final Qualif.	Values Used - 0% of U	Values Used - 50% of U
Lat.	Long.														
40.835278	-80.517778	240-180757-2	S-4B S-5	S-4B	Benzene	120	ug/Kg	U	730	RL	120	MDL	U	0.0	60.0
40.833889	-80.540556	240-180743-5	S-6A-2-3-4	S-6A	Benzene	88	ug/Kg	U	520	RL	88	MDL	U	0.0	44.0
40.833611	-80.540556	240-180743-6	S-6B-2-3-4	S-6B	Benzene	94	ug/Kg	U	560	RL	94	MDL	U	0.0	47.0
40.832778	-80.542500	240-180824-1	S-7-A	S-7A	Benzene	0.79	ug/Kg	U	5.7	RL	0.79	MDL	U	0.0	0.4
40.830278	-80.534444	240-180824-2	S-8	S-8	Benzene	1.1	ug/Kg	U	7.8	RL	1.1	MDL	U	0.0	0.6
40.852222	-80.546944	240-180825-1	S-9	S-9	Benzene	0.94	ug/Kg	U	6.7	RL	0.94	MDL	U	0.0	0.5
40.830000	-80.525833	240-180861-1	S-10	S-10	Benzene	1.1	ug/Kg	U	7.9	RL	1.1	MDL	U	0.0	0.6
40.836111	-80.534444	240-180825-2	S-11	S-11	Benzene	110	ug/Kg	U	640	RL	110	MDL	U	0.0	55.0
40.847500	-80.582778	240-180861-2	S-15A	S-15A	Benzene	0.78	ug/Kg	U	5.6	RL	0.78	MDL	U	0.0	0.4
GPS Coordinates		Lab Sample ID	COC ID	Petty ID	Analyte	Result	Unit	Flag	High Limit	High Limit Type	Low Limit	Low Limit Type	Final Qualif.	Values Used - 0% of U	Values Used - 50% of U
Lat.	Long.														
40.835833	-80.539167	240-180819-1	S-1	S-1	isobutylene	180	ug/Kg	U	850	RL	180	MDL	UJ	0.0	90.0
40.833889	-80.528056	240-180819-2	S-2	S-2	isobutylene	4.8	ug/Kg	U	13	RL	4.8	MDL	U	0.0	2.4
40.835833	-80.519167	240-180819-3	S-3	S-3	isobutylene	240	ug/Kg	U	1100	RL	240	MDL	UJ	0.0	120.0
40.835278	-80.517778	240-180757-1	S-4A	S-4A	isobutylene	5.8	ug/Kg	U	16	RL	5.8	MDL	U	0.0	2.9
40.835278	-80.517778	240-180757-2	S-4B S-5	S-4B	isobutylene	310	ug/Kg	U	1500	RL	310	MDL	U	0.0	155.0
40.833889	-80.540556	240-180743-5	S-6A-2-3-4	S-6A	isobutylene	220	ug/Kg	U	1000	RL	220	MDL	U	0.0	110.0
40.833611	-80.540556	240-180743-6	S-6B-2-3-4	S-6B	isobutylene	240	ug/Kg	U	1100	RL	240	MDL	U	0.0	120.0

GPS Coordinates		Lab Sample ID	COC ID	Petty ID	Analyte	Result	Unit	Flag	High Limit	High Limit Type	Low Limit	Low Limit Type	Final Qualif.	Values Used - 0% of U	Values Used - 50% of U
Lat.	Long.														
40.832778	-80.542500	240-180824-1	S-7-A	S-7A	isobutylene	4.2	ug/Kg	U	11	RL	4.2	MDL	U	0.0	2.1
40.830278	-80.534444	240-180824-2	S-8	S-8	isobutylene	5.7	ug/Kg	U	16	RL	5.7	MDL	U	0.0	2.9
40.852222	-80.546944	240-180825-1	S-9	S-9	isobutylene	4.9	ug/Kg	U	13	RL	4.9	MDL	U	0.0	2.5
40.830000	-80.525833	240-180861-1	S-10	S-10	isobutylene	5.9	ug/Kg	U	16	RL	5.9	MDL	U	0.0	3.0
40.836111	-80.534444	240-180825-2	S-11	S-11	isobutylene	270	ug/Kg	U	1300	RL	270	MDL	UJ	0.0	135.0
40.847500	-80.582778	240-180861-2	S-15A	S-15A	isobutylene	4.1	ug/Kg	U	11	RL	4.1	MDL	U	0.0	2.1
40.836222	-80.521222	240-184170-1	S-72-1-4	S-72-1	isobutylene	420	ug/Kg	U	2000	RL	420	MDL	UJ	0.0	210.0
40.836194	-80.521417	240-184170-2	S-73-1-4	S-73-1	isobutylene	210	ug/Kg	U	1000	RL	210	MDL	UJ	0.0	105.0
40.836139	-80.521833	240-184170-3	S-74-1-4	S-74-1	isobutylene	740	ug/Kg	U	3400	RL	740	MDL	UJ	0.0	370.0
40.836083	-80.522306	240-184170-4	S-75-1-4	S-75-1	isobutylene	210	ug/Kg	U	960	RL	210	MDL	UJ	0.0	105.0
40.836111	-80.522500	240-184170-5	S-76-1-4	S-76-1	isobutylene	1200	ug/Kg	U	5800	RL	1200	MDL	UJ	0.0	600.0
40.836083	-80.522722	240-184170-6	S-77-1-4	S-77-1	isobutylene	4400	ug/Kg	U	21000	RL	4400	MDL	UJ	0.0	2,200.0
40.836111	-80.522889	240-184170-7	S-78-1-4	S-78-1	isobutylene	250	ug/Kg	U	1200	RL	250	MDL	UJ	0.0	125.0
40.836139	-80.523056	240-184170-8	S-79-1-4	S-79-1	isobutylene	1700	ug/Kg	U	7900	RL	1700	MDL	UJ	0.0	850.0
40.836083	-80.523222	240-184170-9	S-80-1-4	S-80-1	isobutylene	410	ug/Kg	U	1900	RL	410	MDL	UJ	0.0	205.0
40.836111	-80.523472	240-184170-10	S-81-1-4	S-81-1	isobutylene	500	ug/Kg	U	2300	RL	500	MDL	UJ	0.0	250.0

GPS Coordinates		Lab Sample ID	COC ID	Petty ID	Analyte	Result	Unit	Flag	High Limit	High Limit Type	Low Limit	Low Limit Type	Final Qualif.	Values Used - 0% of U	Values Used - 50% of U
Lat.	Long.														
40.836083	-80.523528	240-184170-11	S-82-1-4	S-82-1	isobutylene	10	ug/Kg	U	27	RL	10	MDL	UJ	0.0	5.0
GPS Coordinates		Lab Sample ID	COC ID	Petty ID	Analyte	Result	Unit	Flag	High Limit	High Limit Type	Low Limit	Low Limit Type	Final Qualif.	Values Used - 0% of U	Values Used - 50% of U
Lat.	Long.														
40.835833	-80.539167	240-180819-1	S-1	S-1	n-Butyl acrylate	2,300	ug/Kg	U	4,200	RL	2,300	MDL	U	0.0	1,150.0
40.833889	-80.528056	240-180819-2	S-2	S-2	n-Butyl acrylate	25	ug/Kg	U	65	RL	25	MDL	U	0.0	12.5
40.835833	-80.519167	240-180819-3	S-3	S-3	n-Butyl acrylate	3,000	ug/Kg	U	5,600	RL	3,000	MDL	U	0.0	1,500.0
40.835278	-80.517778	240-180757-1	S-4A	S-4A	n-Butyl acrylate	30	ug/Kg	U	79	RL	30	MDL	U	0.0	15.0
40.835278	-80.517778	240-180757-2	S-4B S-5	S-4B	n-Butyl acrylate	3,900	ug/Kg	U	7,300	RL	3,900	MDL	U	0.0	1,950.0
40.833889	-80.540556	240-180743-5	S-6A-2-3-4	S-6A	n-Butyl acrylate	2,800	ug/Kg	U	5,200	RL	2,800	MDL	U	0.0	1,400.0
40.833611	-80.540556	240-180743-6	S-6B-2-3-4	S-6B	n-Butyl acrylate	3,000	ug/Kg	U	5,600	RL	3,000	MDL	U	0.0	1,500.0
40.832778	-80.542500	240-180824-1	S-7-A	S-7A	n-Butyl acrylate	22	ug/Kg	U	57	RL	22	MDL	U	0.0	11.0
40.830278	-80.534444	240-180824-2	S-8	S-8	n-Butyl acrylate	30	ug/Kg	U	78	RL	30	MDL	U	0.0	15.0
40.852222	-80.546944	240-180825-1	S-9	S-9	n-Butyl acrylate	26	ug/Kg	U	67	RL	26	MDL	U	0.0	13.0
40.830000	-80.525833	240-180861-1	S-10	S-10	n-Butyl acrylate	31	ug/Kg	U	79	RL	31	MDL	U	0.0	15.5
40.836111	-80.534444	240-180825-2	S-11	S-11	n-Butyl acrylate	3,500	ug/Kg	U	6,400	RL	3,500	MDL	U	0.0	1,750.0
40.847500	-80.582778	240-180861-2	S-15A	S-15A	n-Butyl acrylate	21	ug/Kg	U	56	RL	21	MDL	U	0.0	10.5
40.836222	-80.521222	240-184170-1	S-72-1-4	S-72-1	n-Butyl acrylate	5,300	ug/Kg	U	9,900	RL	5,300	MDL	U	0.0	2,650.0
40.836194	-80.521417	240-184170-2	S-73-1-4	S-73-1	n-Butyl acrylate	2,700	ug/Kg	U	5,000	RL	2,700	MDL	U	0.0	1,350.0

GPS Coordinates		Lab Sample ID	COC ID	Petty ID	Analyte	Result	Unit	Flag	High Limit	High Limit Type	Low Limit	Low Limit Type	Final Qualif.	Values Used - 0% of U	Values Used - 50% of U
Lat.	Long.														
40.836139	-80.521833	240-184170-3	S-74-1-4	S-74-1	n-Butyl acrylate	9,300	ug/Kg	U	17,000	RL	9,300	MDL	U	0.0	4,650.0
40.836083	-80.522306	240-184170-4	S-75-1-4	S-75-1	n-Butyl acrylate	2,600	ug/Kg	U	4,800	RL	2,600	MDL	U	0.0	1,300.0
40.836111	-80.522500	240-184170-5	S-76-1-4	S-76-1	n-Butyl acrylate	16,000	ug/Kg	U	29,000	RL	16,000	MDL	U	0.0	8,000.0
40.836083	-80.522722	240-184170-6	S-77-1-4	S-77-1	n-Butyl acrylate	56,000	ug/Kg	U	100,000	RL	56,000	MDL	U	0.0	28,000.0
40.836111	-80.522889	240-184170-7	S-78-1-4	S-78-1	n-Butyl acrylate	3,200	ug/Kg	U	5,800	RL	3,200	MDL	U	0.0	1,600.0
40.836139	-80.523056	240-184170-8	S-79-1-4	S-79-1	n-Butyl acrylate	21,000	ug/Kg	U	39,000	RL	21,000	MDL	U	0.0	10,500.0
40.836083	-80.523222	240-184170-9	S-80-1-4	S-80-1	n-Butyl acrylate	5,200	ug/Kg	U	9,500	RL	5,200	MDL	U	0.0	2,600.0
40.836111	-80.523472	240-184170-10	S-81-1-4	S-81-1	n-Butyl acrylate	6,300	ug/Kg	U	12,000	RL	6,300	MDL	U	0.0	3,150.0
40.836083	-80.523528	240-184170-11	S-82-1-4	S-82-1	n-Butyl acrylate	53	ug/Kg	U	140	RL	53	MDL	U	0.0	26.5
GPS Coordinates		**Lab Sample ID**	**COC ID**	**Petty ID**	**Analyte**	**Result**	**Unit**	**Flag**	**High Limit**	**High Limit Type**	**Low Limit**	**Low Limit Type**	**Final Qual.**	**Values Used - 0% of U**	**Values Used - 0% of U**
Lat.	**Long.**														
40.835833	-80.539167	240-180819-1	S-1	S-1	Vinyl chloride	210	ug/Kg	U	420	RL	210	MDL	U	0.0	105.0
40.833889	-80.528056	240-180819-2	S-2	S-2	Vinyl chloride	2.3	ug/Kg	U	6.5	RL	2.3	MDL	U	0.0	1.2
40.835833	-80.519167	240-180819-3	S-3	S-3	Vinyl chloride	280	ug/Kg	U	560	RL	280	MDL	U	0.0	140.0
40.835278	-80.517778	240-180757-1	S-4A	S-4A	Vinyl chloride	2.8	ug/Kg	U	7.9	RL	2.8	MDL	U	0.0	1.4
40.835278	-80.517778	240-180757-2	S-4B S-5	S-4B	Vinyl chloride	5.9	ug/Kg	U	17	RL	5.9	MDL	U	0.0	3.0

GPS Coordinates		Lab Sample ID	COC ID	Petty ID	Analyte	Result	Unit	Flag	High Limit	High Limit Type	Low Limit	Low Limit Type	Final Qualif.	Values Used - 0% of U	Values Used - 50% of U
Lat.	Long.														
40.833889	-80.540556	240-180743-5	S-6A-2-3-4	S-6A	Vinyl chloride	260	ug/Kg	U	520	RL	260	MDL	U	0.0	130.0
40.833611	-80.540556	240-180743-6	S-6B-2-3-4	S-6B	Vinyl chloride	270	ug/Kg	U	560	RL	270	MDL	U	0.0	135.0
40.832778	-80.542500	240-180824-1	S-7-A	S-7A	Vinyl chloride	2.0	ug/Kg	U	5.7	RL	2.0	MDL	U	0.0	1.0
40.830278	-80.534444	240-180824-2	S-8	S-8	Vinyl chloride	2.8	ug/Kg	U	7.8	RL	2.8	MDL	U	0.0	1.4
40.852222	-80.546944	240-180825-1	S-9	S-9	Vinyl chloride	2.4	ug/Kg	U	6.7	RL	2.4	MDL	U	0.0	1.2
40.830000	-80.525833	240-180861-1	S-10	S-10	Vinyl chloride	2.8	ug/Kg	U	7.9	RL	2.8	MDL	U	0.0	1.4
40.836111	-80.534444	240-180825-2	S-11	S-11	Vinyl chloride	3.7	ug/Kg	U	10	RL	3.7	MDL	U	0.0	1.9
40.847500	-80.582778	240-180861-2	S-15A	S-15A	Vinyl chloride	2.0	ug/Kg	U	5.6	RL	2.0	MDL	U	0.0	1.0
40.836222	-80.521222	240-184170-1	S-72-1-4	S-72-1	Vinyl chloride	2600	ug/Kg		990	RL	490	MDL		2,600	2,600
40.836194	-80.521417	240-184170-2	S-73-1-4	S-73-1	Vinyl chloride	240	ug/Kg	U	500	RL	240	MDL	U	0.0	120.0
40.836139	-80.521833	240-184170-3	S-74-1-4	S-74-1	Vinyl chloride	850	ug/Kg	U	1700	RL	850	MDL	U	0.0	425.0
40.836083	-80.522306	240-184170-4	S-75-1-4	S-75-1	Vinyl chloride	240	ug/Kg	U	480	RL	240	MDL	U	0.0	120.0
40.836111	-80.522500	240-184170-5	S-76-1-4	S-76-1	Vinyl chloride	11000	ug/Kg		2900	RL	1400	MDL		11,000	11,000
40.836083	-80.522722	240-184170-6	S-77-1-4	S-77-1	Vinyl chloride	15000	ug/Kg		10000	RL	5100	MDL		15,000	15,000
40.836111	-80.522889	240-184170-7	S-78-1-4	S-78-1	Vinyl chloride	290	ug/Kg	U	580	RL	290	MDL	U	0.0	145.0
40.836139	-80.523056	240-184170-8	S-79-1-4	S-79-1	Vinyl chloride	1900	ug/Kg	U	3900	RL	1900	MDL	U	0.0	950.0

GPS Coordinates		Lab Sample ID	COC ID	Petty ID	Analyte	Result	Unit	Flag	High Limit	High Limit Type	Low Limit	Low Limit Type	Final Qualif.	Values Used - 0% of U	Values Used - 50% of U
Lat.	Long.														
40.836083	-80.523222	240-184170-9	S-80-1-4	S-80-1	Vinyl chloride	470	ug/Kg	U	950	RL	470	MDL	U	0.0	235.0
40.836111	-80.523472	240-184170-10	S-81-1-4	S-81-1	Vinyl chloride	12000	ug/Kg		1200	RL	580	MDL		12,000	12,000
40.836083	-80.523528	240-184170-11	S-82-1-4	S-82-1	Vinyl chloride	4.9	ug/Kg	U	14	RL	4.9	MDL	U	0.0	2.5

Table 4-4: Summary of Measured VOC Levels in Waters from Data Set #2

GPS Coordinates		Lab Sample ID	COC ID	Petty ID	Analyte	Result	Unit	Flag	High Limit	High Limit Type	Low Limit	Low Limit Type	Validator Qual.	Final Qual.	Values Used - 0% of U	Values Used - 50% of U
Lat.	Long.															
40.833889	-80.528056	240-180820-1	W-2-1	W-2-1a/1b/1c	2-Ethylhexyl acrylate	3.3	ug/L	U	10	RL	3.3	MDL		U	0.0	1.7
40.835278	-80.517778	240-180820-2	W-4A-1	W-4A-1a/1b/1c	2-Ethylhexyl acrylate	3.3	ug/L	U	10	RL	3.3	MDL		U	0.0	1.7
40.833889	-80.540556	240-180820-3	W-6A-1	W-6a-1a/1b/1c	2-Ethylhexyl acrylate	220	ug/L		100	RL	33	MDL			220	220
40.833611	-80.540556	240-180820-4	W-6B-1	W-6b-1a/1b/1c	2-Ethylhexyl acrylate	410	ug/L		400	RL	130	MDL	J	J	410	410
40.832778	-80.542500	240-180822-5	W-11-1	W-11-1a/1b/1c	2-Ethylhexyl acrylate	4.0	ug/L	J	10	RL	3.3	MDL		J	4.0	4.0
40.830278	-80.534444	240-180822-1	W-7A-1	W-7A-1a/1b/1c	2-Ethylhexyl acrylate	530	ug/L		200	RL	66	MDL			530	530
40.830278	-80.534444	240-180822-2	W-8-1	W-8-1a/1b/1c	2-Ethylhexyl acrylate	3.3	ug/L	U	10	RL	3.3	MDL		U	0.0	1.7
40.852222	-80.546944	240-180822-4	W-8B-1	W-8B-1a/1b/1c	2-Ethylhexyl acrylate	4.0	ug/L	J	10	RL	3.3	MDL		J	4.0	4.0
40.830000	-80.525833	240-180822-3	W-9-1	W-9-1a/1b/1c	2-Ethylhexyl acrylate	3.3	ug/L	U	10	RL	3.3	MDL	UJ	UJ	0.0	1.7
40.836111	-80.534444	240-180860-1	W-10A	W-10A-1A/1b/1c	2-Ethylhexyl acrylate	3.3	ug/L	U	10	RL	3.3	MDL	UJ	UJ	0.0	1.7
40.838333	-80.530000	240-180860-2	W-12	W-12-1a/1b/1c	2-Ethylhexyl acrylate	3.3	ug/L	U	10	RL	3.3	MDL		U	0.0	1.7
40.851111	-80.565833	240-180860-3	W-13A	W-13A-1a/1b-1c	2-Ethylhexyl acrylate	3.3	ug/L	U	10	RL	3.3	MDL		U	0.0	1.7
40.847500	-80.582778	240-180860-4	W-15A	W-15A-1a/1b/1c	2-Ethylhexyl acrylate	3.3	ug/L	U	10	RL	3.3	MDL		U	0.0	1.7
40.847500	-80.582778	240-180860-5	W-15B	W-15B-1a/1b/1c	2-Ethylhexyl acrylate	3.3	ug/L	U	10	RL	3.3	MDL		U	0.0	1.7
40.826389	-80.517778	240-184056-1	W-29-1A,B,C	W-29-1a/1b/1c	2-Ethylhexyl acrylate	3.3	ug/L	U	10	RL	3.3	MDL		U	0.0	1.7

GPS Coordinates		Lab Sample ID	COC ID	Petty ID	Analyte	Result	Unit	Flag	High Limit	High Limit Type	Low Limit	Low Limit Type	Validator Qual.	Final Qual.	Values Used - 0% of U	Values Used - 50% of U
Lat.	Long.															
40.835867	-80.527150	240-184094-1	W-70-1A-C	W-70-1a/1b/1c	2-Ethylhexyl acrylate	17	ug/L	J	50	RL	17	MDL		J	17	17
40.835883	-80.526267	240-184094-2	W-72-1A-C	W-72-1a/1b/1c	2-Ethylhexyl acrylate	ND	ug/L	U	10	RL	3.3	MDL		U	0.0	1.7
40.836139	-80.523278	240-184173-3	W-78-1	W-78-1a/1b/1c	2-Ethylhexyl acrylate	3.3	ug/L	J	10	RL	3.3	MDL		J	3.3	3.3
40.836111	-80.523472	240-184173-1	W-74-1	W-74-1a/1b/1c	2-Ethylhexyl acrylate	4300	ug/L		4000	RL	1300	MDL			4300	4300
40.836056	-80.524056	240-184173-2	W-76-1	W-76-1a/1b/1c	2-Ethylhexyl acrylate	28	ug/L		20	RL	6.6	MDL			28	28
GPS Coordinates		Lab Sample ID	COC ID	Petty ID	Analyte	Result	Unit	Flag	High Limit	High Limit Type	Low Limit	Low Limit Type	Validator Qualifier	Final Qual.	Values Used - 0% of U	Values Used - 50% of U
Lat.	Long.															
40.833889	-80.528056	240-180820-1	W-2-1	W-2-1a/1b/1c	Benzene	0.42	ug/L	U	1.0	RL	0.42	MDL		U	0.0	0.2
40.835278	-80.517778	240-180820-2	W-4A-1	W-4A-1a/1b/1c	Benzene	0.42	ug/L	U	1.0	RL	0.42	MDL		U	0.0	0.2
40.833889	-80.540556	240-180820-3	W-6A-1	W-6a-1a/1b/1c	Benzene	0.42	ug/L	U	1.0	RL	0.42	MDL		U	0.0	0.2
40.833611	-80.540556	240-180820-4	W-6B-1	W-6b-1a/1b/1c	Benzene	0.42	ug/L	U	1.0	RL	0.42	MDL	UJ	UJ	0.0	0.2
40.832778	-80.542500	240-180822-5	W-11-1	W-11-1a/1b/1c	Benzene	0.42	ug/L	U	1.0	RL	0.42	MDL		U	0.0	0.2
40.830278	-80.534444	240-180822-1	W-7A-1	W-7A-1a/1b/1c	Benzene	0.42	ug/L	U	1.0	RL	0.42	MDL		U	0.0	0.2
40.830278	-80.534444	240-180822-2	W-8-1	W-8-1a/1b/1c	Benzene	0.42	ug/L	U	1.0	RL	0.42	MDL		U	0.0	0.2
40.852222	-80.546944	240-180822-4	W-8B-1	W-8B-1a/1b/1c	Benzene	0.42	ug/L	U	1.0	RL	0.42	MDL		U	0.0	0.2
40.830000	-80.525833	240-180822-3	W-9-1	W-9-1a/1b/1c	Benzene	0.42	ug/L	U	1.0	RL	0.42	MDL	UJ	UJ	0.0	0.2

GPS Coordinates		Lab Sample ID	COC ID	Petty ID	Analyte	Result	Unit	Flag	High Limit	High Limit Type	Low Limit	Low Limit Type	Validator Qual.	Final Qual.	Values Used - 0% of U	Values Used - 50% of U
Lat.	Long.															
40.836111	-80.534444	240-180860-1	W-10A	W-10A-1A/1b/1c	Benzene	0.42	ug/L	U	1.0	RL	0.42	MDL	UJ	UJ	0.0	0.2
40.838333	-80.530000	240-180860-2	W-12	W-12-1a/1b/1c	Benzene	0.42	ug/L	U	1.0	RL	0.42	MDL		U	0.0	0.2
40.851111	-80.565833	240-180860-3	W-13A	W-13A-1a/1b-1c	Benzene	0.42	ug/L	U	1.0	RL	0.42	MDL		U	0.0	0.2
40.847500	-80.582778	240-180860-4	W-15A	W-15A-1a/1b/1c	Benzene	0.42	ug/L	U	1.0	RL	0.42	MDL		U	0.0	0.2
40.847500	-80.582778	240-180860-5	W-15B	W-15B-1a/1b/1c	Benzene	0.42	ug/L	U	1.0	RL	0.42	MDL		U	0.0	0.2
40.826389	-80.517778	240-184056-1	W-29-1A,B,C	W-29-1a/1b/1c	Benzene	0.42	ug/L	U	1.0	RL	0.42	MDL		U	0.0	0.2
40.835867	-80.527150	240-184094-1	W-70-1A-C	W-70-1a/1b/1c	Benzene	ND	ug/L	U	5.0	RL	2.1	MDL		U	0.0	1.1
40.835883	-80.526267	240-184094-2	W-72-1A-C	W-72-1a/1b/1c	Benzene	ND	ug/L	U	1.0	RL	0.42	MDL		U	0.0	0.2
40.836139	-80.523278	240-184173-3	W-78-1	W-78-1a/1b/1c	Benzene	1.3	ug/L		1.0	RL	0.42	MDL	J	J	1.3	1.3
40.836111	-80.523472	240-184173-1	W-74-1	W-74-1a/1b/1c	Benzene	2.6	ug/L		1.0	RL	0.42	MDL			2.6	2.6
40.836056	-80.524056	240-184173-2	W-76-1	W-76-1a/1b/1c	Benzene	10	ug/L		1.0	RL	0.42	MDL			10	10

GPS Coordinates		Lab Sample ID	COC ID	Petty ID	Analyte	Result	Unit	Flag	High Limit	High Limit Type	Low Limit	Low Limit Type	Validator Qualifier	Final Qual.	Values Used - 0% of U	Values Used - 50% of U
Lat.	Long.															
40.833889	-80.528056	240-180820-1	W-2-1	W-2-1a/1b/1c	Ethyl acrylate	0.31	ug/L	U	1.0	RL	0.31	MDL		U	0.0	0.2
40.835278	-80.517778	240-180820-2	W-4A-1	W-4A-1a/1b/1c	Ethyl acrylate	0.31	ug/L	U	1.0	RL	0.31	MDL		U	0.0	0.2
40.833889	-80.540556	240-180820-3	W-6A-1	W-6a-1a/1b/1c	Ethyl acrylate	0.31	ug/L	U	1.0	RL	0.31	MDL		U	0.0	0.2

GPS Coordinates		Lab Sample ID	COC ID	Petty ID	Analyte	Result	Unit	Flag	High Limit	High Limit Type	Low Limit	Low Limit Type	Validator Qual.	Final Qual.	Values Used - 0% of U	Values Used - 50% of U
Lat.	Long.															
40.833611	-80.540556	240-180820-4	W-6B-1	W-6b-1a/1b/1c	Ethyl acrylate	0.31	ug/L	U	1.0	RL	0.31	MDL	UJ	UJ	0.0	0.2
40.832778	-80.542500	240-180822-5	W-11-1	W-11-1a/1b/1c	Ethyl acrylate	0.31	ug/L	U	1.0	RL	0.31	MDL		U	0.0	0.2
40.830278	-80.534444	240-180822-1	W-7A-1	W-7A-1a/1b/1c	Ethyl acrylate	0.31	ug/L	U	1.0	RL	0.31	MDL		U	0.0	0.2
40.830278	-80.534444	240-180822-2	W-8-1	W-8-1a/1b/1c	Ethyl acrylate	0.31	ug/L	U	1.0	RL	0.31	MDL		U	0.0	0.2
40.852222	-80.546944	240-180822-4	W-8B-1	W-8B-1a/1b/1c	Ethyl acrylate	0.31	ug/L	U	1.0	RL	0.31	MDL		U	0.0	0.2
40.830000	-80.525833	240-180822-3	W-9-1	W-9-1a/1b/1c	Ethyl acrylate	0.31	ug/L	U	1.0	RL	0.31	MDL	UJ	UJ	0.0	0.2
40.836111	-80.534444	240-180860-1	W-10A	W-10A-1A/1b/1c	Ethyl acrylate	0.31	ug/L	U	1.0	RL	0.31	MDL	UJ	UJ	0.0	0.2
40.838333	-80.530000	240-180860-2	W-12	W-12-1a/1b/1c	Ethyl acrylate	0.31	ug/L	U	1.0	RL	0.31	MDL		U	0.0	0.2
40.851111	-80.565833	240-180860-3	W-13A	W-13A-1a/1b-1c	Ethyl acrylate	0.31	ug/L	U	1.0	RL	0.31	MDL		U	0.0	0.2
40.847500	-80.582778	240-180860-4	W-15A	W-15A-1a/1b/1c	Ethyl acrylate	0.31	ug/L	U	1.0	RL	0.31	MDL		U	0.0	0.2
40.847500	-80.582778	240-180860-5	W-15B	W-15B-1a/1b/1c	Ethyl acrylate	0.31	ug/L	U	1.0	RL	0.31	MDL		U	0.0	0.2
40.826389	-80.517778	240-184056-1	W-29-1A,B,C	W-29-1a/1b/1c	Ethyl acrylate	0.31	ug/L	U	1.0	RL	0.31	MDL		U	0.0	0.2
40.835867	-80.527150	240-184094-1	W-70-1A-C	W-70-1a/1b/1c	Ethyl acrylate	12	ug/L		5.0	RL	1.6	MDL			12	12
40.835883	-80.526267	240-184094-2	W-72-1A-C	W-72-1a/1b/1c	Ethyl acrylate	4.5	ug/L		1.0	RL	0.31	MDL			4.5	4.5
40.836139	-80.523278	240-184173-3	W-78-1	W-78-1a/1b/1c	Ethyl acrylate	ND	ug/L		1.0	RL	0.31	MDL	UJ	UJ	0.0	0.2
40.836111	-80.523472	240-184173-1	W-74-1	W-74-1a/1b/1c	Ethyl acrylate	4.4	ug/L		1.0	RL	0.31	MDL			4.4	4.4

GPS Coordinates		Lab Sample ID	COC ID	Petty ID	Analyte	Result	Unit	Flag	High Limit	High Limit Type	Low Limit	Low Limit Type	Validator Qual.	Final Qual.	Values Used - 0% of U	Values Used - 50% of U
Lat.	Long.															
40.836056	-80.524056	240-184173-2	W-76-1	W-76-1a/1b/1c	Ethyl acrylate	ND	ug/L	U	1.0	RL	0.31	MDL		U	0.0	0.2
GPS Coordinates		Lab Sample ID	COC ID	Petty ID	Analyte	Result	Unit	Flag	High Limit	High Limit Type	Low Limit	Low Limit Type	Validator Qualifier	Final Qual.	Values Used - 0% of U	Values Used - 50% of U
Lat.	Long.															
40.833889	-80.528056	240-180820-1	W-2-1	W-2-1a/1b/1c	isobutylene	0.60	ug/L	U	2.0	RL	0.60	MDL		U	0.0	0.3
40.835278	-80.517778	240-180820-2	W-4A-1	W-4A-1a/1b/1c	isobutylene	0.60	ug/L	U	2.0	RL	0.60	MDL		U	0.0	0.3
40.833889	-80.540556	240-180820-3	W-6A-1	W-6a-1a/1b/1c	isobutylene	0.60	ug/L	U	2.0	RL	0.60	MDL	UJ	UJ	0.0	0.3
40.833611	-80.540556	240-180820-4	W-6B-1	W-6b-1a/1b/1c	isobutylene	0.60	ug/L	U	2.0	RL	0.60	MDL	UJ	UJ	0.0	0.3
40.832778	-80.542500	240-180822-5	W-11-1	W-11-1a/1b/1c	isobutylene	0.60	ug/L	U	2.0	RL	0.60	MDL		U	0.0	0.3
40.830278	-80.534444	240-180822-1	W-7A-1	W-7A-1a/1b/1c	isobutylene	0.60	ug/L	U	2.0	RL	0.60	MDL		U	0.0	0.3
40.830278	-80.534444	240-180822-2	W-8-1	W-8-1a/1b/1c	isobutylene	0.60	ug/L	U	2.0	RL	0.60	MDL	UJ	UJ	0.0	0.3
40.852222	-80.546944	240-180822-4	W-8B-1	W-8B-1a/1b/1c	isobutylene	0.60	ug/L	U	2.0	RL	0.60	MDL		U	0.0	0.3
40.830000	-80.525833	240-180822-3	W-9-1	W-9-1a/1b/1c	isobutylene	0.60	ug/L	U	2.0	RL	0.60	MDL	UJ	UJ	0.0	0.3
40.836111	-80.534444	240-180860-1	W-10A	W-10A-1A/1b/1c	isobutylene	0.60	ug/L	U	2.0	RL	0.60	MDL	UJ	UJ	0.0	0.3
40.838333	-80.530000	240-180860-2	W-12	W-12-1a/1b/1c	isobutylene	0.60	ug/L	U	2.0	RL	0.60	MDL		U	0.0	0.3
40.851111	-80.565833	240-180860-3	W-13A	W-13A-1a/1b-1c	isobutylene	0.60	ug/L	U	2.0	RL	0.60	MDL		U	0.0	0.3
40.847500	-80.582778	240-180860-4	W-15A	W-15A-1a/1b/1c	isobutylene	0.60	ug/L	U	2.0	RL	0.60	MDL		U	0.0	0.3

GPS Coordinates		Lab Sample ID	COC ID	Petty ID	Analyte	Result	Unit	Flag	High Limit	High Limit Type	Low Limit	Low Limit Type	Validator Qual.	Final Qual.	Values Used - 0% of U	Values Used - 50% of U
Lat.	Long.															
40.847500	-80.582778	240-180860-5	W-15B	W-15B-1a/1b/1c	isobutylene	0.60	ug/L	U	2.0	RL	0.60	MDL		U	0.0	0.3
40.826389	-80.517778	240-184056-1	W-29-1A,B,C	W-29-1a/1b/1c	isobutylene	0.60	ug/L	U	2.0	RL	0.60	MDL	UJ	UJ	0.0	0.3
40.835867	-80.527150	240-184094-1	W-70-1A-C	W-70-1a/1b/1c	isobutylene	ND	ug/L	U	10	RL	3.0	MDL	UJ	UJ	0.0	1.5
40.835883	-80.526267	240-184094-2	W-72-1A-C	W-72-1a/1b/1c	isobutylene	ND	ug/L	U	2.0	RL	0.60	MDL	UJ	UJ	0.0	0.3
40.836139	-80.523278	240-184173-3	W-78-1	W-78-1a/1b/1c	isobutylene	1.0	ug/L	J	2.0	RL	0.60	MDL	J	J	1.0	1.0
40.836111	-80.523472	240-184173-1	W-74-1	W-74-1a/1b/1c	isobutylene	1.5	ug/L	J	2.0	RL	0.60	MDL		J	1.5	1.5
40.836056	-80.524056	240-184173-2	W-76-1	W-76-1a/1b/1c	isobutylene	1.0	ug/L	J	2.0	RL	0.60	MDL		J	1.0	1.0
GPS Coordinates		Lab Sample ID	COC ID	Petty ID	Analyte	Result	Unit	Flag	High Limit	High Limit Type	Low Limit	Low Limit Type	Validator Qualifier	Final Qual.	Values Used - 0% of U	Values Used - 50% of U
Lat.	Long.															
40.833889	-80.528056	240-180820-1	W-2-1	W-2-1a/1b/1c	n-Butyl acrylate	2.3	ug/L	U	10	RL	2.3	MDL		U	0.0	1.2
40.835278	-80.517778	240-180820-2	W-4A-1	W-4A-1a/1b/1c	n-Butyl acrylate	2.3	ug/L	U	10	RL	2.3	MDL		U	0.0	1.2
40.833889	-80.540556	240-180820-3	W-6A-1	W-6a-1a/1b/1c	n-Butyl acrylate	270	ug/L		100	RL	23	MDL			270	270
40.833611	-80.540556	240-180820-4	W-6B-1	W-6b-1a/1b/1c	n-Butyl acrylate	200	ug/L	J	400	RL	92	MDL	J	J	200	200
40.832778	-80.542500	240-180822-5	W-11-1	W-11-1a/1b/1c	n-Butyl acrylate	2.3	ug/L	U	10	RL	2.3	MDL		U	0.0	1.2
40.830278	-80.534444	240-180822-1	W-7A-1	W-7A-1a/1b/1c	n-Butyl acrylate	200	ug/L		200	RL	46	MDL			200	200
40.830278	-80.534444	240-180822-2	W-8-1	W-8-1a/1b/1c	n-Butyl acrylate	2.3	ug/L	U	10	RL	2.3	MDL		U	0.0	1.2

GPS Coordinates		Lab Sample ID	COC ID	Petty ID	Analyte	Result	Unit	Flag	High Limit	High Limit Type	Low Limit	Low Limit Type	Validator Qual.	Final Qual.	Values Used - 0% of U	Values Used - 50% of U
Lat.	Long.															
40.852222	-80.546944	240-180822-4	W-8B-1	W-8B-1a/1b/1c	n-Butyl acrylate	2.3	ug/L	U	10	RL	2.3	MDL		U	0.0	1.2
40.830000	-80.525833	240-180822-3	W-9-1	W-9-1a/1b/1c	n-Butyl acrylate	2.3	ug/L	U	10	RL	2.3	MDL	UJ	UJ	0.0	1.2
40.836111	-80.534444	240-180860-1	W-10A	W-10A-1A/1b/1c	n-Butyl acrylate	2.3	ug/L	U	10	RL	2.3	MDL	UJ	UJ	0.0	1.2
40.838333	-80.530000	240-180860-2	W-12	W-12-1a/1b/1c	n-Butyl acrylate	2.3	ug/L	U	10	RL	2.3	MDL		U	0.0	1.2
40.851111	-80.565833	240-180860-3	W-13A	W-13A-1a/1b-1c	n-Butyl acrylate	2.3	ug/L	U	10	RL	2.3	MDL		U	0.0	1.2
40.847500	-80.582778	240-180860-4	W-15A	W-15A-1a/1b/1c	n-Butyl acrylate	2.3	ug/L	U	10	RL	2.3	MDL		U	0.0	1.2
40.847500	-80.582778	240-180860-5	W-15B	W-15B-1a/1b/1c	n-Butyl acrylate	2.3	ug/L	U	10	RL	2.3	MDL		U	0.0	1.2
40.826389	-80.517778	240-184056-1	W-29-1A,B,C	W-29-1a/1b/1c	n-Butyl acrylate	2.3	ug/L	U	10	RL	2.3	MDL		U	0.0	1.2
40.835867	-80.527150	240-184094-1	W-70-1A-C	W-70-1a/1b/1c	n-Butyl acrylate	97	ug/L		50	RL	11	MDL			97	97
40.835883	-80.526267	240-184094-2	W-72-1A-C	W-72-1a/1b/1c	n-Butyl acrylate	8.8	ug/L	J	10	RL	2.3	MDL		J	8.8	8.8
40.836139	-80.523278	240-184173-3	W-78-1	W-78-1a/1b/1c	n-Butyl acrylate	ND	ug/L	U	10	RL	2.3	MDL	UJ	UJ	0.0	1.2
40.836111	-80.523472	240-184173-1	W-74-1	W-74-1a/1b/1c	n-Butyl acrylate	77	ug/L	J	100	RL	23	MDL		J	77	77
40.836056	-80.524056	240-184173-2	W-76-1	W-76-1a/1b/1c	n-Butyl acrylate	ND	ug/L	U	10	RL	2.3	MDL		U	0.0	1.2
GPS Coordinates		Lab Sample ID	COC ID	Petty ID	Analyte	Result	Unit	Flag	High Limit	High Limit Type	Low Limit	Low Limit Type	Validator Qualifier	Final Qual.	Values Used - 0% of U	Values Used - 50% of U
Lat.	Long.															
40.833889	-80.528056	240-180820-1	W-2-1	W-2-1a/1b/1c	Vinyl chloride	0.45	ug/L	U	1.0	RL	0.45	MDL		U	0.0	0.2

GPS Coordinates		Lab Sample ID	COC ID	Petty ID	Analyte	Result	Unit	Flag	High Limit	High Limit Type	Low Limit	Low Limit Type	Validator Qual.	Final Qual.	Values Used - 0% of U	Values Used - 50% of U
Lat.	Long.															
40.835278	-80.517778	240-180820-2	W-4A-1	W-4A-1a/1b/1c	Vinyl chloride	0.45	ug/L	U	1.0	RL	0.45	MDL		U	0.0	0.2
40.833889	-80.540556	240-180820-3	W-6A-1	W-6a-1a/1b/1c	Vinyl chloride	0.45	ug/L	U	1.0	RL	0.45	MDL		U	0.0	0.2
40.833611	-80.540556	240-180820-4	W-6B-1	W-6b-1a/1b/1c	Vinyl chloride	0.45	ug/L	U	1.0	RL	0.45	MDL	UJ	UJ	0.0	0.2
40.832778	-80.542500	240-180822-5	W-11-1	W-11-1a/1b/1c	Vinyl chloride	0.45	ug/L	U	1.0	RL	0.45	MDL		U	0.0	0.2
40.830278	-80.534444	240-180822-1	W-7A-1	W-7A-1a/1b/1c	Vinyl chloride	0.45	ug/L	U	1.0	RL	0.45	MDL		U	0.0	0.2
40.830278	-80.534444	240-180822-2	W-8-1	W-8-1a/1b/1c	Vinyl chloride	0.45	ug/L	U	1.0	RL	0.45	MDL		U	0.0	0.2
40.852222	-80.546944	240-180822-4	W-8B-1	W-8B-1a/1b/1c	Vinyl chloride	0.45	ug/L	U	1.0	RL	0.45	MDL		U	0.0	0.2
40.830000	-80.525833	240-180822-3	W-9-1	W-9-1a/1b/1c	Vinyl chloride	0.45	ug/L	U	1.0	RL	0.45	MDL	UJ	UJ	0.0	0.2
40.836111	-80.534444	240-180860-1	W-10A	W-10A-1A/1b/1c	Vinyl chloride	0.45	ug/L	U	1.0	RL	0.45	MDL	UJ	UJ	0.0	0.2
40.838333	-80.530000	240-180860-2	W-12	W-12-1a/1b/1c	Vinyl chloride	0.45	ug/L	U	1.0	RL	0.45	MDL		U	0.0	0.2
40.851111	-80.565833	240-180860-3	W-13A	W-13A-1a/1b-1c	Vinyl chloride	0.45	ug/L	U	1.0	RL	0.45	MDL		U	0.0	0.2
40.847500	-80.582778	240-180860-4	W-15A	W-15A-1a/1b/1c	Vinyl chloride	0.45	ug/L	U	1.0	RL	0.45	MDL		U	0.0	0.2
40.847500	-80.582778	240-180860-5	W-15B	W-15B-1a/1b/1c	Vinyl chloride	0.45	ug/L	U	1.0	RL	0.45	MDL		U	0.0	0.2
40.826389	-80.517778	240-184056-1	W-29-1A,B,C	W-29-1a/1b/1c	Vinyl chloride	0.45	ug/L	U	1.0	RL	0.45	MDL		U	0.0	0.2
40.835867	-80.527150	240-184094-1	W-70-1A-C	W-70-1a/1b/1c	Vinyl chloride	ND	ug/L	U	1.0	RL	0.45	MDL		U	0.0	0.2
40.835883	-80.526267	240-184094-2	W-72-1A-C	W-72-1a/1b/1c	Vinyl chloride	1.2	ug/L		1.0	RL	0.45	MDL			1.2	1.2

GPS Coordinates		Lab Sample ID	COC ID	Petty ID	Analyte	Result	Unit	Flag	High Limit	High Limit Type	Low Limit	Low Limit Type	Validator Qual.	Final Qual.	Values Used - 0% of U	Values Used - 50% of U
Lat.	Long.															
40.836139	-80.523278	240-184173-3	W-78-1	W-78-1a/1b/1c	Vinyl chloride	6.4	ug/L		1.0	RL	0.45	MDL	J	J	6.4	6.4
40.836111	-80.523472	240-184173-1	W-74-1	W-74-1a/1b/1c	Vinyl chloride	1200	ug/L		50	RL	23	MDL			1,200	1,200
40.836056	-80.524056	240-184173-2	W-76-1	W-76-1a/1b/1c	Vinyl chloride	140	ug/L		10	RL	4.5	MDL			140	140

Some of the data from Tables 4-1 through 4-4 are illustrated in plots in Figures 4-1 through 4-8:

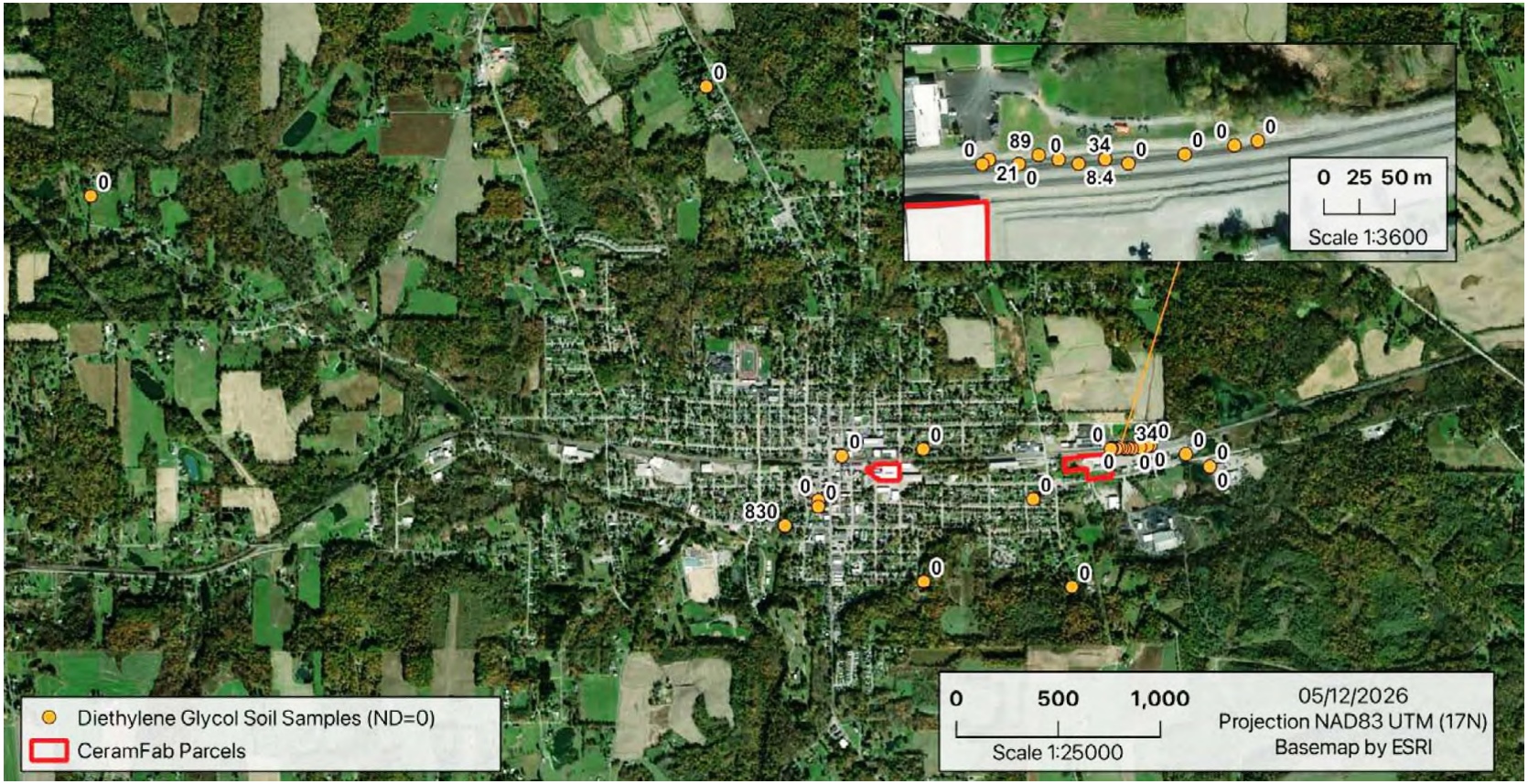


Figure 4-1: Plot of Soil Diethylene Glycol Sampling Results – Using 0 for DL Constituents

Figure 4-2: Plot of Water Diethylene Glycol Sampling Results – Using 0 for DL Constituents

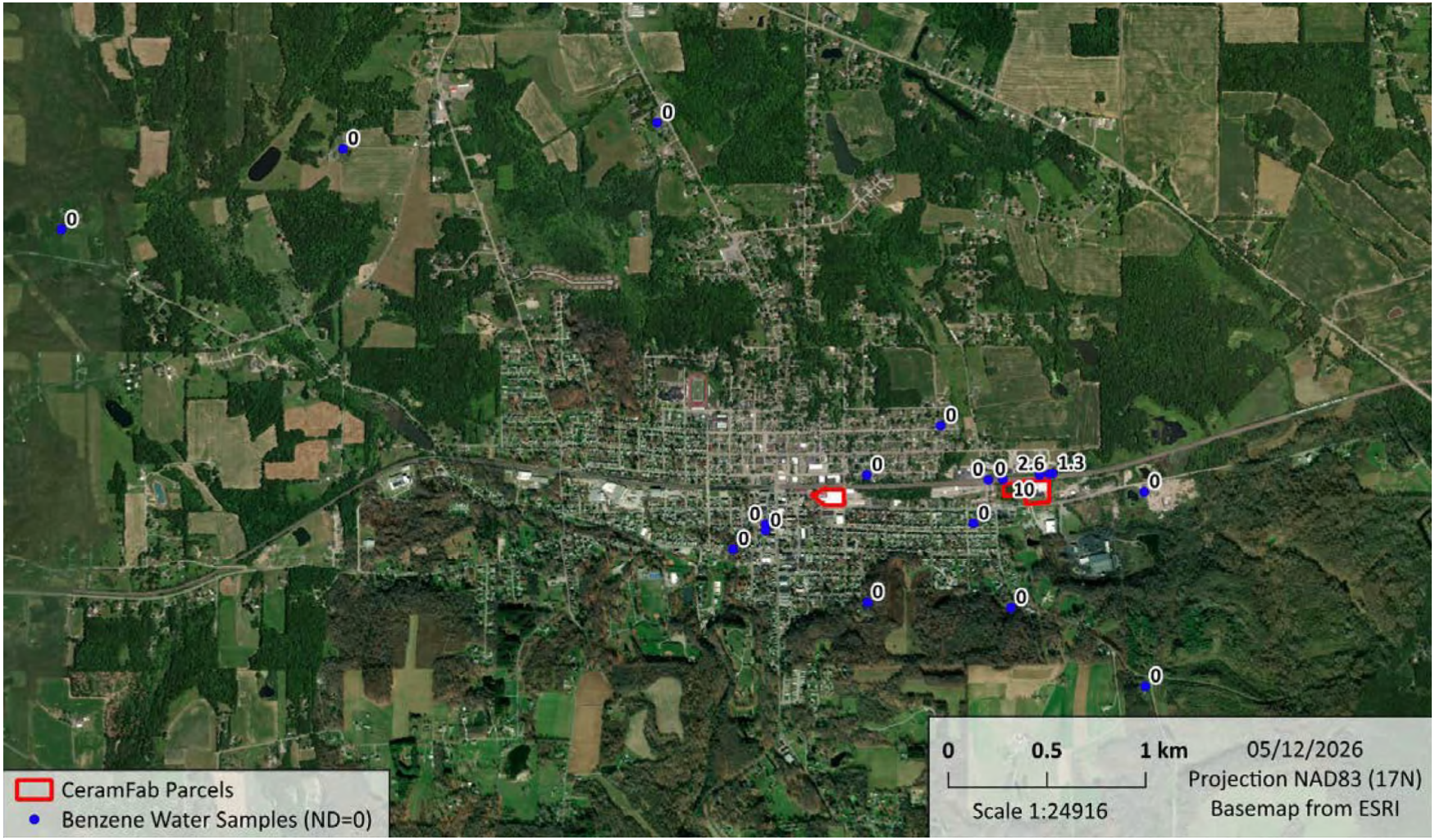


Figure 4-3: Plot of Water Benzene Sampling Results – Using 0 for DL Constituents

Figure 4-4: Plot of Water 2-Ethylhexyl Acrylate Sampling Results – Using 0 for DL Constituents

Figure 4-5: Plot of Water Ethyl Acrylate Sampling Results – Using 0 for DL Constituents

Figure 4-6: Plot of Water n-Butyl Acrylate Sampling Results – Using 0 for DL Constituents

Figure 4-7: Plot of Soil Vinyl Chloride Sampling Results – Using 0 for DL Constituents

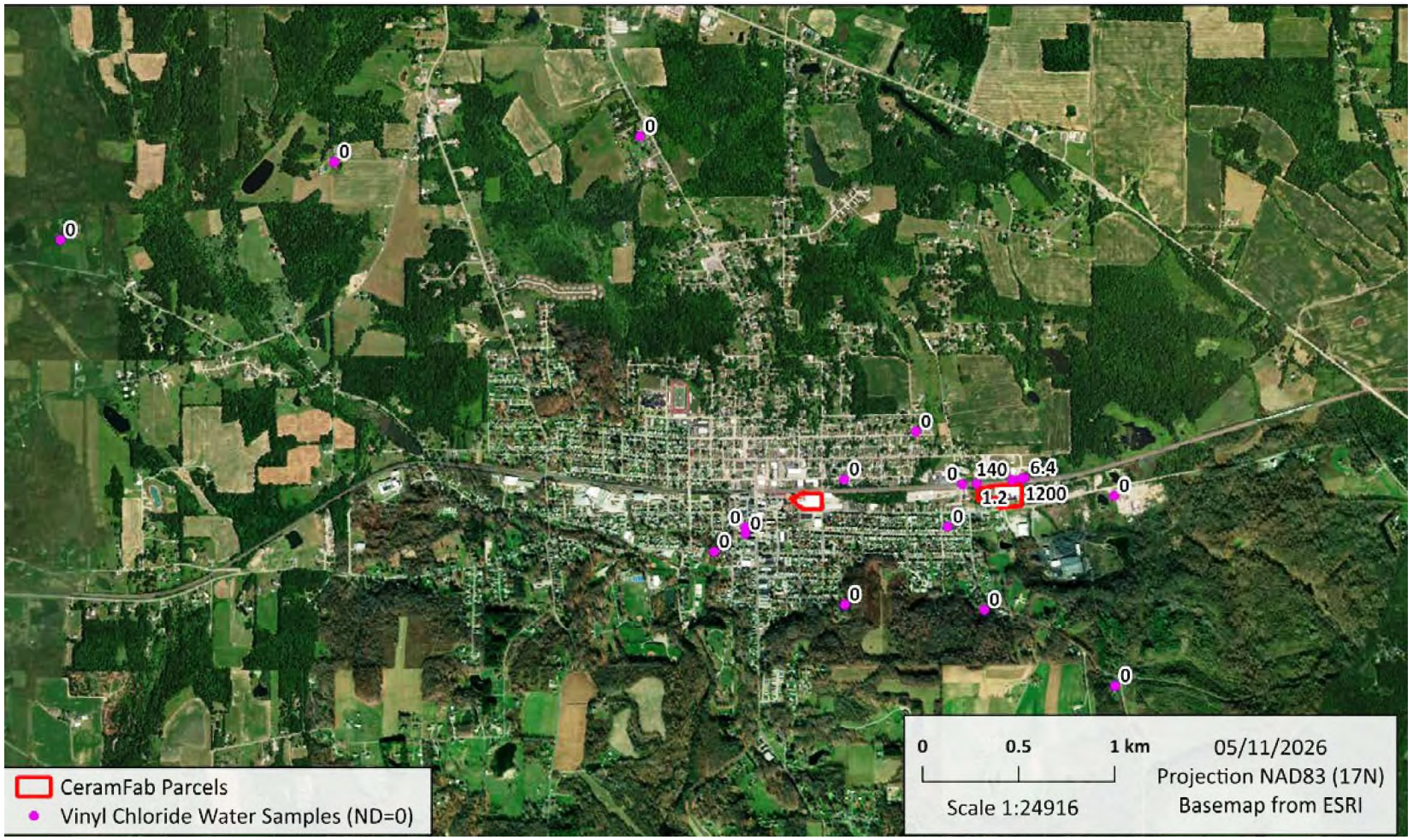


Figure 4-8: Plot of Water Vinyl Chloride Sampling Results – Using 0 for DL Constituents

These plots show that known train car contents are basically found at higher levels at/near the derailment site and dilute, or are not present at all, farther away from this site. This supports the opinions offered here that the source of these contaminates is from the derailment and not from either unidentified background sources or other “empty chair” entities.

5.0 MEASURED METHYL-TERT-BUTYL ETHER (MTBE) MEASURED IN THE SOILS AND WATER AT/NEAR THE TRAIN ACCIDENT AND IN THE COMMUNITY:

MTBE was used as a gasoline additive from the early 1980s until the 2000s and moves rapidly in groundwaters if released from gasoline underground storage tanks (USTs). Defendants stated in the Delineation Report that contaminants such as benzene were either from UST releases or from products found in the Plaintiffs’ premises. This argument was doubled down on by NS’ experts. Both the Delineation report and NS/ experts are incorrect. As illustrated in Tables 5-1 and 5-2 and Figures 5-1 and 5-2, no evidence of MTBE was found in either soils or waters at the site or in the community and this would rule out those speculative arguments asserted by NS:

Table 5-1: Summary of Measured MTBE Levels in Soils from Data Set #2

GPS Coordinates		Lab Sample ID	COC ID	Petty ID	Analyte	Result	Unit	Flag	High Limit	High Limit Type	Low Limit	Low Limit Type	Final Qualif.	Values Used - 0% of U	Values Used - 50% of U
Lat.	Long.														
40.835833	-80.539167	240-180819-1	S-1	S-1	Methyl tert-butyl ether	63	ug/Kg	U	420	RL	63	MDL	U	0.0	31.5
40.833889	-80.528056	240-180819-2	S-2	S-2	Methyl tert-butyl ether	2.6	ug/Kg	U	6.5	RL	2.6	MDL	U	0.0	1.3
40.835833	-80.519167	240-180819-3	S-3	S-3	Methyl tert-butyl ether	83	ug/Kg	U	560	RL	83	MDL	U	0.0	41.5
40.835278	-80.517778	240-180757-1	S-4A	S-4A	Methyl tert-butyl ether	3.1	ug/Kg	U	7.9	RL	3.1	MDL	U	0.0	1.6
40.835278	-80.517778	240-180757-2	S-4B S-5	S-4B	Methyl tert-butyl ether	110	ug/Kg	U	730	RL	110	MDL	U	0.0	55.0
40.833889	-80.540556	240-180743-5	S-6A-2-3-4	S-6A	Methyl tert-butyl ether	78	ug/Kg	U	520	RL	78	MDL	U	0.0	39.0
40.833611	-80.540556	240-180743-6	S-6B-2-3-4	S-6B	Methyl tert-butyl ether	82	ug/Kg	U	560	RL	82	MDL	U	0.0	41.0
40.832778	-80.542500	240-180824-1	S-7-A	S-7A	Methyl tert-butyl ether	2.2	ug/Kg	U	5.7	RL	2.2	MDL	U	0.0	1.1
40.830278	-80.534444	240-180824-2	S-8	S-8	Methyl tert-butyl ether	3.1	ug/Kg	U	7.8	RL	3.1	MDL	U	0.0	1.6
40.852222	-80.546944	240-180825-1	S-9	S-9	Methyl tert-butyl ether	2.7	ug/Kg	U	6.7	RL	2.7	MDL	U	0.0	1.4
40.830000	-80.525833	240-180861-1	S-10	S-10	Methyl tert-butyl ether	3.1	ug/Kg	U	7.9	RL	3.1	MDL	U	0.0	1.6
40.836111	-80.534444	240-180825-2	S-11	S-11	Methyl tert-butyl ether	95	ug/Kg	U	640	RL	95	MDL	U	0.0	47.5
40.847500	-80.582778	240-180861-2	S-15A	S-15A	Methyl tert-butyl ether	2.2	ug/Kg	U	5.6	RL	2.2	MDL	U	0.0	1.1

Table 5-2: Summary of Measured MTBE Levels in Waters from Data Set #2

GPS Coordinates		Lab Sample ID	COC ID	Petty ID	Analyte	Result	Unit	Flag	High Limit	High Limit Type	Low Limit	Low Limit Type	Validator Qual.	Final Qual.	Values Used - 0% of U	Values Used - 50% of U
Lat.	Long.															
40.833889	-80.528056	240-180820-1	W-2-1	W-2-1a/1b/1c	Methyl tert-butyl ether	0.47	ug/L	U	1.0	RL	0.47	MDL		U	0.0	0.2
40.835278	-80.517778	240-180820-2	W-4A-1	W-4A-1a/1b/1c	Methyl tert-butyl ether	0.47	ug/L	U	1.0	RL	0.47	MDL		U	0.0	0.2
40.833889	-80.540556	240-180820-3	W-6A-1	W-6a-1a/1b/1c	Methyl tert-butyl ether	0.47	ug/L	U	1.0	RL	0.47	MDL		U	0.0	0.2
40.833611	-80.540556	240-180820-4	W-6B-1	W-6b-1a/1b/1c	Methyl tert-butyl ether	0.47	ug/L	U	1.0	RL	0.47	MDL	UJ	UJ	0.0	0.2
40.832778	-80.542500	240-180822-5	W-11-1	W-11-1a/1b/1c	Methyl tert-butyl ether	0.47	ug/L	U	1.0	RL	0.47	MDL		U	0.0	0.2
40.830278	-80.534444	240-180822-1	W-7A-1	W-7A-1a/1b/1c	Methyl tert-butyl ether	0.47	ug/L	U	1.0	RL	0.47	MDL		U	0.0	0.2
40.830278	-80.534444	240-180822-2	W-8-1	W-8-1a/1b/1c	Methyl tert-butyl ether	0.47	ug/L	U	1.0	RL	0.47	MDL		U	0.0	0.2
40.852222	-80.546944	240-180822-4	W-8B-1	W-8B-1a/1b/1c	Methyl tert-butyl ether	0.47	ug/L	U	1.0	RL	0.47	MDL		U	0.0	0.2
40.830000	-80.525833	240-180822-3	W-9-1	W-9-1a/1b/1c	Methyl tert-butyl ether	0.47	ug/L	U	1.0	RL	0.47	MDL	UJ	UJ	0.0	0.2
40.836111	-80.534444	240-180860-1	W-10A	W-10A-1A/1b/1c	Methyl tert-butyl ether	0.47	ug/L	U	1.0	RL	0.47	MDL	UJ	UJ	0.0	0.2
40.838333	-80.530000	240-180860-2	W-12	W-12-1a/1b/1c	Methyl tert-butyl ether	0.47	ug/L	U	1.0	RL	0.47	MDL		U	0.0	0.2
40.851111	-80.565833	240-180860-3	W-13A	W-13A-1a/1b-1c	Methyl tert-butyl ether	0.47	ug/L	U	1.0	RL	0.47	MDL		U	0.0	0.2
40.847500	-80.582778	240-180860-4	W-15A	W-15A-1a/1b/1c	Methyl tert-butyl ether	0.47	ug/L	U	1.0	RL	0.47	MDL		U	0.0	0.2
40.847500	-80.582778	240-180860-5	W-15B	W-15B-1a/1b/1c	Methyl tert-butyl ether	0.47	ug/L	U	1.0	RL	0.47	MDL		U	0.0	0.2
40.826389	-80.517778	240-184056-1	W-29-1A,B,C	W-29-1a/1b/1c	Methyl tert-butyl ether	0.47	ug/L	U	1.0	RL	0.47	MDL		U	0.0	0.2

GPS Coordinates		Lab Sample ID	COC ID	Petty ID	Analyte	Result	Unit	Flag	High Limit	High Limit Type	Low Limit	Low Limit Type	Validator Qual.	Final Qual.	Values Used - 0% of U	Values Used - 50% of U
Lat.	Long.															
40.835867	-80.527150	240-184094-1	W-70-1A-C	W-70-1a/1b/1c	Methyl tert-butyl ether	ND	ug/L	U	5.0	RL	2.4	MDL		U	0.0	1.2
40.835883	-80.526267	240-184094-2	W-72-1A-C	W-72-1a/1b/1c	Methyl tert-butyl ether	ND	ug/L	U	1.0	RL	0.47	MDL		U	0.0	0.2
40.836139	-80.523278	240-184173-3	W-78-1	W-78-1a/1b/1c	Methyl tert-butyl ether	ND	ug/L	U	1.0	RL	0.47	MDL	UJ	UJ	0.0	0.2
40.836111	-80.523472	240-184173-1	W-74-1	W-74-1a/1b/1c	Methyl tert-butyl ether	ND	ug/L	U	1.0	RL	0.47	MDL		U	0.0	0.2
40.836056	-80.524056	240-184173-2	W-76-1	W-76-1a/1b/1c	Methyl tert-butyl ether	ND	ug/L	U	1.0	RL	0.47	MDL		U	0.0	0.2

Plots of the MTBE data from Tables 2-5 and 2-6 are illustrated in plots in Figures 5-1 and 5-2:

Figure 5-1: Plot of Soil MTBE Sampling Results – Using 0 for DL Constituents

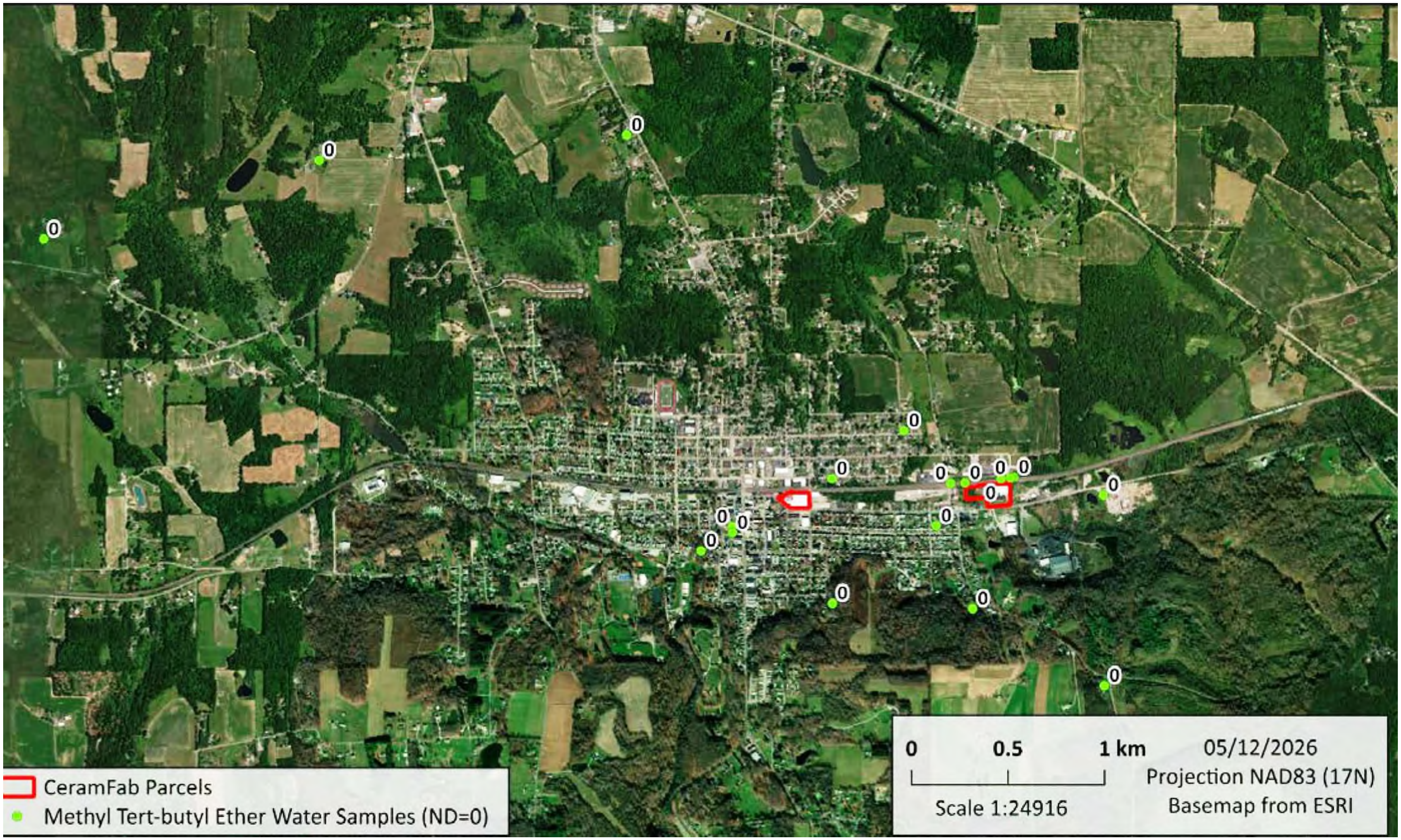


Figure 5-2: Plot of Water MTBE Sampling Results – Using 0 for DL Constituents

These MTBE plots, along with other information cited in my earlier expert report, or described elsewhere in this rebuttal, strongly suggest that it is more likely than not that the benzene found at the derailment site and on Plaintiffs' properties came from the derailed tank cars.

6.0 REVISED DATA SET #4 : BAP_E AND TEQ RESULTS:

Based on additional Level 4 reports (from Level 2) being QA/QC's with time and the continuing need to show widespread contamination near Plaintiffs' properties and into the community, Data Set #4 BAPE and TEQ results for Data Set #4 were revised, additional calculations performed and, new plots created. These results are summarized in the following Sections and further rebut NS' expert arguments that Plaintiffs' properties were/are not contaminated or that Plaintiffs are not acting reasonably, as detailed in Plaintiffs' other expert reports:

6.1 Soil and Sediment BaP_E Calculation Results for Data Set #4:

Soil, Sediment and Water BaP_E calculation results for soil sample PAH sample results from Data Set #4, using the methodology outlines in Section 9.2 of Exhibit 180, are summarized in Tables 6-1, 6-2 and 6-3 and further rebut NS' expert arguments that Plaintiffs' properties were/are not contaminated or that Plaintiffs are not acting reasonably, as detailed in Plaintiffs' other expert reports:

Table 6-1: Summary of Soil TPH BaP_E Calculation Results from Data Set #4

Sample ID	Sampled Date	Sample Type	Property Address	Sample Latitude-Longitude	BaPEqs ND = 0 ug/Kg	BaPEqs ND = 1/2 ug/Kg
410-141089-11	8/29/2023	Soil	Near 418 East Taggart Street	40.835031, -80.532323	949.0	1,081.0
410-141089-9	8/29/2023	Soil	Near 418 East Taggart Street	40.835031, -80.532328	248.5	380.5
410-237289-1	8/3/2025	Soil	Near 418 East Taggart Street	40.835031, -80.532323	734.2	734.2
410-237289-3	8/3/2025	Soil	Near 418 East Taggart Street	40.835031, -80.532332	935.3	935.3
410-237282-1	8/3/2025	Soil	Near 83 East Rebecca Street	40.834128, -80.537799	1,176.7	1,176.7
410-237282-3	8/3/2025	Soil	Near 83 East Rebecca Street	40.834128, -80.537799	1,379.4	1,379.4
410-127590-3	5/16/2023	Soil	83 East Rebecca Street, East Palestine, OH	40.834205, -80.538378	961.8	961.8
410-144711-8	9/25/2023	Soil	83 East Rebecca Street, East Palestine, OH	40.834205, -80.538378	1,874.0	1,874.0
410-126924-3	5/15/2023	Soil	885 Taggart Street, East Palestine OH	40.834554, -80.524993	825.7	1,065.7
					15,698.0	15,698.0
					961.8	961.8
410-137121-3	7/31/2023	Soil	885 Taggart Street, East Palestine OH	40.834554, -80.524993	828.4	828.4
410-175954-1	6/12/2024	Soil	885 Taggart Street, East Palestine OH	40.834554, -80.524993	739.8	739.8
410-237292-1	8/3/2025	Soil	885 Taggart Street, East Palestine OH	40.834554, -80.524993	440.9	440.9
410-119901-6	3/22/2023	Soil	3519 N. Pleasant Drive, East Palestine, OH	40.848138, -80.526954	83.9	97.1
410-119901-8	3/22/2023	Soil	59 Wallace Avenue, East Palestine, OH	40.847014, -80.543711	56.2	67.2
410-119901-10	3/22/2023	Soil	164 East Main Street, East Palestine, OH	40.832937, -80.536923	83.3	98.9
410-119901-13	3/22/2023	Soil	468 Alice Street, East Palestine, OH	40.833634, -80.531475	35.3	45.5
410-119901-1	3/22/2023	Soil	3112 Hillcrest Circle, East Palestine, OH	40.854400, -80.535975	26.9	38.5

Sample ID	Sampled Date	Sample Type	Property Address	Sample Latitude-Longitude	BaPEqs ND = 0 ug/Kg	BaPEqs ND = 1/2 ug/Kg
410-126924-6	5/15/2023	Soil	171 South Pleasant Drive, East Palestine, OH	40.830042, -80.525782	29,170.0	29,170.0
410-128628-10	5/30/2023	Soil	457 East Clark St, East Palestine, OH	40.836137, -80.531693	159.5	261.2
410-137121-6	7/31/2023	Soil	127½ Park Avenue, East Palestine OH	40.834455, -80.542120	210.7	321.1
410-141089-6	8/28/2023	Soil	756 Hollow Road, Enon Valley, PA 16120	40.848589, -80.453834	3,193.0	3,193.0
410-142486-7	9/11/2023	Soil	745 East Martin St, East Palestine, OH	40.836635, -80.525957	176.2	262.6
410-142486-6	9/11/2023	Soil	745 East Martin St, East Palestine, OH	40.836546, -80.526515	20.5	128.8
410-250542-1	10/29/2025	Soil	454 Overlook Drive, Hillsville, PA 16132	41.016241, -80.497051	10,915.0	10,915.0
410-250542-2	10/29/2025	Soil	454 Overlook Drive, Hillsville, PA 16132	41.016395, -80.496879	2,854.0	2,854.0
410-271419-1	3/19/26	Soil	CeramFab - 900 E. Taggart St., E. Palestine, OH.	40.834898, -80.524664	1,053.2	1,053.2
410-271421-1	3/19/2026	Soil	WYG - 193 N. James St., E. Palestine, OH	40.834894, -80.537128	1,779.0	1,779.0
410-271424-1	3/19/2026	Soil	304 Richview Drive, Darlington, PA 16115	40.811056, -80.371000	592.8	592.8
410-271426-1	3/19/2026	Soil	3893 North Pleasant Drive, East Palestine, OH 44413	40.843389, -80.527917	153.7	264.1
410-271427-1	3/19/2026	Soil	795 E Martin St, East Palestine, OH 44413	40.836741, -80.519853	10.0	268.8
410-271429-1	3/19/2026	Soil	234 Connor Drive, East Palestine OH 44413	40.837456, -80.522438	6.3	173.6
410-130775-1	6/13/2023	Soil	800 East Taggart Street, East Palestine, OH 44413	40.834946, -80.525904	200.8	305.2
410-135745-1	7/20/2023	Soil	675 East Taggart Street, East Palstine, OH 44413	40.834444, -80.527528	2,126.0	2,126.0
410-144711-16	9/26/2023	Soil	258 East Martin St, East Palesitne, OH 44413	40.837189, -80.535222	369.2	871.2
410-162165-2	2/27/2024	Soil	800 East Taggart Street, East Palestine, OH 44413	40.834946, -80.525904	298.3	298.3
410-162165-1	2/27/2024	Soil	800 East Taggart Street, East Palestine, OH 44413	40.834686, -80.525866	1,066.0	1,066.0
410-1222030-5	4/6/2023	Soil	7125 Bye Road, East Palestine OH 44413	40.796114, -80.558634	13.0	23.9
410-1222030-11	4/7/2023	Soil	State Route 170, Negley OH 10328	40.750755, -80.564651	32.6	53.9
410-1222030-12	4/7/2023	Soil	State Route 170, Negley OH 10328	40.750755, -80.564651	103.2	124.8
410-1222030-14	4/7/2023	Soil	2206 Rauch Road, East Palestine OH 44413	40.868487, -80.541058	39.4	51.0
410-141093-4	8/27/2023	Soil	Below Park Dr. bridge, below SR confluence	40.831884, -80.544230	1,771.9	1,771.9
410-141093-5	8/27/2023	Soil	Below Park Dr. bridge, below SR confluence	40.831884, -80.544230	2,307.0	2,307.0
410-141093-7	8/28/2023	Soil	6160 Allen Drive #3, Lisbon, OH 44432	40.811219, -80.780353	194.4	313.2
410-141561-1	8/30/2023	Soil	131 Market Street, East Palestine OH 44413	40.830955, -80.539981	304.9	496.9
410-142284-1	9/10/2023	Soil	745 East Martin St, East Palestine, OH 44413	40.836635, -80.525957	12.3	119.4
410-142284-3	9/10/2023	Soil	745 East Martin St, East Palestine, OH 44413	40.836546, -80.526515	49.8	1,322.8
410-147751-1	10/17/2023	Soil	476 East Taggart Street, East Palestine OH 44413	40.834644, -80.531170	247.3	354.1
410-147751-2	10/17/2023	Soil	195 South Pleasant Drive, East Palestine, OH 44413	40.829648, -80.524885	162.6	273.0
410-147751-4	10/17/2023	Soil	279 West High Street, East Palestine OH 44413	40.841066, -80.545135	366.0	475.2
410-170271-11	4/30/2024	Soil	187 Taggart Rd., Darlington, PA 16115	40.836595, -80.501412	182.9	280.1
410-229685-1	6/22/2025	Soil	7555 North Street, Negley, OH 44441	40.792427, -80.545671	1,564.0	1,564.0
410-236413-2	8/8/2025	Soil	161 Taggart Road, Darlington, PA 16115	40.834809, -80.499703	192.4	192.4
410-237272-1	8/3/2025	Soil	Below Park Dr. bridge, below SR confluence	40.831884, -80.544230	960.8	960.8
410-237272-3	8/3/2025	Soil	Below Park Dr. bridge, below SR confluence	40.831884, -80.544230	1,952.0	1,952.0
410-244371-1	9/22/2025	Soil	49464 Quay Road, Negley, OH 44441	40.783308, -80.563389	0.0	107.8
410-244371-2	9/22/2025	Soil	49464 Quay Road, Negley, OH 44441	40.783308, -80.563389	0.5	119.9
410-244372-1	9/22/2025	Soil	49483 State Route 14, East Palestine, OH 44413	40.866930, -80.566606	4.6	126.0
410-244376-1	9/22/2025	Soil	43266 State Route 154, Lisbon, OH 44432	40.790397, -80.685259	0.0	119.6

Table 6-2: Summary of Sediment TPH BaP_E Calculation Results from Data Set #4

Sample ID	Sampled Date	Sample Type	Property Address	Sample Latitude-Longitude	BaPEqs ND = 0 ug/Kg	BaPEqs ND = 1/2 ug/Kg
410-118226-4	3/8/2023	Sediment	Near 418 East Taggart Street	40.835031, -80.532323	548.3	655.1
410-128628-1	5/29/2023	Sediment	Near 418 East Taggart Street	40.835031, -80.532323	208.3	340.3
410-141089-10	8/29/2023	Sediment	Near 418 East Taggart Street	40.835031, -80.532323	836.0	956.0
410-175955-1	6/12/2024	Sediment	Near 418 East Taggart Street	40.835031, -80.532323	1,115.7	1,115.7
410-237289-2	8/3/2025	Sediment	Near 418 East Taggart Street	40.835031, -80.532323	38.6	48.7
410-237282-2	8/3/2025	Sediment	Near 83 East Rebecca Street	40.834128, -80.537799	86.5	86.5
410-170520-1	4/28/2024	Sediment	Near 418 East Taggart Street	40.835031, -80.532323	882.2	882.2
410-170520-3	4/28/2024	Sediment	Near 418 East Taggart Street	40.835031, -80.532323	1,032.5	1,032.5
410-170520-2	4/28/2024	Sediment	Near 418 East Taggart Street	40.835031, -80.532323	116.2	208.6
410-122030-1	4/7/2023	Sediment	2206 Rauch Road, East Palestine OH 44413	40.868487, -80.541058	10.5	33.6
410-237272-1	8/3/2025	Sediment	Below Park Dr. bridge, below SR confluence	40.831884, -80.544230	125.9	125.9

Table 6-3: Summary of Water TPH BaP_E Calculation Results from Data Set #4

Sample ID	Sampled Date	Sample Type	Property Address	Sample Latitude-Longitude	BaPEqs ND = 0 ug/Kg	BaPEqs ND = 1/2 ug/Kg
410-1222030-3	4/6/2023	Water	7125 Bye Road, East Palestine OH 44413	40.796114, -80.558634	0.00	0.20
410-1222030-8	4/6/2023	Water	7125 Bye Road, East Palestine OH 44413	40.796114, -80.558634	0.00	0.20
410-141093-1	8/26/2023	Water	Below Park Dr. bridge, below SR confluence	40.831884, -80.544230	0.00	0.20
410-141093-2	8/26/2023	Water	Below Park Dr. bridge, below SR confluence	40.831884, -80.544230	0.00	0.20
410-141093-6	8/28/2023	Water	6160 Allen Drive #3, Lisbon, OH 44432	40.811219, -80.780353	0.00	0.20
410-236413-1	8/8/2025	Water	161 Taggart Road, Darlington, PA 16115	40.834809, -80.499703	0.00	0.20
410-236413-3	8/8/2025	Water	161 Taggart Road, Darlington, PA 16115	40.834809, -80.499703	0.00	0.20

6.2 Soil and Sediment Plots of BaPE Calculation Results for Data Set #4:

Soil BaPE calculation results for Data Set #4 are shown plotted in Figures 6-1 through 6-4 and sediment calculation results for Data Set #4 are shown plotted in Figures 6-5 and 6-8 and further rebut NS' expert arguments that Plaintiffs' properties were/are not contaminated or that Plaintiffs' are not acting reasonably, as detailed in Plaintiffs' other expert reports:

PAH Dataset #4 Soil Samples BaPeq ug/Kg (ND=0)

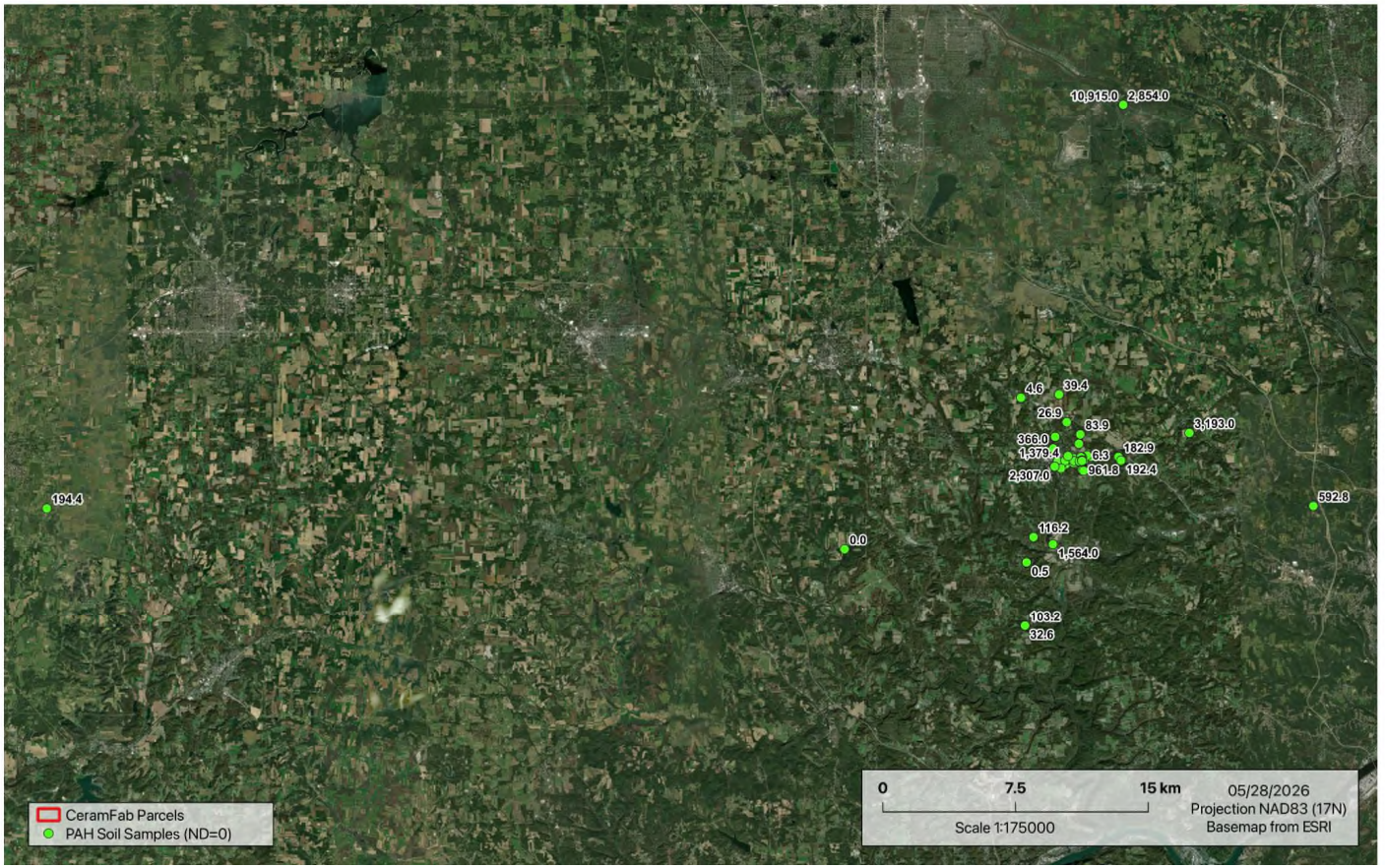


Figure 6-1: Soil BaP_E Calculation Results for Data Set #4 – Using 0 for DL Constituents – Far

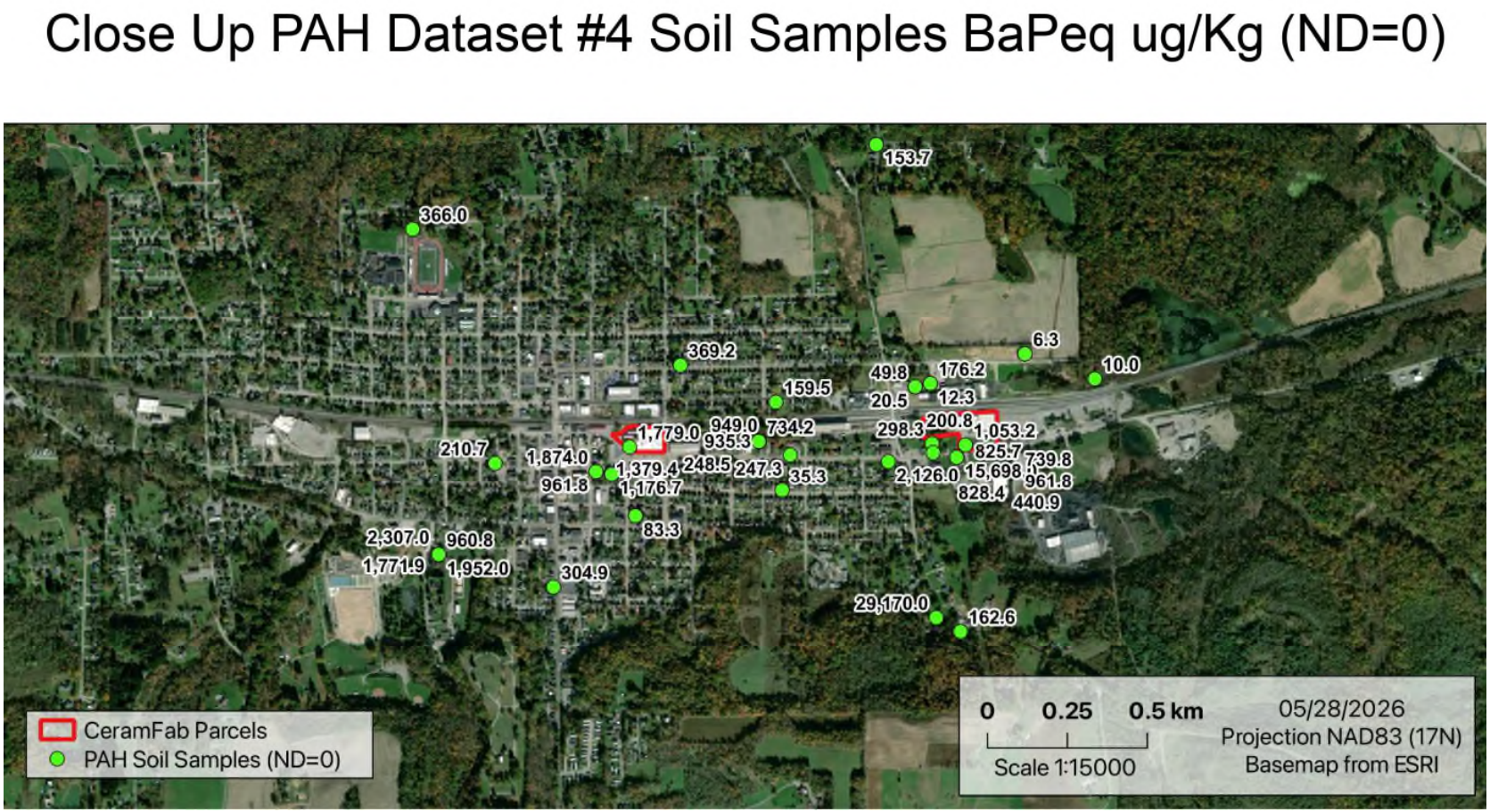


Figure 6-2: Soil BaP_E Calculation Results for Data Set #4 – Using 0 for DL Constituents – Closer

PAH Dataset #4 Soil Samples BaPeq ug/Kg (ND=0.5)

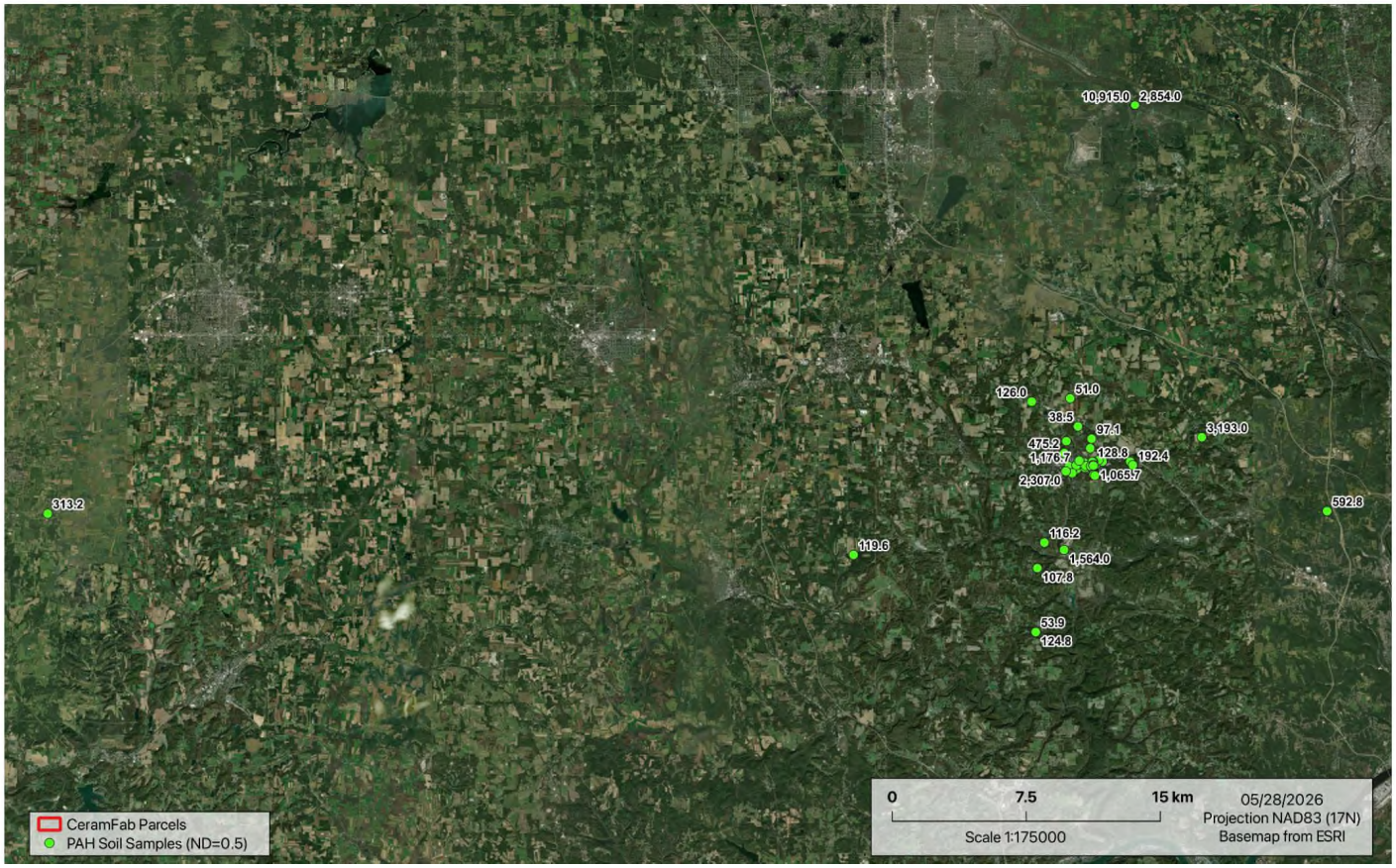


Figure 6-3: Soil BaP_E Calculation Results for Data Set #4 – Using 50% of DLs for DL Constituents - Far

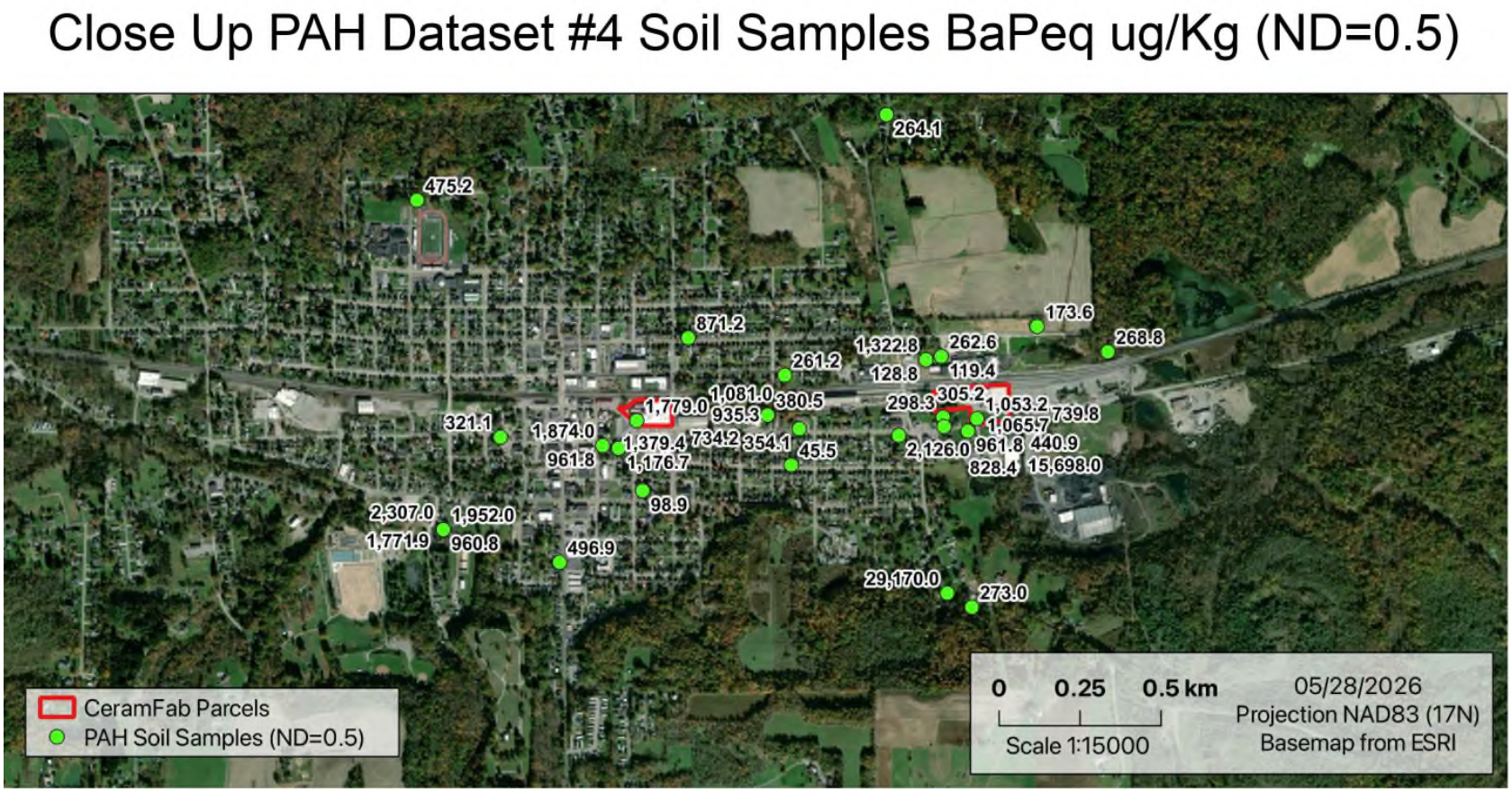


Figure 6-4: Soil BaP_E Calculation Results for Data Set #4 – Using 50% of DLs for DL Constituents - Closer

PAH Dataset #4 Sediment Samples BaPeq ug/Kg (ND=0)

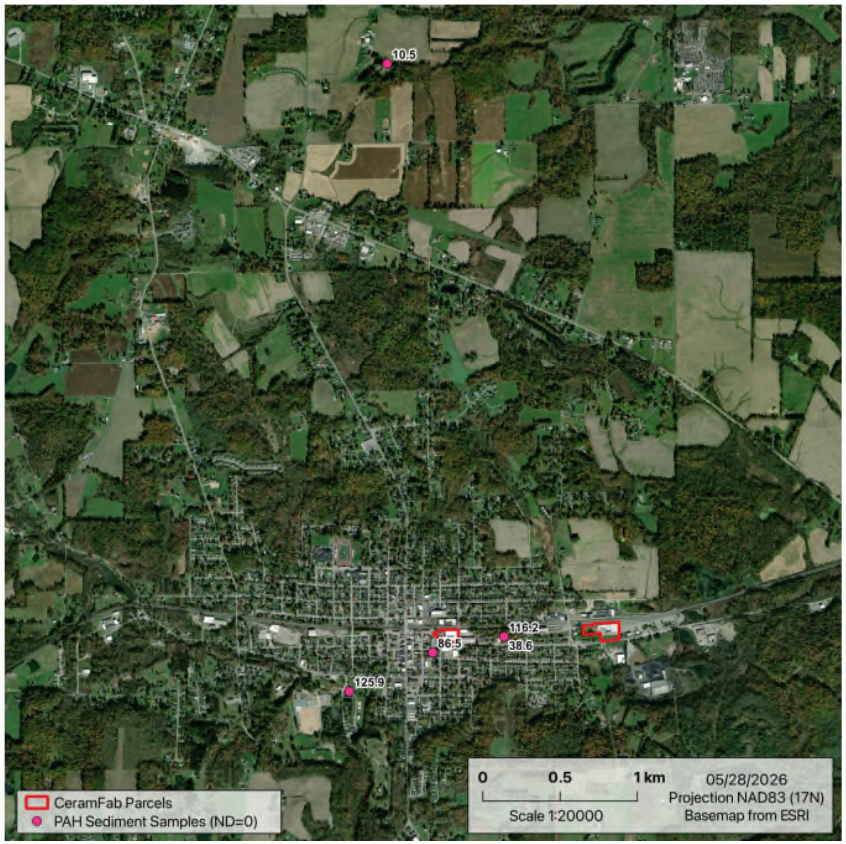


Figure 6-5: Sediment BaP_E Calculation Results for Data Set #4 – Using 0 for DL Constituents - Far

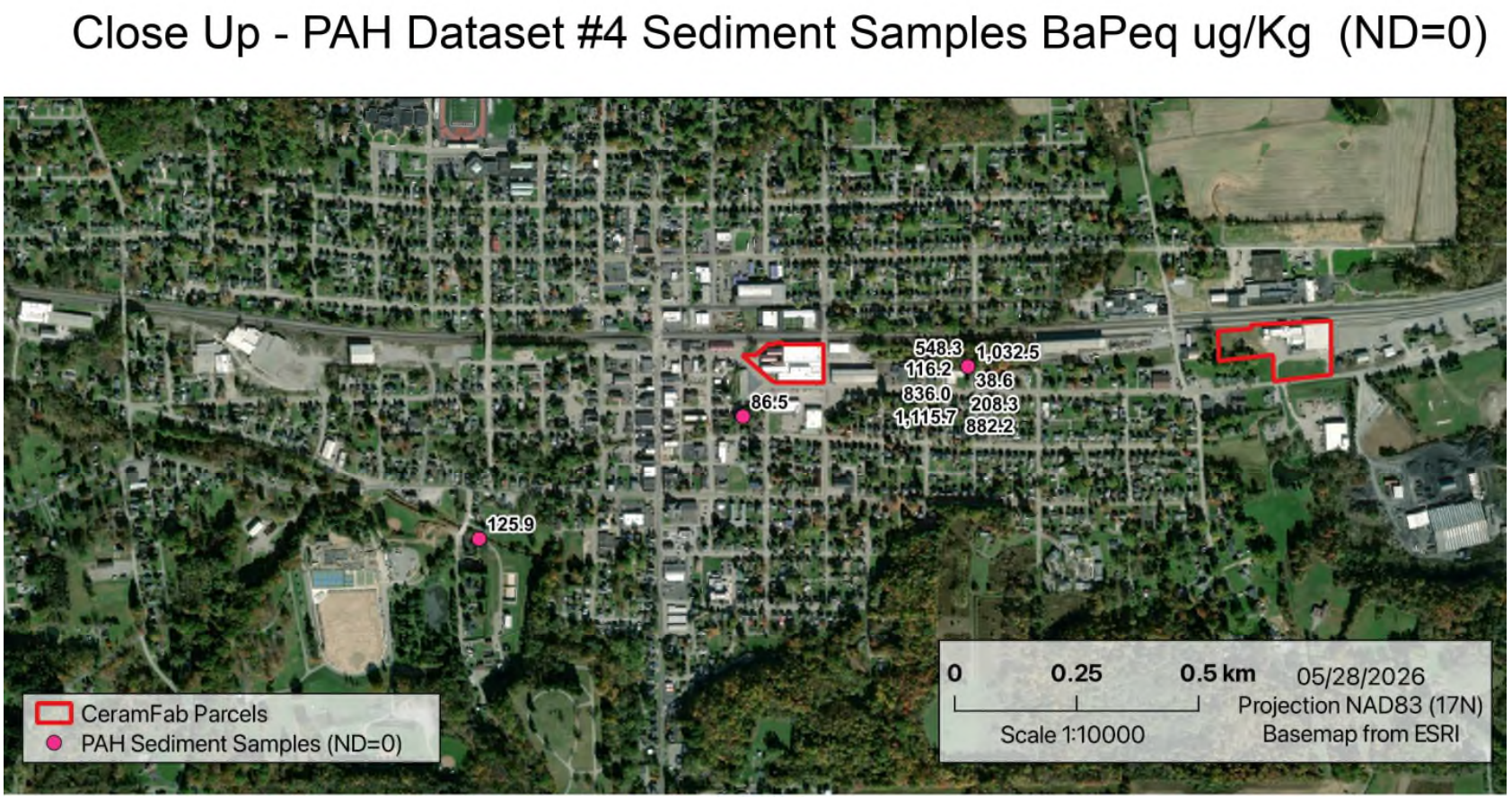


Figure 6-6: Sediment BaP_E Calculation Results for Data Set #4 – Using 0 for DL Constituents - Closer

PAH Dataset #4 Sediment Samples BaPeq ug/Kg (ND=0.5)

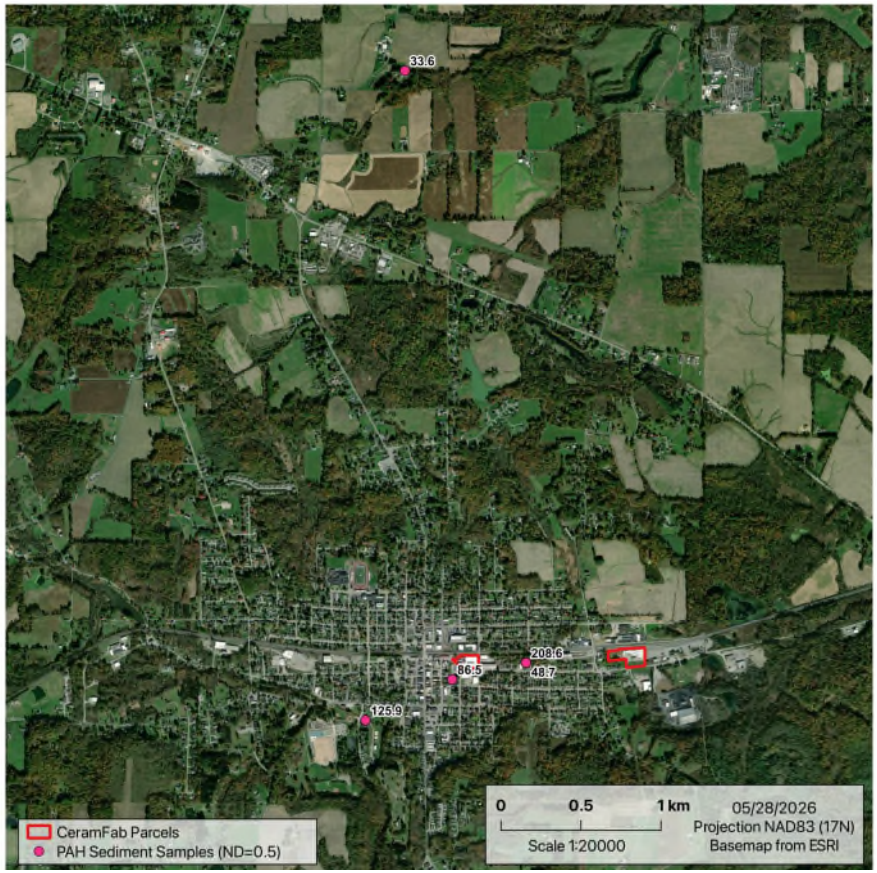


Figure 6-7: Sediment BaP_E Calculation Results for Data Set #4 – Using 50% of DLs for DL Constituents - Far

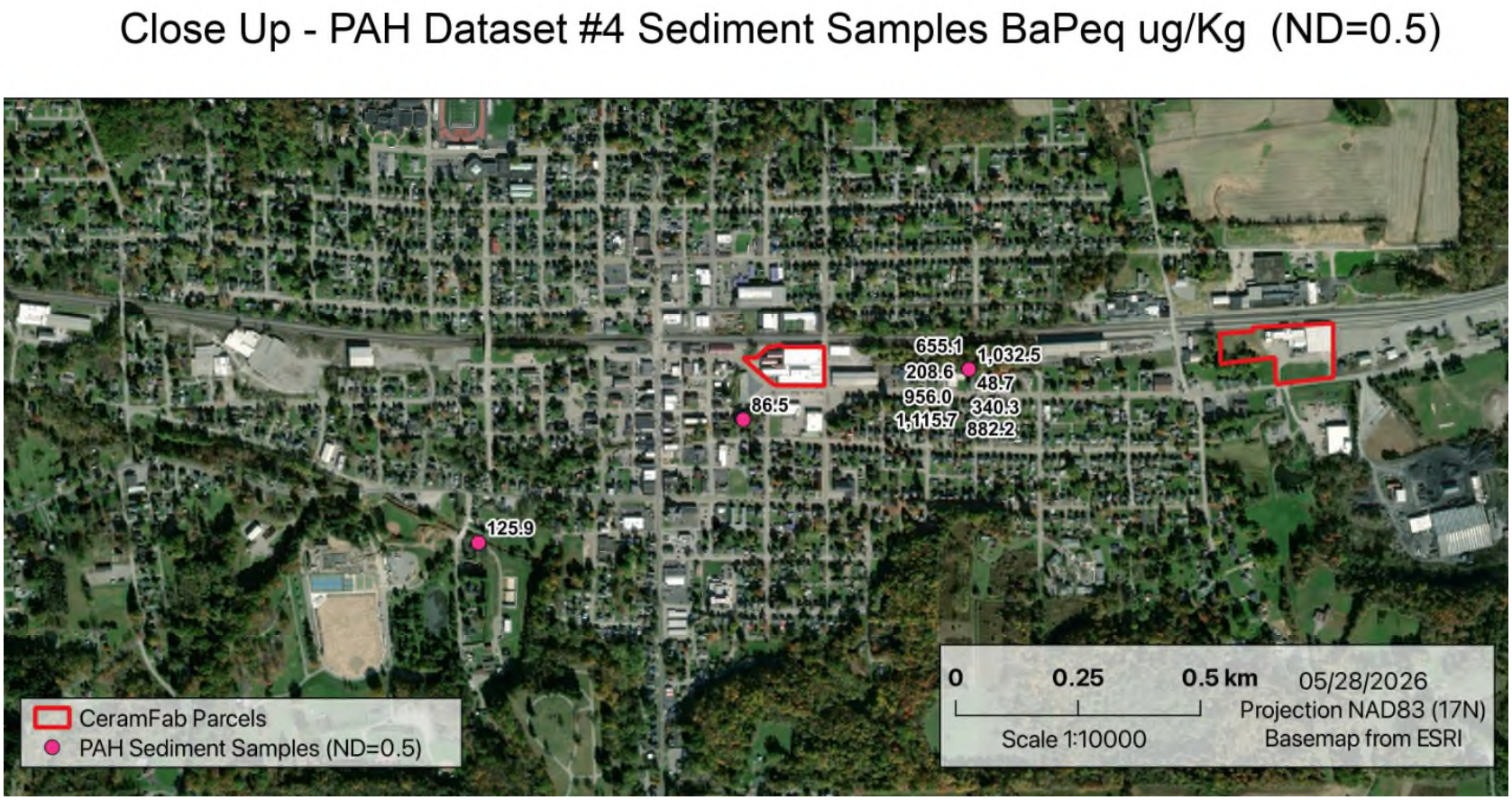


Figure 6-8: Sediment BaP_E Calculation Results for Data Set #4 – Using 50% of DLs for DL Constituents - Closer

6.3 Soil, Sediment, and Water TEQ Calculation Results for Data Set #4:

Soil, Sediment and Water TEQ calculation results for soil sample dioxin/furan sample results from Data Set #4, using the methodology outlines in Section 9.3 of Exhibit 180, are summarized in Tables 6-4, 6-5 and 6-6 and further rebut NS' expert arguments that Plaintiffs' properties were/are not contaminated or that Plaintiffs' are not acting reasonably, as detailed in Plaintiffs' other expert reports:

Table 6-4: Summary of Soil Dioxin/Furan TEQ Calculation Results from Data Set #4

Sample ID	Sampled Date	Sample Type	Property Address	Sample Latitude-Longitude	Dioxin TEQ ng-TEQ/kg (ND=0)	Dioxin TEQ ng-TEQ/kg (ND=1/2)
410-141089-11	8/29/2023	Soil	Near 418 East Taggart Street	40.835031, -80.532323	13.4	13.7
410-141089-9	8/29/2023	Soil	Near 418 East Taggart Street	40.835031, -80.532328	1.2	4.5
410-237289-1	8/3/2025	Soil	Near 418 East Taggart Street	40.835031, -80.532323	5.2	7.1
410-237289-3	8/3/2025	Soil	Near 418 East Taggart Street	40.835031, -80.532332	0.5	3.3
410-237282-1	8/3/2025	Soil	Near 83 East Rebecca Street	40.834128, -80.537799	5.0	7.0
410-237282-3	8/3/2025	Soil	Near 83 East Rebecca Street	40.834128, -80.537799	24.5	24.7
410-127590-3	5/16/2023	Soil	83 East Rebecca Street, East Palestine, OH	40.834205, -80.538378	13.9	25.0
410-144711-8	9/25/2023	Soil	83 East Rebecca Street, East Palestine, OH	40.834205, -80.538378	31.3	31.4
410-126924-3	5/15/2023	Soil	885 Taggart Street, East Palestine OH	40.834554, -80.524993	1,826.3	1,826.3
410-137121-3	7/31/2023	Soil	885 Taggart Street, East Palestine OH	40.834554, -80.524993	438.0	438.0
410-175954-1	6/12/2024	Soil	885 Taggart Street, East Palestine OH	40.834554, -80.524993	1,197.5	1,197.5
410-237292-1	8/3/2025	Soil	885 Taggart Street, East Palestine OH	40.834554, -80.524993	2,062.6	2,327.1
410-119901-6	3/22/2023	Soil	3519 N. Pleasant Drive, East Palestine, OH	40.848138, -80.526954	27.5	27.9
410-119901-8	3/22/2023	Soil	59 Wallace Avenue, East Palestine, OH	40.847014, -80.543711	0.7	3.6
410-119901-10	3/22/2023	Soil	164 East Main Street, East Palestine, OH	40.832937, -80.536923	1.5	5.6
410-119901-13	3/22/2023	Soil	468 Alice Street, East Palestine, OH	40.833634, -80.531475	0.9	3.6
410-119901-1	3/22/2023	Soil	3112 Hillcrest Circle, East Palestine, OH	40.854400, -80.535975	0.7	3.8
410-126924-6	5/15/2023	Soil	171 South Pleasant Drive, East Palestine, OH	40.830042, -80.525782	3.9	7.8
410-128628-10	5/30/2023	Soil	457 East Clark St, East Palestine, OH	40.836137, -80.531693	8.7	8.9
410-137121-6	7/31/2023	Soil	127½ Park Avenue, East Palestine OH	40.834455, -80.542120	21.7	21.9
410-141089-5	8/28/2023	Soil	301 East Taggart Street, East Palestine OH	40.834492, -80.534339	11.7	11.9
410-141089-6	8/28/2023	Soil	756 Hollow Road, Enon Valley, PA 16120	40.848589, -80.453834	3.5	5.7
410-141089-14	8/29/2023	Soil	650 East Martin Street, East Palestine, OH	40.837258, -80.528113	6.9	8.9
410-142486-7	9/11/2023	Soil	745 East Martin St, East Palestine, OH	40.836635, -80.525957	46.0	49.0
410-142486-6	9/11/2023	Soil	745 East Martin St, East Palestine, OH	40.836546, -80.526515	17.2	25.2
410-250542-1	10/29/2025	Soil	454 Overlook Drive, Hillsville, PA 16132	41.016241, -80.497051	11.8	13.3

Sample ID	Sampled Date	Sample Type	Property Address	Sample Latitude-Longitude	Dioxin TEQ ng-TEQ/kg (ND=0)	Dioxin TEQ ng-TEQ/kg (ND=1/2)
410-250542-2	10/29/2025	Soil	454 Overlook Drive, Hillsville, PA 16132	41.016395, -80.496879	6.4	8.6
410-135745-1	7/20/2023	Soil	675 E. Taggart St., E. Palestine, OH	40.834444, -80.527528	23.2	23.3
410-271419-1	3/19/2026	Soil	CeramFab - 900 E. Taggart St., E. Palestine, OH.	40.834898, -80.524664	15.9	15.9
410-271421-1	3/19/2026	Soil	WYG - 193 N. James St., E. Palestine, OH	40.834894, -80.537128	60.0	60.0
410-271424-1	3/19/2026	Soil	304 Richview Drive, Darlington, PA 16115	40.811056, -80.371000	1.5	1.5
410-271426-1	3/19/2026	Soil	3893 North Pleasant Drive, East Palestine, OH 44413	40.843389, -80.527917	10.7	10.7
410-271427-1	3/19/2026	Soil	795 E Martin St, East Palestine, OH 44413	40.836741, -80.519853	7.2	7.2
410-271429-1	3/19/2026	Soil	234 Connor Drive, East Palestine OH 44413	40.837456, -80.522438	3.5	3.5
410-1222030-1	4/6/2023	Soil	7125 Bye Road, East Palestine OH 44413	40.796114, -80.558634	0.4	3.5
410-1222030-5	4/6/2023	Soil	7125 Bye Road, East Palestine OH 44413	40.796114, -80.558634	0.1	2.9
410-1222030-11	4/7/2023	Soil	State Route 170, Negley OH 10328	40.750755, -80.564651	1.5	3.5
410-1222030-12	4/7/2023	Soil	State Route 170, Negley OH 10328	40.750755, -80.564651	1.5	4.2
410-1222030-14	4/7/2023	Soil	2206 Rauch Road, East Palestine OH 44413	40.868487, -80.541058	2.3	4.8
410-141093-4	8/27/2023	Soil	Below Park Dr. bridge, below SR confluence	40.831884, -80.544230	0.4	13.3
410-141093-5	8/27/2023	Soil	Below Park Dr. bridge, below SR confluence	40.831884, -80.544230	2.3	15.2
410-141093-7	8/28/2023	Soil	6160 Allen Drive #3, Lisbon, OH 44432	40.811219, -80.780353	2.7	18.9
410-141561-1	8/30/2023	Soil	131 Market Street, East Palestine OH 44413	40.830955, -80.539981	3.9	16.7
410-142284-1	9/10/2023	Soil	745 East Martin St, East Palestine, OH 44413	40.836635, -80.525957	1.6	12.3
410-142284-3	9/10/2023	Soil	745 East Martin St, East Palestine, OH 44413	40.836546, -80.526515	3.7	16.5
410-147751-1	10/17/2023	Soil	476 East Taggart Street, East Palestine OH 44413	40.834644, -80.531170	4.0	6.1
410-147751-2	10/17/2023	Soil	195 South Pleasant Drive, East Palestine, OH 44413	40.829648, -80.524885	5.7	8.1
410-147751-4	10/17/2023	Soil	279 West High Street, East Palestine OH 44413	40.841066, -80.545135	0.6	3.4
410-170271-11	4/30/2024	Soil	187 Taggart Rd., Darlington, PA 16115	40.836595, -80.501412	1.2	3.4
410-229685-1	6/22/2025	Soil	7555 North Street, Negley, OH 44441	40.792427, -80.545671	6.7	8.7
410-236413-2	8/8/2025	Soil	161 Taggart Road, Darlington, PA 16115	40.834809, -80.499703	8.4	9.8
410-130775-1	6/13/2023	Soil	800 East Taggart Street, East Palestine, OH 44413	40.834946, -80.525904	24.0	24.1
410-162165-2	2/27/2024	Soil	800 East Taggart Street, East Palestine, OH 44413	40.834946, -80.525904	8.0	10.5
410-162165-1	2/27/2024	Soil	800 East Taggart Street, East Palestine, OH 44413	40.834686, -80.525866	21.8	22.0
410-144711-16	9/26/2023	Soil	258 East Martin St, East Palesitne, OH 44413	40.837189, -80.535222	16.8	16.9
410-237272-1	8/3/2025	Soil	Below Park Dr. bridge, below SR confluence	40.831884, -80.544230	1.0	3.9
410-237272-3	8/3/2025	Soil	Below Park Dr. bridge, below SR confluence	40.831884, -80.544230	0.5	3.5
410-244371-1	9/22/2025	Soil	49464 Quay Road, Negley, OH 44441	40.783308, -80.563389	2.5	4.4
410-244371-2	9/22/2025	Soil	49464 Quay Road, Negley, OH 44441	40.783308, -80.563389	0.6	3.0
410-244372-1	9/22/2025	Soil	49483 State Route 14, East Palestine, OH 44413	40.866930, -80.566606	1.8	4.2
410-244376-1	9/22/2025	Soil	43266 State Route 154, Lisbon, OH 44432	40.790397, -80.685259	1.0	3.4

Table 6-5: Summary of Sediment Dioxin/Furan TEQ Calculation Results from Data Set #4

Sample ID	Sampled Date	Sample Type	Property Address	Sample Latitude-Longitude	Dioxin TEQ ng-TEQ/kg (ND=0)	Dioxin TEQ ng-TEQ/kg (ND=1/2)
410-118226-4	3/8/2023	Sediment	Near 418 East Taggart Street	40.835031, -80.532323	0.60	28.64
410-128628-1	5/29/2023	Sediment	Near 418 East Taggart Street	40.835031, -80.532323	35.20	544.26
410-141089-10	8/29/2023	Sediment	Near 418 East Taggart Street	40.835031, -80.532323	4.28	53.69
410-175955-1	6/12/2024	Sediment	Near 418 East Taggart Street	40.835031, -80.532323	4.53	55.66
410-237282-2	8/3/2025	Sediment	Near 83 East Rebecca Street	40.834128, -80.537799	0.20	23.01
410-237289-2	8/3/2025	Sediment	Near 418 East Taggart Street	40.835031, -80.532323	0.24	25.65
410-116817-5	2/22/23	Sediment	Near 418 East Taggart Street	40.835031, -80.532323	16.86	17.23
410-116817-6	2/22/23	Sediment	Near 418 East Taggart Street	40.835031, -80.532323	17.67	17.84
410-170520-1	4/28/24	Sediment	Near 418 East Taggart Street	40.835031, -80.532323	6.94	9.01
410-170520-3	4/28/24	Sediment	Near 418 East Taggart Street	40.835031, -80.532323	3.89	6.19
410-170520-2	4/28/24	Sediment	Near 418 East Taggart Street	40.835031, -80.532323	0.39	2.86
410-122030-1	4/7/23	Sediment	2206 Rauch Road, East Palestine OH 44413	40.868487, -80.541058	0.27	3.19
410-237272-1	8/3/25	Sediment	Below Park Dr. bridge, below SR confluence	40.831884, -80.544230	0.16	2.87

Table 6-6: Summary of Water Dioxin/Furan TEQ Calculation Results from Data Set #4

Sample ID	Sampled Date	Sample Type	Property Address	Sample Latitude-Longitude	Dioxin TEQ ng-TEQ/kg (ND=0)	Dioxin TEQ ng-TEQ/kg (ND=1/2)
410-116817-1	2/22/2023	Water	Near 418 East Taggart Street	40.835031, -80.532323	5.92	8.25
410-116817-4	2/24/2023	Water	Near 418 East Taggart Street	40.835031, -80.532323	0.56	3.95
410-1222030-3	4/6/2023	Water	7125 Bye Road, East Palestine OH 44413	40.796114, -80.558634	0.00	4.22
410-1222030-8	4/6/2023	Water	7125 Bye Road, East Palestine OH 44413	40.796114, -80.558634	0.00	3.24
410-141093-1	8/26/2023	Water	Below Park Dr. bridge, below SR confluence	40.831884, -80.544230	1.60	4.56
410-141093-2	8/26/2023	Water	Below Park Dr. bridge, below SR confluence	40.831884, -80.544230	4.36	7.92
410-141093-6	8/28/2023	Water	6160 Allen Drive #3, Lisbon, OH 44432	40.811219, -80.780353	0.00	4.37
410-236413-1	8/8/2025	Water	161 Taggart Road, Darlington, PA 16115	40.834809, -80.499703	0.84	5.03
410-236413-3	8/8/2025	Water	161 Taggart Road, Darlington, PA 16115	40.834809, -80.499703	0.00	4.17

6.4 Soil, Sediment and Water Plots of TEQ Calculation Results for Data Set #4:

Soil TEQ calculation results for Data Set #4 are shown plotted in Figures 6-9 and 6-12, sediment calculation results for Data Set #4 are shown plotted in Figures 6-13 and 6-16, and Water TEQ calculation results for Data Set #4 are shown plotted in Figures 6-17 and 6-18; these plots further rebut NS' expert arguments that Plaintiffs' properties were/are

not contaminated or that Plaintiffs' are not acting reasonably, as detailed in Plaintiffs' other expert reports:

Dioxin Dataset #4 Soil Samples TEQ ng/kg (ND=0)

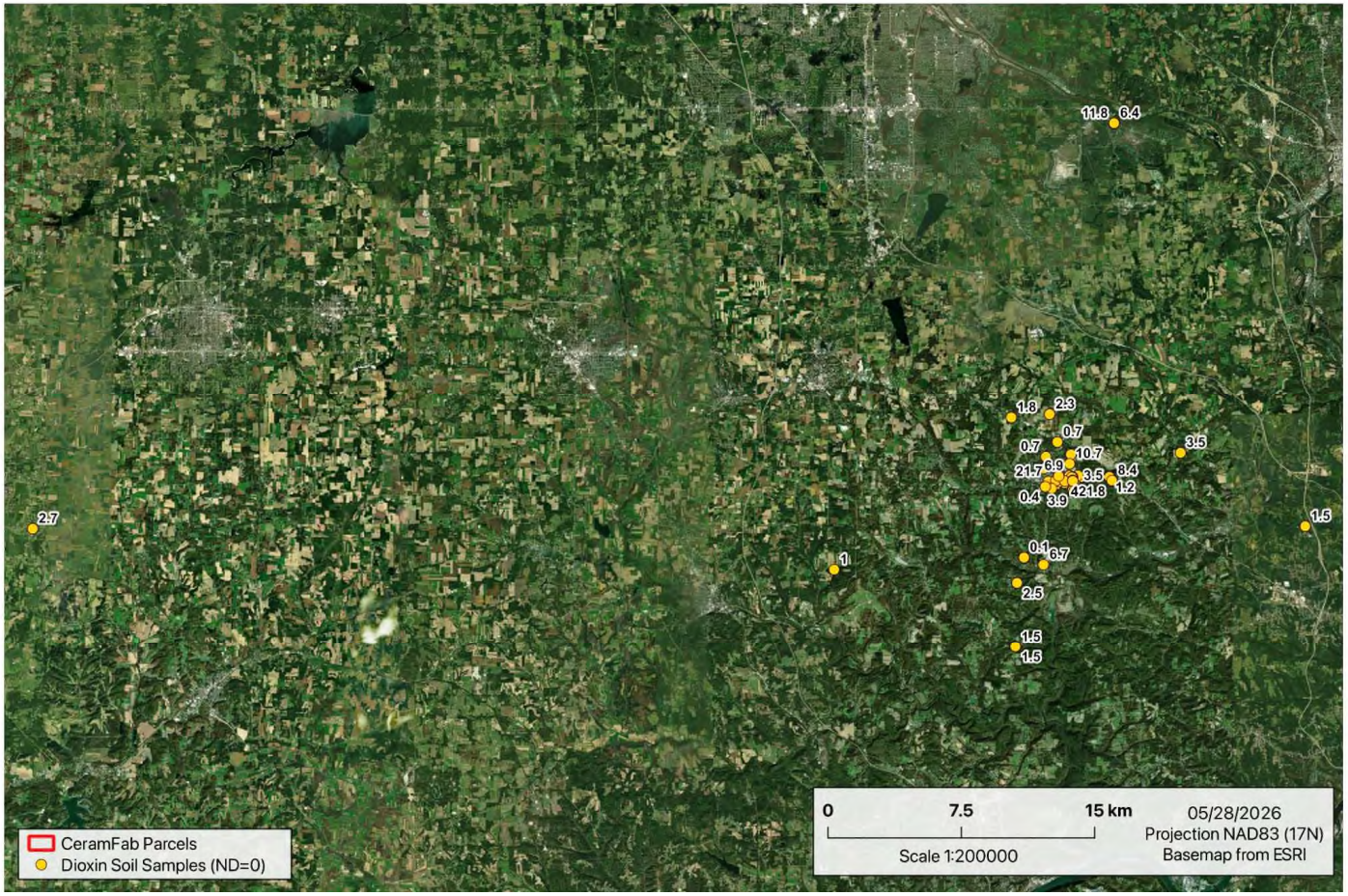


Figure 6-9: Soil TEQ Calculation Results for Data Set #4 – Using 0 for DL Constituents - Far

Close Up Dioxin Dataset #4 Soil Samples TEQ ng/kg (ND=0)

Figure 6-10: Soil TEQ Calculation Results for Data Set #4 – Using 0 for DL Constituents - Closer

Dioxin Dataset #4 Soil Samples TEQ ng/kg (ND=0.5)

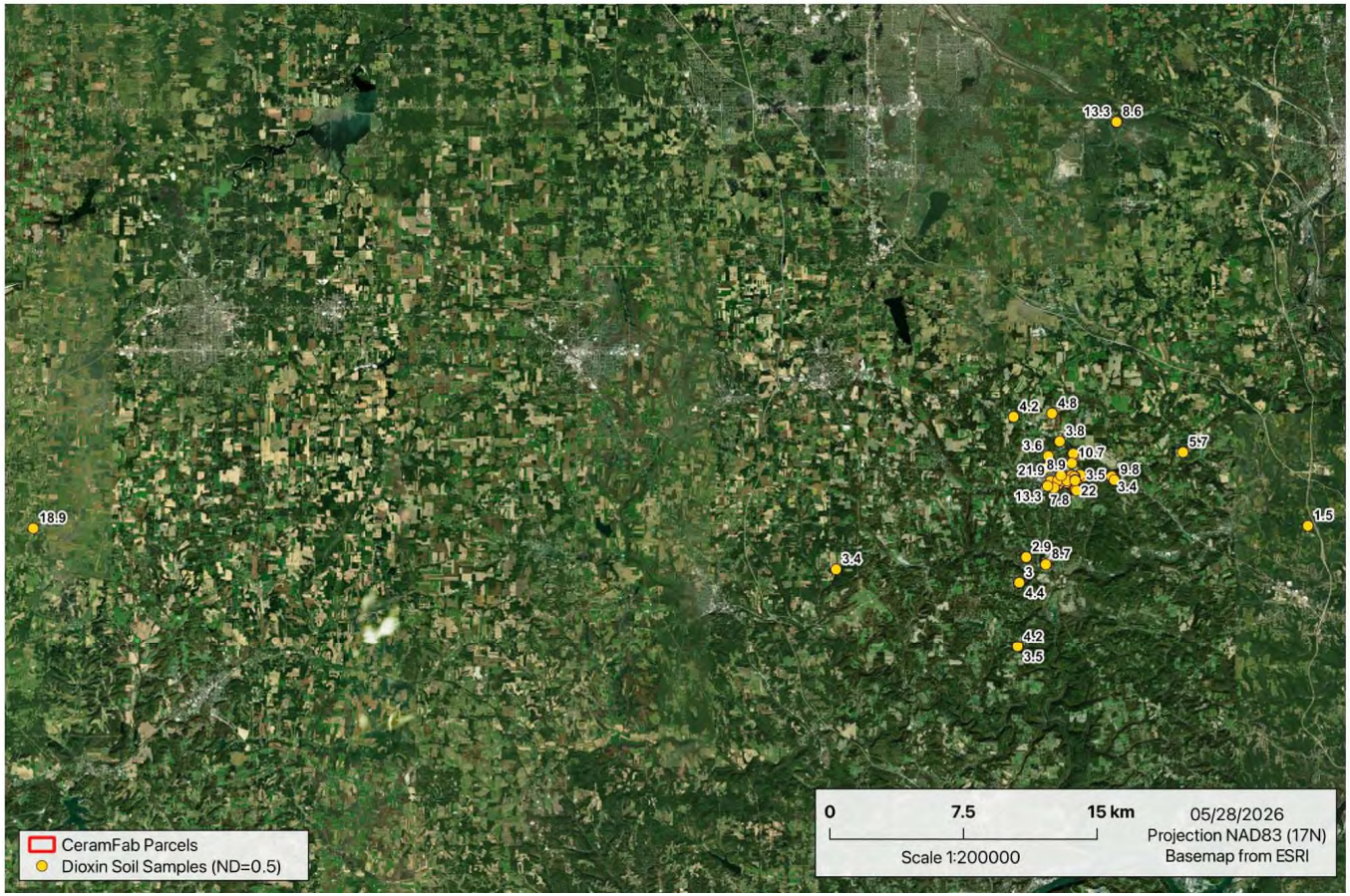


Figure 6-11: Soil TEQ Calculation Results for Data Set #4 – Using 50% of DLs for DL Constituents - Far

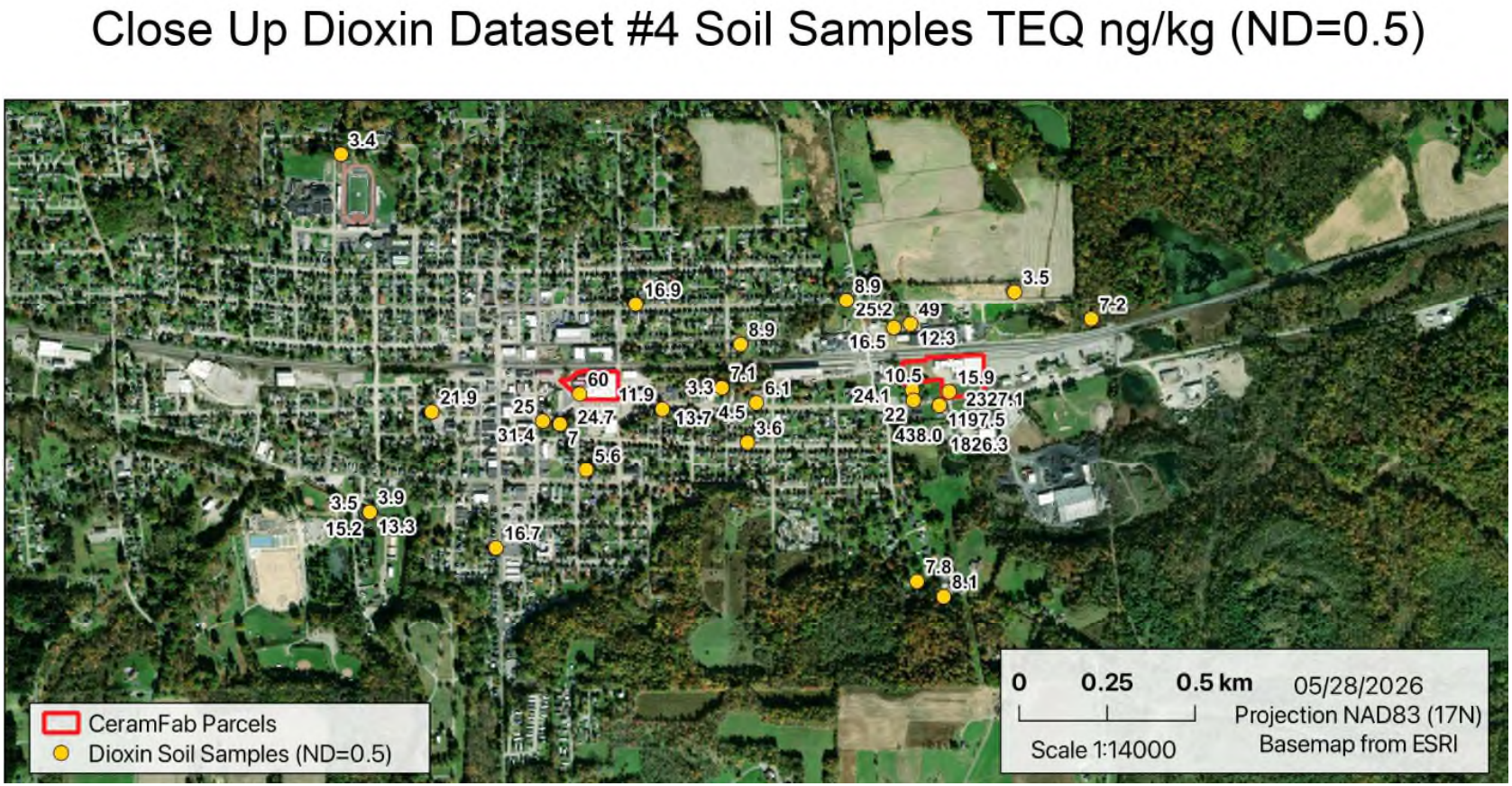


Figure 6-12: Soil TEQ Calculation Results for Data Set #4 – Using 50% of DLs for DL Constituents - Closer

Dioxin Dataset #4 Sediment Samples TEQ ng/kg (ND=0)

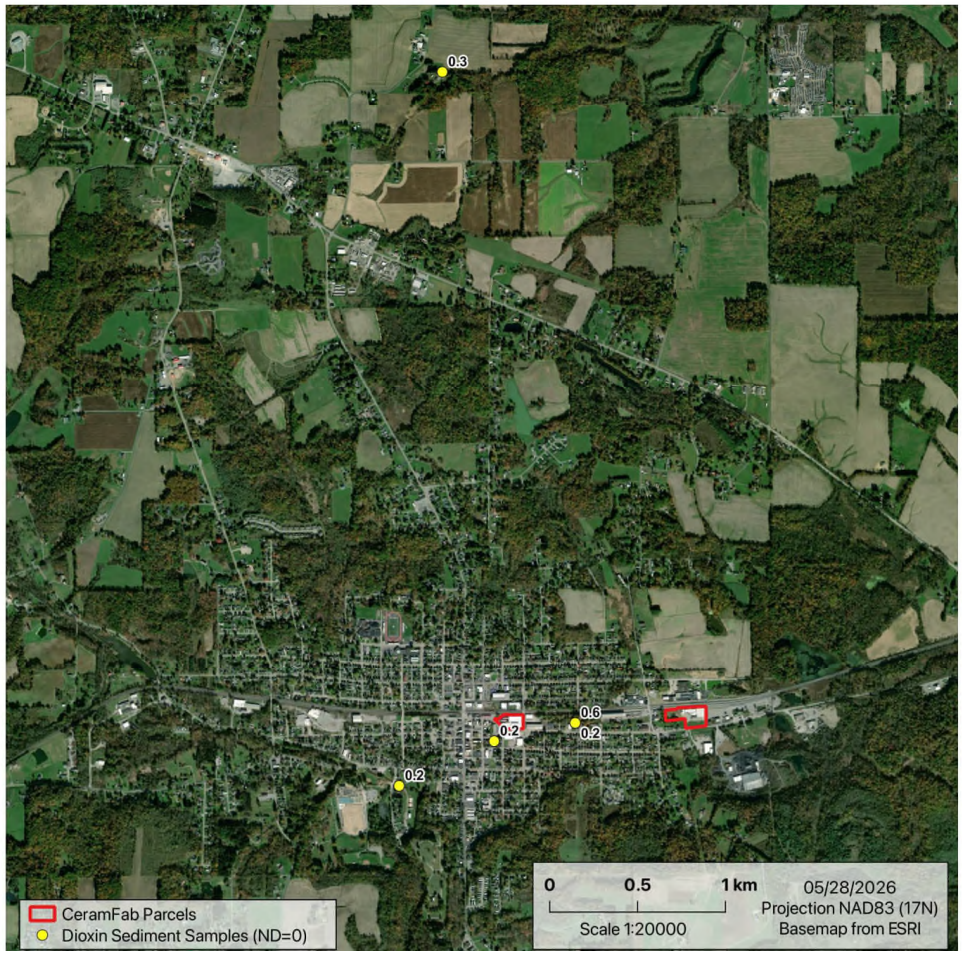


Figure 6-13: Sediment TEQ Calculation Results for Data Set #4 – Using 0 for DL Constituents - Far

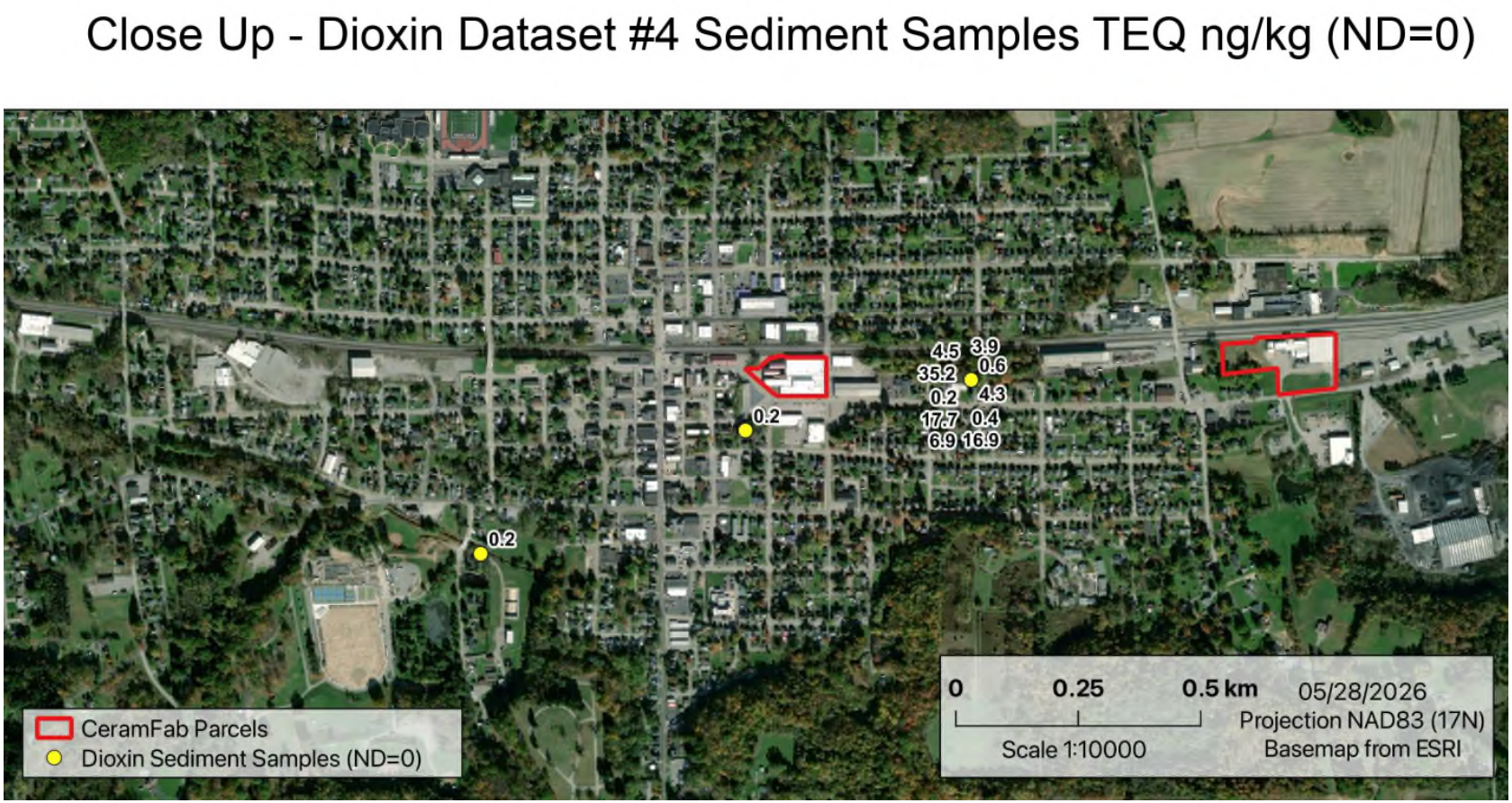


Figure 6-14: Sediment TEQ Calculation Results for Data Set #4 – Using 0 for DL Constituents - Closer

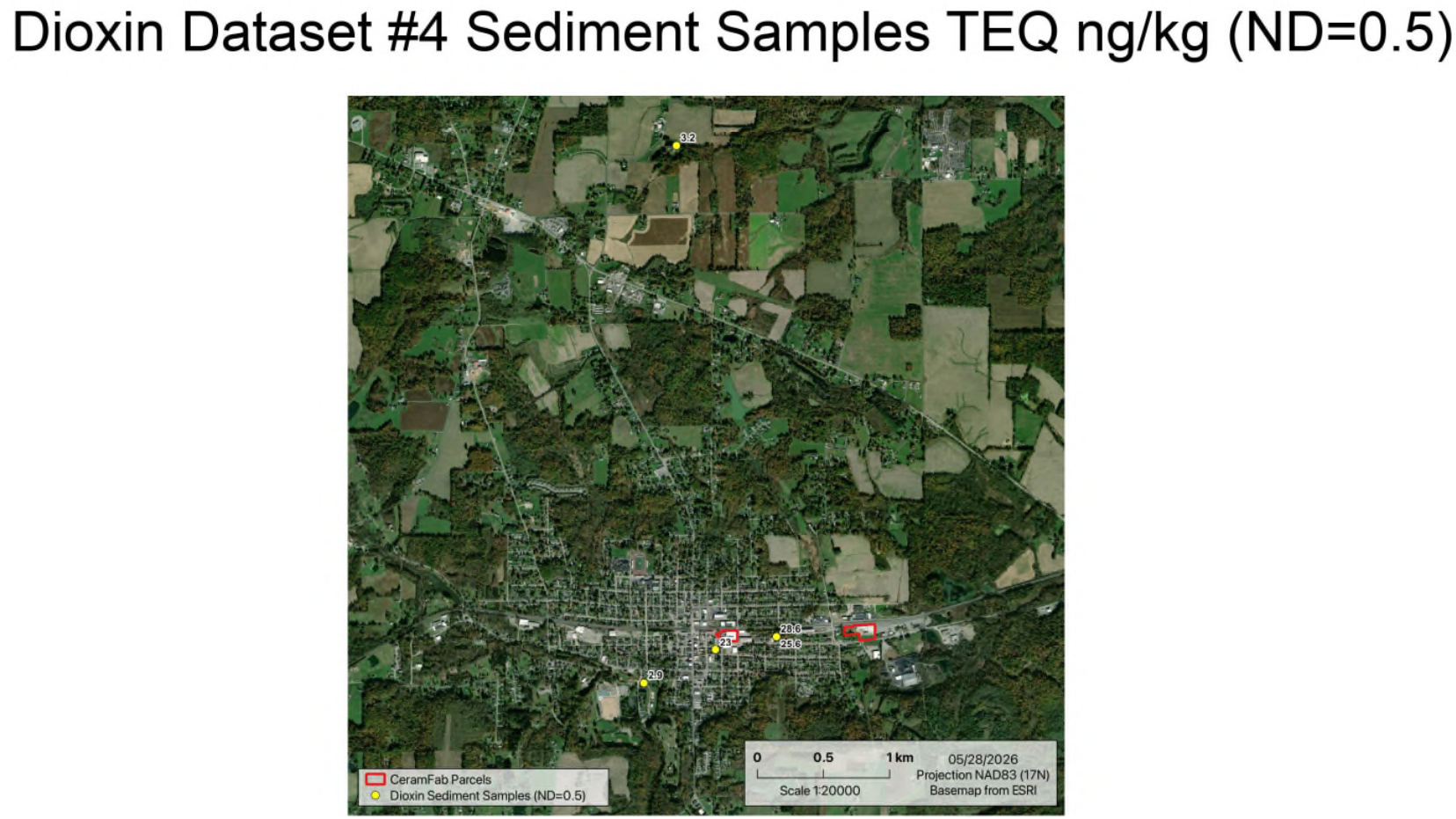


Figure 6-15: Sediment TEQ Calculation Results for Data Set #4 – Using 50% of DLs for DL Constituents - Far

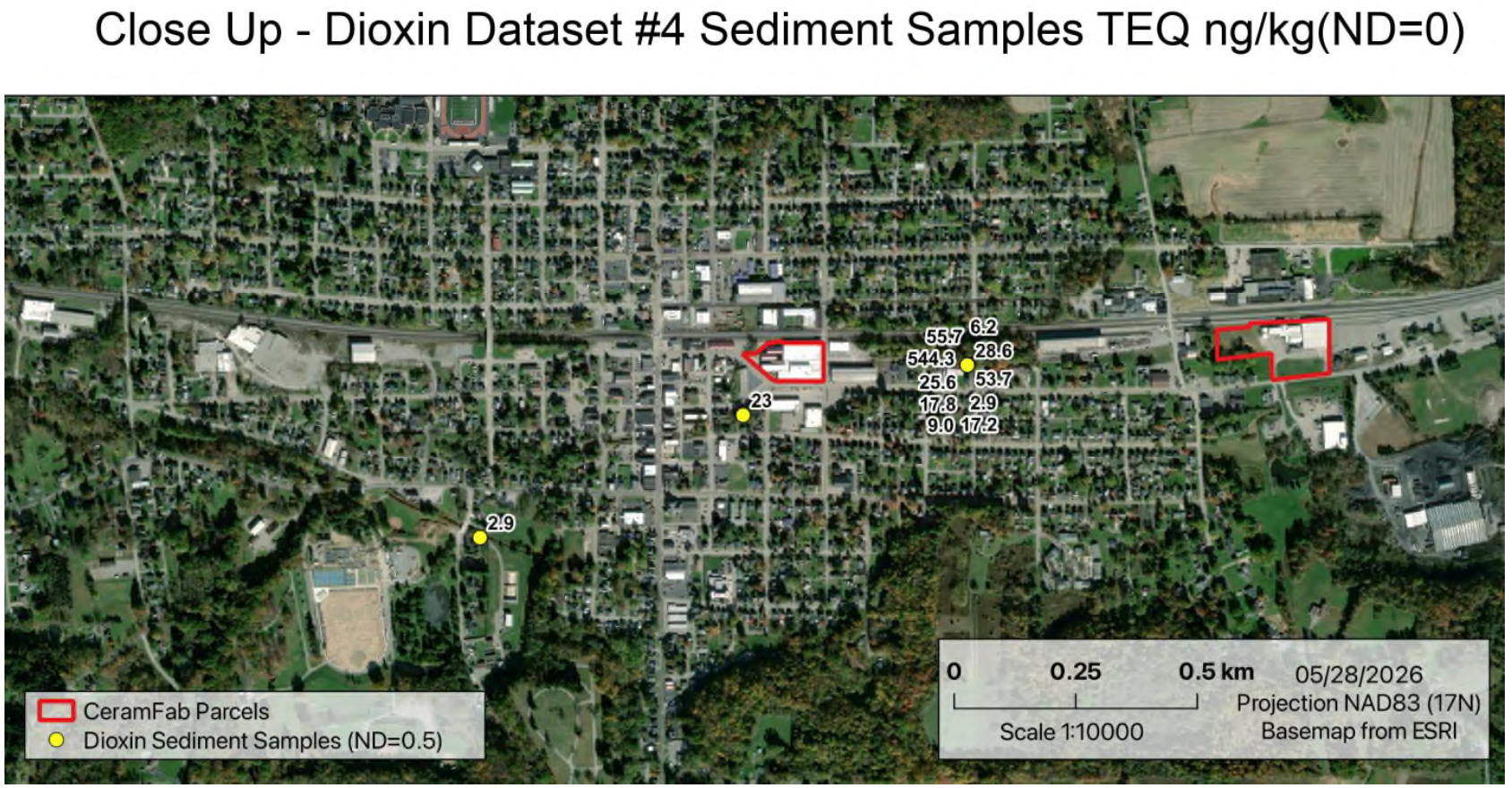


Figure 6-16: Sediment TEQ Calculation Results for Data Set #4 – Using 50% of DLs for DL Constituents - Closer

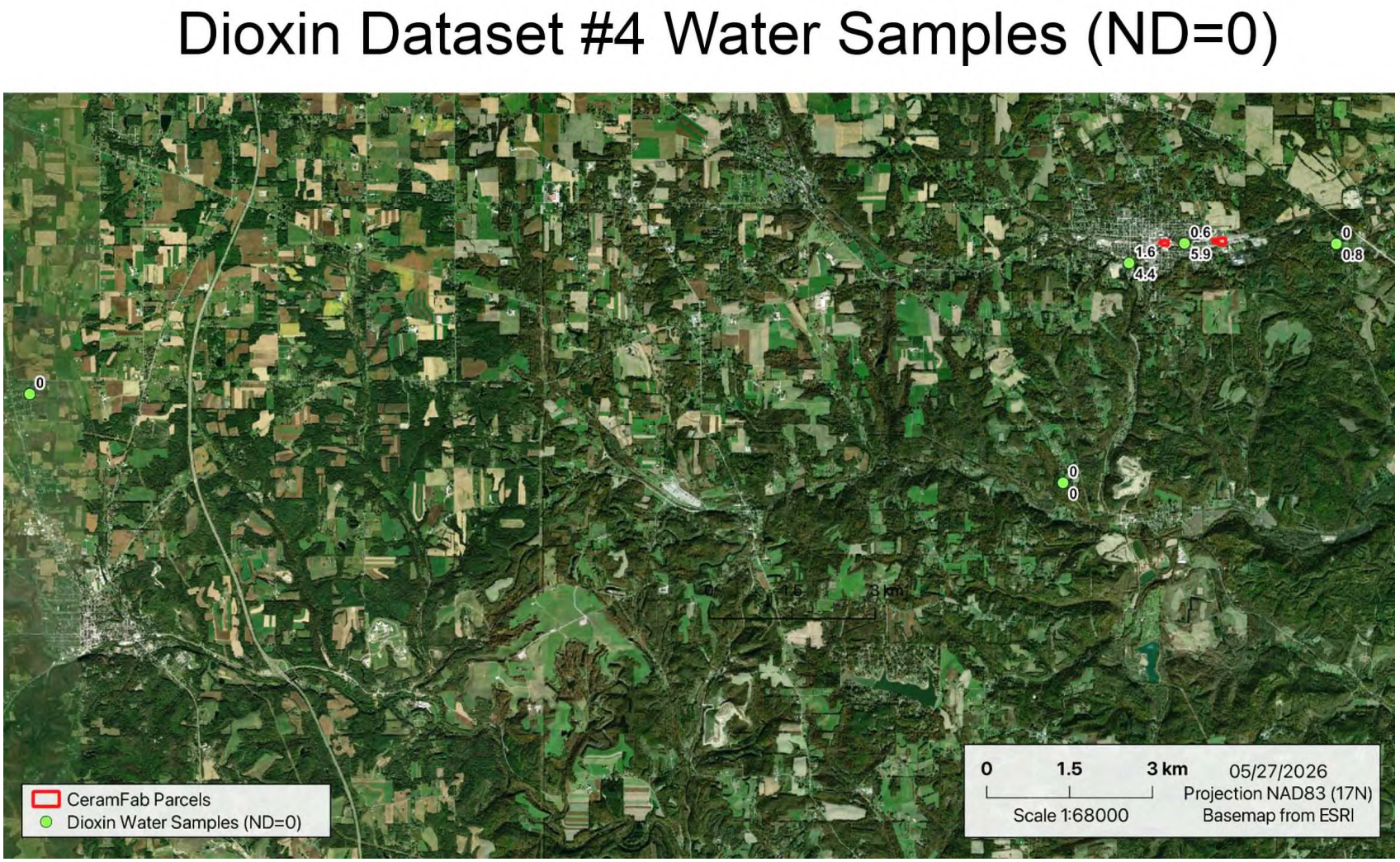


Figure 6-17: Water TEQ Calculation Results for Data Set #4 – Using 0% of DLs for DL Constituents

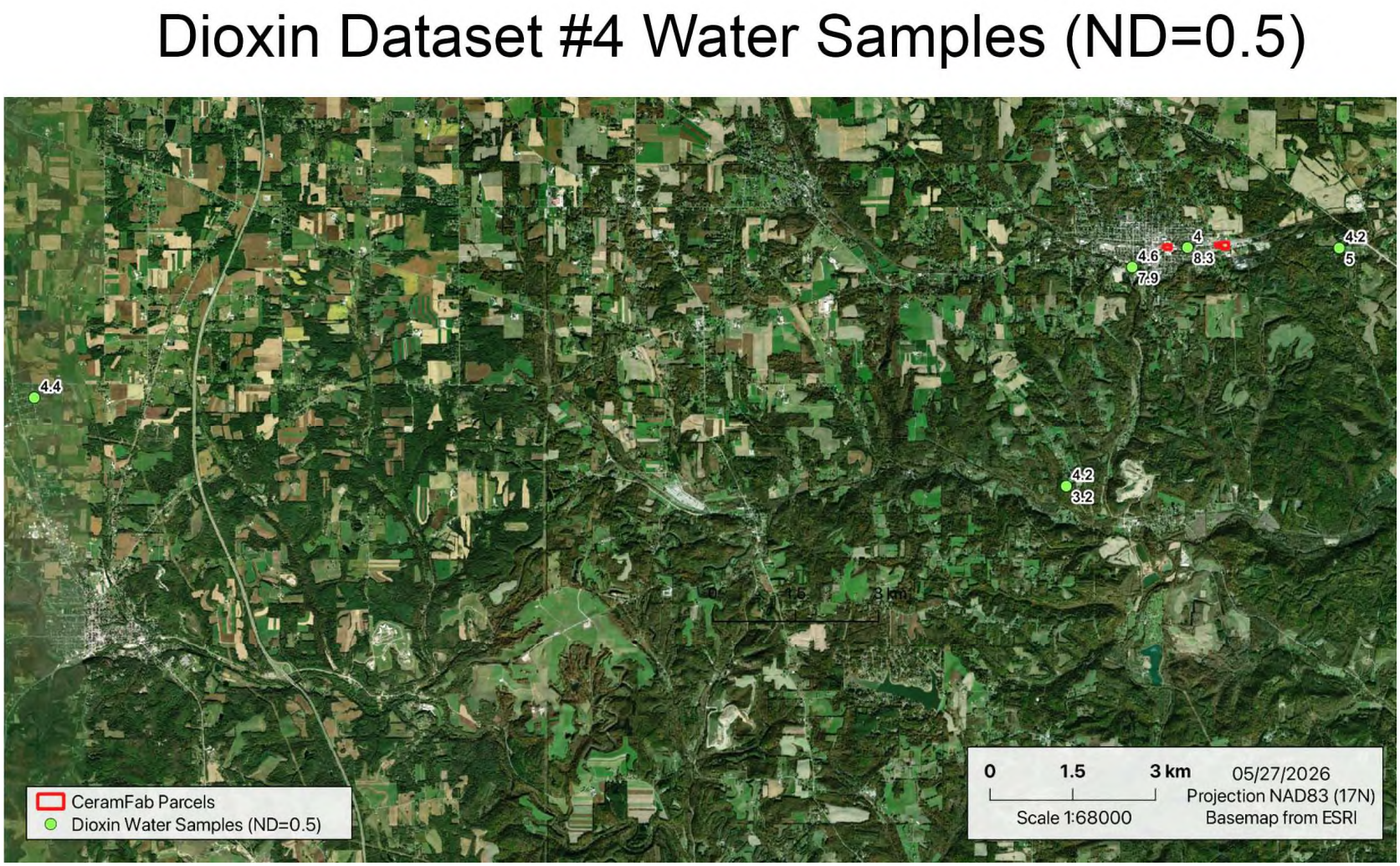


Figure 6-18: Water TEQ Calculation Results for Data Set #4 – Using 50% of DLs for DL Constituents

7.0 CLOSING:

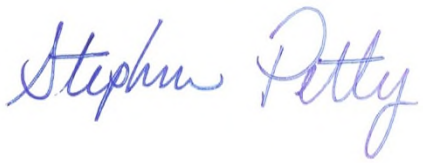
Nothing in NS' expert opinions has materially altered the opinions initially offered by me in my April 6, 2026, report. Additionally, supplemental data and reliance materials (listed in the revised exhibits and attachments included here) are used to further support my initial report and rebut NS' experts' arguments and opinions.

The use of this report is subject to the limitations and exceptions set forth within this report, as well as the terms and conditions contained in the original contract documents signed by EES and Client. However, EES will not distribute or publish this report without Client's written consent, except as required by law or a court order.

All opinions provided in this report are made to a reasonable degree of scientific certainty and are based upon my education, training, experience, and research and are also supported by the reference materials listed herein and in the attached reliance materials. I reserve the right to supplement or mend these opinions based upon reviewed new evidence.

EES Group, Inc. appreciates the opportunity to work for Cory Watson Attorneys. If you have any questions or comments regarding this preliminary letter report, please call (754) 220-8844.

Sincerely,



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President, EES Group, Inc.

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29 CFR 1910.132 – OSHA General PPE Standard

29 CFR 1910.134 – OSHA Respiratory Protection Standard

29 CFR 1910.146 – Permit Required Confined Spaces

29 CFR 1910.1000 – OSHA PEL and Controls Standard

29 CFR 1910.1020 – Access to Employee Exposure and Medical Records

29 CFR 1910.1200 – OSHA Hazard Communication Standard

29 CFR 1926.57– Safety and Health Regulations for Construction - Occupational Health and Environmental Controls - Ventilation

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40 CFR Part 68 – Protection of the Environment – Chapter I – EPA – Part 68 Chemical Accident Prevention Provision (i.e., Risk Management Plans – RMP).

40 CFR 700 – Toxic Substances Control Act (TSCA).

APPENDIX A

List of Exhibits

Exhibit	Description
01	November 14, 2023 Complaint - Ceramfab, Inc., Ceramsource, Inc, Yonggong, LLC, WYG Refractories, LLC and CeramSource, Inc. (Plaintiffs) vs. Norfolk Southern Corporation and Norfolk Southern Railway Company (Defendants). Case Number: 4:2023cv02206. Filed: November 14, 2023. Court: U.S. District Court for the Northern District of Ohio
02	June 17, 2025 Arcadis Memo Report to Eric Pohl – USEPA On-Scene Coordinator. Subject: Norfolk Southern Railway Company, East Palestine, Columbiana County, OH Site/Spill Identifier (SSID): C5XR Unilateral Administrative Order CERCLA Docket No. V-W-23-C-004 CeramFab Delineation Request.
03	e-mail from Eric Pohl to Matt Jackson and Distn. regarding CeramFab Delineation Report. Pohl, Eric pohl.eric@epa.gov. Sent: Friday, October 31, 2025 9:40 AM. To: Matt Jackson. cc: Christopher.Hunsicker@nscorp.com; Hunt, Daniel J; Kerr, Michelle; Melisa Witherspoon; Maguire, Andrew; 'Eyerdom, Timothy'; Horvatin, Shanna; Dixit, Naeha; McLaughlin, Jolie; Olson, Erik; 'Joblon, Christine'; Hall, Steven; Grams, Dustin. Subject: RE: NSRC - East Palestine - Train Derailment Site - Package 10 - CeramFab Delineation. Request, Revision 1
04	Arcadis report dated April 27, 2023: Stage 2 Data Validation Memorandum Norfolk Southern East Palestine Train Derailment Site, East Palestine, Ohio. Soil Samples. Sample Delivery Group: 410-121931-1 with cover page including Soil Sampling Summary Table.
05	Cover Letter and Arcadis Report dated March 12, 2024 from Sarah Jonker (Senior Environmental Scientist) and Stephanie R. Knight, P.E.(Client Program Manager/Vice President), Indianapolis, IN to Mr. Howard Wang, CeramFab Inc., 900 East Taggart Street, East Palestine, Ohio 44413. Our Ref: 30208287. Subject: Air and Sub-Slab Vapor Sample Results, CeramFab Inc., Norfolk Southern Derailment Site, East Palestine, Ohio.
06	Cover Letter and Arcadis Report dated May 23, 2024 from Sarah Jonker (Senior Environmental Scientist) and Stephanie R. Knight, P.E.(Client Program Manager/Vice President), Indianapolis, IN to Mr. Howard Wang, CeramFab Inc., 900 East Taggart Street, East Palestine, Ohio 44413. Our Ref: 30208287. Subject: Air and Sub-Slab Vapor Sample Results, CeramFab Inc., Norfolk Southern Derailment Site, East Palestine, Ohio.
07	Cover Letter and Arcadis Report dated August 23, 2024 from Sarah Jonker (Senior Environmental Scientist) and Stephanie R. Knight, P.E.(Client Program Manager/Vice President), Indianapolis, IN to Mr. Howard Wang, CeramFab Inc., 900 East Taggart Street, East Palestine, Ohio 44413. Our Ref: 30208287. Subject: Air and Sub-Slab Vapor Sample Results, CeramFab Inc., Norfolk Southern Derailment Site, East Palestine, Ohio.
08	Cover Letter and Arcadis Report dated December 8, 2024 from Sarah Jonker (Senior Environmental Scientist) and Stephanie R. Knight, P.E.(Client Program Manager/Vice President), Indianapolis, IN to Mr. Howard Wang, CeramFab Inc., 900 East Taggart Street, East Palestine, Ohio 44413. Our Ref: 30208287. Subject: Air and Sub-Slab Vapor Sample Results, CeramFab Inc., Norfolk Southern Derailment Site, East Palestine, Ohio.
09	Arcadis Water Pipe Repair at CeramFab – Summary Report. Bates NS-CeramFab000961-969.
10	March 2, 2023 National Safety Transportation Board (NTSB) News Release. NTSB Examining Rail Car Component in East Palestine Derailment. Downloaded on April 13, 2023.
11	February 3, 2023 National Safety Transportation Board (NTSB) News Release. Norfolk Southern Railway Train Derailment with Subsequent Hazardous Material Release and Fires. Preliminary Report RRD23MR005. Downloaded on February 23, 2023.
12	March 24, 2023. Tom Perkins. Plan to test for dioxins near Ohio train derailment site is fl awed, experts say, The Guardian. Downloaded on March 24, 2023.
13	March 21, 2023 National Safety Transportation Board (NTSB). Norfolk Southern Railway Train Derailment with Subsequent Hazardous Material Release and Fires - Investigation Details – Update. Downloaded on April 13, 2023.

Exhibit	Description
14	July 19, 2024 NTSB Final Report regarding NS Train Derailment. Accident Investigation Summary Report HQ-2023-1813. Norfolk Southern Railway Company (NS) East Palestine, OH – Derailment. February 3, 2023. Downloaded from: https://railroads.dot.gov/elibrary/accident-investigation-summary-report-hq-2023-1813.
15	June 25, 2024 NTSB Press Release: "Failed Wheel Bearing Caused Norfolk Southern Train Derailment in East Palestine, Ohio" and 'NTSB: Decision to vent and burn hazmat tank cars "unnecessary."' Downloaded from: https://www.ntsb.gov/news/press-releases/Pages/NR20240625.aspx.
16	June 25, 2004. Abstract of NTSB Final Report regarding Feb. 3, 2023 Train Derailment in East Palestine, OH. Downloaded from: https://www.ntsb.gov/investigations/Documents/East%20Palestine%20Ohio%20Board%20Meeting%20Summary%20with%20Amendments.pdf.
17	Larsen, E., Mac Swinford and Kim E. Vorbau. 2002. Surface Geology of the Ohio Portion of the East Liverpool 30 x 60 Minute Quadrangle. State of Ohio. Department of Natural Resources.
18	Arcadis US, Inc. Norfolk Southern Railway Company Phase I – Preliminary Residential/ Commercial/Agricultural Soil Sampling Plan. East Palestine Train Derailment Site, East Palestine, Ohio. March 6, 2023; Revised April 5, 2023. Prepared for Norfolk Southern Railway Company. Prepared by: Arcadis US, Inc., 50 Fountain Plaza, Suite 600, Buffalo, New York 14202. Phone: 716 667 0900. Fax: 716 842 2612.
19	TRAIN 32N - EAST PALESTINE - derail list Norfolk Southern document – preliminary manifest – February 19, 2023. From: https://www.epa.gov/system/files/documents/2023-02/TRAIN%2032N%20-%20EAST%20PALESTINE%20-%20derail%20list%20Norfolk%20Southern%20document.pdf. See also Exhibits 28-29.
20	Moorwood, Victoria. February 13, 2023. East Palestine Train Derailment: A Timeline of What Happened When. Cincinnati Enquirer. Downloaded March 7, 2023.
21	Deliso, Meredith. March 3, 2023. East Palestine Derailment: Time of Key Events in Toxic Train Disaster. ABC News. Downloaded March 7, 2023.
22	Guise, Michael. February 4, 2023. Train Derailment Causes Massive Fire in East Palestine, OH. CBS Pittsburgh. Downloaded March 7, 2023.
23	Romero, Dennis and Marlene Lenthang. February 6, 2023. Controlled Chemical Release Scheduled to Prevent Explosion in Wake of Ohio Train Derailment. U.S. News. Downloaded March 7, 2023.
24	Wikipeida. 2023 Ohio Train Derailment. Downloaded March 7, 2023.
25	Listing of Uploaded Videos Taken in February 2023 in East Palestine, OH by Petty (Photos Directories contain original files).
26	Petty May 8, 2023 Draft Report - News and Links with regard to Dioxin Testing at East Palestine.
27	Directory with Petty Photos and Movies – Sampling Sites / Misc.
28	Altman, Rebecca. April 4, 2023, On Vinyl Essay, Orion - Contains Link to Initial NS Manifest (see Exhibits 29 and 19).
29	TRAIN 32N - EAST PALESTINE - Derail List – from Orion Paper Link (see Exhibit 28).
30	FracTracker Alliance. April 3, 2023. Off the Rails.
31	Video - Vinyl Chloride Production 1954 BF Goodrich Company
32	About PVC - ECVM". ECVM. Archived from the Original on 5 December 2023. Retrieved February 26, 2026.
33	"Poly(Vinyl Chloride)". www.pslc.ws. Retrieved February 26, 2026.

Exhibit	Description
34	"Poly(Vinyl Chloride)". From Sigma Millipore. https://www.sigmaaldrich.com/US/en/substance/polyvinylchloride123459002862. Retrieved February 26, 2026.
35	Feb. 6, 2023 East Palestine Evacuation Zones - Governor's Office - State of Ohio. East Palestine Update: Evacuation Area Extended, Controlled Release of Rail Car Contents Planned for 3:30 p.m. From: https://governor.ohio.gov/media/news-and-media/east-palestine-update-evacuation-area-extended-controlled-release-of-rail-car-contents-planned-for-3-30-pm-02062023#:~:text=In%20Ohio%2C%20the%20areas%20at,may%20be%20subject%20to%20arrest. Retrieved February 26, 2026.
36	Norfolk Southern Railway Company Phase I – Preliminary Residential/Commercial/Agricultural Soil Sampling Plan - East Palestine Train Derailment Site, East Palestine, Ohio. March 6, 2023; Revised April 5, 2023. From: https://www.epa.gov/system/files/documents/2023-06/04%2005%2023%20Residential-Commercial-Agricultural%20Soil%20Sampling%20Work%20Plan%20508.pdf. Retrieved February 26, 2026.
37	Lucas, Justin. April 4, 2023. Impacts of the East Palestine Train Derailment Mapped. From: https://urbanfootprint.com/blog/blog-post/east-palestine-impacts-mapped/. Retrieved February 26, 2026. Evacuation areas and smoke area.
38	April 19, 2023. Petty Draft Report Summarizing Analytical Findings from Sampling Air, Soils, and Waters in and around East Palesttine, OH following Release of Chemicals from Norfolk Southern Train Derailment.
39	April 27, 2023. Petty Draft Report Summarizing Analytical Findings from Sampling Air, Soils, and Waters in and around East Palesttine, OH following Release of Chemicals from Norfolk Southern Train Derailment.
40	March 30, 2023 - Petty Draft Report on Weather (wind) Data.
41	EES Group, Inc. Chart of Media, Analyses, and Methods for Chain of Custody for Soil, Sediment, and Water Sampling/Samples, Stephen Petty, P.E., C.I.H., C.S.P. April 18, 2023.
42	April 18, 2023 - Petty observations from review of posted EPA air, sediment, soil and water sampling results
43	April 27, 2023 Petty Draft Summary of Analytical Results from E Palestine, OH Train Derailment.
44	May 10, 2023. Petty Draft Report Summarizing April Soil and Water Sampling Locations in and around East Palestine, OH following Release of Chemicals from Norfolk Southern Train Derailment.
45	May 31, 2023 - EES Group, Inc (Petty) TRI Extractions - Downloaded TRI files for Columbiana County, OH (2021, 2020, 2019 and 10 to 11 companies), Beaver County, PA (2021 and 32 companies) and Lawrence County, PA (2021 and 17 companies) - Summary Tables.
46	June 6, 2023. EES Group, Inc (Petty) TRI Extractions – New Waterford, OH – Columbiana County & New Philadelphia, OH – Tuscarawas, OH - Table 1: New Waterford, OH - Columbiana County, OH Listed Locations and Chemicals by Company (1987 through 2021).
47	May 23, 2023 - Petty Plotted Map of BUSTR Sites
48	May 23, 2023 download – BUSTR file report - 15000004-01 1020 E Taggart - Leake Oil Company – 1995.
49	May 23, 2023 download – BUSTR file report - 15000004-02 1020 E Taggart - Leake Oil Company – 1998.
50	April 14, 2024. Petty Draft Report Summarizing Potential Implications of Benzo(a)pyrene & Dioxin/Furan Soil Sampling Results in Surface Soils In/Around the Norfolk Southern Train Derailment Site in East Palestine, OH.
51	Continuous Air Monitoring Summary Table – 2/11-13/2023 Low Resolution Air Sampling

Exhibit	Description
52	Summary of Petty Feb to May 2023 Sampling Locations and Sample #s.
53	April 18, 2023 Arcadis Report to Norfolk Southern Railway Company. East Palestine, OH Derailment Waste Management Plan. Milepost PC49 Railroad Tracks Northeast of North Pleasant Drive and Taggart Road Intersect, Columbiana County, East Palestine, Ohio. EPA ID: OHR000221457. Waste Characterization Report.
54	February 3, 2023 Arcadis Report to Norfolk Southern Railway Company. Main Line Interim Soil Removal Plan, Amendment 3, East Palestine, OH
55	June 27, 2023 Arcadis Report to Norfolk Southern Railway Company. Groundwater Characterization Work Plan, East Palestine, OH with June 29, 2023 Approval Cover Letter from USEPA's Ralph Dollhopf – On-Scene Coordinator to NS RR.
56	December 12, 2023 Directive issued by the USEPA on pursuant to the Unilateral Administrative Order CERCLA Docket No. V-W-23-C-004 regarding "Unreported Gelatinous Material and Explanation of Actions".
57	January 11, 2024 Arcadis Report to Norfolk Southern Railway Company. Main Line Interim Soil Removal Plan Addendum for Backfill and Restoration with January 8, 2024 Approval with Changes Cover Letter from USEPA Region 5.
58	Undated Arcadis Report (circa March/April 2024) entitled: "Water Pipe Repair at CeramFab - Summary Report." Repairs made from March 5-7, 2024.
59	Undated Arcadis Report (circa May/April 2024) entitled: "FINAL Flow Restoration in Stormwater Swales and Ditches Process." This report contains attachments summarizing analytical results from sampling activities along with e-mails between Arcadis and USEPA.
60	June 17, 2025 Arcadis U.S., Inc. (Arcadis) CeramFab Delineation Request Memorandum (Memo) to USEPA's Eric Pohl (On-Scene Coordinator). The memo was prepared on behalf of Norfolk Southern Railway Company (NSRC) in association with the East Palestine Train Derailment in East Palestine, Ohio (Site). This memo contains attachments summarizing analytical results from sampling activities.
60-1	June 17, 2025 Arcadis U.S., Inc. (Arcadis) CeramFab Delineation Request Memorandum (Memo) to USEPA's Eric Pohl (On-Scene Coordinator) – Dioxin QA QCs data.
60-2	June 17, 2025 Arcadis U.S., Inc. (Arcadis) CeramFab Delineation Request Memorandum (Memo) to USEPA's Eric Pohl (On-Scene Coordinator) – PFAS QA QCs data.
60-3	June 17, 2025 Arcadis U.S., Inc. (Arcadis) CeramFab Delineation Request Memorandum (Memo) to USEPA's Eric Pohl (On-Scene Coordinator) – VOC+ QA QCs data.
60-4	June 17, 2025 Arcadis U.S., Inc. (Arcadis) CeramFab Delineation Request Memorandum (Memo) to USEPA's Eric Pohl (On-Scene Coordinator) – Butyl Acrylate, Ethyl Hexyl Acrylate etc. data.
60-5	June 17, 2025 Arcadis U.S., Inc. (Arcadis) CeramFab Delineation Request Memorandum (Memo) to USEPA's Eric Pohl (On-Scene Coordinator) – Figures.
60-6	June 17, 2025 Arcadis U.S., Inc. (Arcadis) CeramFab Delineation Request Memorandum (Memo) to USEPA's Eric Pohl (On-Scene Coordinator) – Figures with Summary Data.
61	July 2023 Stormwater Pollution Prevention Plan - East Palestine Train Derailment, Columbiana County, Ohio prepared by Arcadis U.S., Inc. for Mr. Daniel Hunt, Norfolk Southern Railway Company. Includes site maps.
62	Bureau of Underground Storage Tank Regulations (BUSTR) file for Triple L Trucking, 448 E. Taggart St., East Palestine, OH site. Incident #1540788-00.
63	Bureau of Underground Storage Tank Regulations (BUSTR) file for Triple L Trucking, 448 E. Taggart St., East Palestine, OH site. Case #15000113-01.
64	Bureau of Underground Storage Tank Regulations (BUSTR) Circle K file.

Exhibit	Description
65	Petty 5-24-23 BUSTR Search and Requests - E. Palestine Search List and File Requests – Excel File.
66	Petty 5-23-2023 - Plots of E. Palestine BUSTR Sites.
67	February 10, 2023 Arcadis Remedial Action Work Plan to Ohio EPA (Mr. Kurt Koller, On-Scene Coordinator – Ohio-EPA) and NS by Andy Pennington (Environmental Scientist) and Jason Artrip (Certified Project manager). Site Figures attached.
68	February 9, 2023 East Palestine Train Derailment Air Monitoring Frequently Asked Questions (FAQs). Use of low resolution (ppm and VOC) equipment.
69	O'Marra et al., 1971. Combustion Products from Vinyl Chloride Monomer, AIHA Jornal, 32-3, pp. 153-156.
70	Univ. of Pittsburg, 2024. Vinyl Chloride - to burn or not to burn. Forges and Fifth.
71	Zhang, Mengmei et al., 2105. Dioxins and PVC in Combustion and Fires, WM&R, Vol 33, pp. 630-643.
72	Copy of February 19, 2023 US EPA Web Page - East Palestine
73	September 21, 2024 GAP Petty Declaration.
74	October 17, 2023 Letter report from People's Action Institute's Stephen U. Lester (Science Director) and Mihir Vohra (Science Fellow) to Ms. Jami Wallace, President, Unity Council for the East Palestine Train Derailment, East Palestine, OH regarding site dioxin testing.
75	September 6, 2024 Declaration of Richard J. Schuhmann, Ph.D., In re: East Palestine Derailment, Case No. 4:23-cv-00242, United States District Court for the Northern District of Ohio.
76	September 7, 2023 Arcadis Report to Norfolk Southern Railway Company. Characterization Work Plan for Derailment-Area Soil. East Palestine Train Derailment Site, East Palestine, Ohio. See pg. 31 for recommended dioxin screening level.
77	February 19, 2023 Petty draft report on Information Regarding Chemicals of Concern.
78	EPA Air Sampling Results – East Palestine, OH Webpage – Downloaded April 17, 2023. Excel files – original and sorted by chemical name.
79	EPA Soil and Sediment Sampling Results – East Palestine, OH Webpage – Downloaded April 17, 2023.
80	EPA Water Sampling Results – East Palestine, OH Webpage – Downloaded April 17, 2023. Excel files – original and sorted by chemical name.
81	Directory Containing Level 4 Analytical Data Files.
82	March 10, 2023 Eurofins report prepared for Norfolk Southern & Norfolk Southern Corporation. Job #: 240-180588-2. Soil dioxin composite soil sample taken on February 17, 2023.
83	February 28, 2023 Eurofins report prepared for Norfolk Southern & Norfolk Southern Corporation. Job #: 240-180684-1. Soils SVOCs. VOCs, PFAS, Metals and Dioxin samples taken from North Ditch on February 20, 2023.
84	March 9, 2023 Eurofins report prepared for Norfolk Southern & Norfolk Southern Corporation. Job #: 240-181183-1. Water SVOCs. VOCs, PFAS, Metals, DRO and TOC samples taken from Blue Building E and W (CeramFab), Clark, Pleasant and Gas Station on March 1, 2023.
85	March 20, 2023 Eurofins report prepared for Norfolk Southern & Norfolk Southern Corporation. Job #: 240-181894-1. Soils SVOCs. VOCs, Metals, and PCB samples taken from S. Track – West End from 2' to 16' bgs with composites on March 14, 2023.
86	March 7, 2023 Eurofins report prepared for Norfolk Southern & Norfolk Southern Corporation. Job #: 410-117699-1. Water samples for VOCs at unknown locations taken on March 6, 2023. Rush job.

Exhibit	Description
87	February 1, 2023 Eurofins report prepared for Norfolk Southern & Norfolk Southern Corporation. Job #: 240-180173-2. Water composite sample 01-05 for PFASs at unknown locations taken on February 9, 2023.
88	October 22, 2024 NS/Arcadis Report, Phase I – Residential, Commercial/Agricultural Soil Sampling Report - Revision 3 (Updated Conclusion in Section 7 in response to October 21, 2024 comment from USEPA). From: https://www.epa.gov/east-palestine-oh-train-derailment/phase-one-residential-commercial-and-agricultural-soil-sampling. Original report was issued on May 19, 2023. Revision 1: Issued September 13, 2024 – Revisions in response to August 29, 2024 comments from USEPA. Revision 2 issued on October 10, 2024. Revisions to Sections 6, 7, and 9. Updated title of Section 6; Clarified / Updated Conclusions in Sections 7 and 9 in response to October 8, 2024 comments from USEPA.
89	Ohio/Pennsylvania University Research Consortium. 2025. Data Brief: Dioxins and Furans. Contact: Dr. Jennifer Richmond-Bryant at North Carolina State University, jrbryan3@ncsu.edu. Data were collected by the LSU Superfund Research Center in partnership with Kent State University and reviewed by the OH/PA University Research Consortium.
90	Myron L. Lard, Sarah E. Eichler, Peng Gao, Kuldeep Singh, Joseph D. Ortiz, Robert L. Cook, Slawomir Lomnicki, Stephania A. Cormier and Jennifer Richmond-Bryant. 2025. Soil Contamination by Environmentally Persistent Free Radicals and Dioxins Following Train Derailment in East Palestine, OH, Environ. Sci.: Processes Impacts, 2025, 27, 729. Samples collected August 2023.
91	US EPA, 2025-07-31. Event Reconstruction Plume Map.
92	UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (US EPA). Region 5. 2023-09-14. September 14, 2023 Memo from Mike Devito, Keith Fusinski, Michelle Kerr, Mark Durno on behalf of the Environmental Unit for the East Palestine Train Derailment to Ralph Dollhopf, Incident Commander. Subject: Summary of Phase 1 Dioxin Results for the East Palestine Derailment Incident. Background Dioxin Soil Concentrations.
93	U.S. Environmental Protection Agency (US EPA), 2023-05-31. Retrospective Soot Deposition Analysis for the East Palestine Derailment Incident Response.
94	March 6, 2023 Arcadis Sampling Plan with Screening Values. Norfolk Southern Railway Company - Phase I Preliminary, Residential/Commercial/Agricultural Soil Sampling Plan, East Palestine Train Derailment Site., East Palestine, Ohio. Bates: ED_013980L_00001401-00001 to ED_013980L_00001401-00117. Proposed Soil Screening Levels: Bates ED_013980L_00001401-00117.
95	N/A/Arcadis Soil Inspection and Sample Locations as of April 18, 2023 (pdf). From: https://www.epa.gov/system/files/documents/2023-05/PIO%20Soil%20Sampling%20Plan%20Map%2020230506.pdf.
96	US EPA Detailment Map and other Information. From: https://www.epa.gov/system/files/documents/2023-05/PIO%20Derailment%20Location%2020230506-508.pdf.
97	US EPA Brochure – March 2023 – Dioxins not likely of concern. “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.” From: https://www.epa.gov/system/files/documents/2023-03/EPTD%20Soil%20Sampling%20Factsheet%20V3.pdf.

Exhibit	Description
98	Excel Spreadsheet with NS SVOC and Dioxin Sampling Results. From: https://www.epa.gov/east-palestine-oh-train-derailment/phase-one-residential-commercial-and-agricultural-soil-sampling#df.
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Exhibit	Description
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Exhibit	Description
143	March 6, 2023 e-mail from US EPA Brian Gullett to US EPA Distribution List including Todd Ramaly. Subject: EPTD Site: Confidential Attorney Work Product/Attorney-Client Privileged Communication. Dr. Gullett writes to Todd: "Todd, Chlorinated dioxins/furans are virtually insoluble in water. Even if it rained, it'd be extremely unlikely that they'd be in the soil 6" deep. Brian."
144	Arcadis Field Work Order Form. 2023. Work Description: Groundwater Sampling for PFAS at Shallow Monitoring Wells STW-7, STW-9, STW-23, STW-24, STW-26 and STW-26. Date of Work: As wells become available for sampling, Summer/Fall 2023. Scope of Work: Monitoring wells to be sampled for PFAS are: STW-7, STW-9, STW-23, STW-24, STW-26 and STW-26. These wells will also be sampled for non-PFAS parameters. ARCADIS00198619.
145	Ohio EPA Field Investigation Findings Form. Date: 5/7/2023. Corrective Active Report Date: 5/9/2023 @ 8:30 Tactics Meeting. Table with columns titled: Location, OEPA Field Observations, Is Action Required? And Norfolk Southern Corrective Action. [Sheens from operations] ARCADIS00354929.
146	Undated Stantec Presentation to Norfolk Southern Railway Company titled: "Portable Water Sampling Work Plan and QAPP Sample Frequency Revision Discussion. [Discusses Zones 1, 2, 3 and 4.] ARCADIS00355749.
147	June 14, 2023 Stantec Potable Water Sampling Work Plan Update to Norfolk Southern Railway Company for the East Palestine Train Derailment Site, East Palestine, OH. CERCLA Docket No. V-W-23-C-004. Prepared for: Norfolk Southern Railway Company, East Palestine, Ohio. Prepared by: Stantec Consulting Services Inc., 10745 Westside Way, Suite 250, Alpharetta, GA 30009. Project Number: 172607922. ARCADIS00382926.
148	Minutes from CTEH East Palestine, Ohio - Potable Water Supply Meeting. Subject: Potable Water Working Group. Meeting Date: 2023-03-15. Location: Teams. Time: 11:00 to 12:00 PM. Project name: NSRC – Taggart Road Incident. Prepared by: Michael Hutchinson. CTEH-000157116.
149	10/20/2023 Printed Spreadsheet with Draft Agencies Comments on East Palestine Derailment Site Amendment to Appendix I Work Plan: North Ditch Seep Investigation and Operational Tactic Memo. ARCADIS00000744.
150	Split Table with Shallow and Deep Well Details Provided including Well #, Site Area Location, Geographic Location, Hydrostatic Target, Elevations, Well details and depth, Geology at screen and water column length. ARCADIS00002073.
151	Shallow and Deep Well Maps and Analytical Chemistry Sample Results. Figure 1: Groundwater Characterization Wells; Figure 2: Sept. 30, 2023 Shallow Potentiometric Surface Map; Figure 3: October 7, 2023 Shallow Potentiometric Surface Map; Figure 4: Soil Analytical Results – Shallow Well Locations; Figure 5: Shallow Monitoring Well Analytical Results – Groundwater; Figure 6: Deep Monitoring Well Analytical Groundwater Results Groundwater. ARCADIS00002445.

Exhibit	Description
152	August 29, 2023 - V 3.5 Arcadis Norfolk Southern Railway Company Characterization Work Plan for Derailment-Area Soil East Palestine Train Derailment Site East Palestine, Ohio. Version: 1.0: March 6, 2023 - Initial submittal; Version 2.0: May 5, 2023 - Updated plan incorporating revised sampling design and parameter list; Version 2.1: May 10, 2023 - Further revised sampling design and parameter list; Version 3: June 13, 2023 - Current submittal, revised sampling design and parameter list; Version 3.1: July 12, 2023 - Updated to address EU draft comments dated 6/23/23 and subsequent discussions; Version 3.2: July 18, 2023 Updated to address EU draft comments dated 7/15/23; Version 3.3: July 23, 2023 - Updated to address modifications from the USEPA on 7/20/23; Version 3.4: August 11, 2023 - Updated to address non-substantive changes from V3.3; Version 3.5: August 29, 2023 - Updated to reflect changes to analytical program identified during QAPP finalization. Figure 1: Site Working Area; Figure 2: Surface Water Flow; Figure 3: Car Scrapping 3; Figure 4: Car Scrapping 4; Figure 5: Ditch East of Car Scrapping 4; Figure 6: South Ditch East of Pleasant; Figure 7: South Ditch West of Pleasant; Figure 8: North Ditch West of Pleasant; Figure 9: PA Waste Staging; Figure 10: Park Dr.; Figure 11: Bacon Ave.; Figure 12: Wastewater 1 and Wastewater 2; Figure 13: Car Scrapping 2; Figure 14: Car Scrapping 1; Figure 15: Tank Farm 1; Figure 16: Upland of the Main Line East; Figure 17: Upland of North Ditch; Figure 18: Tank Farm 2; Figure 19: Tank Farm 3; Figure 20: Tank Farm 5; Figure 21: Tank Farm 6; Figure 22: Waste Staging; Figure 23: Wetland Phase I; Figure 24: Underground Features; Figure 25: Standby Tank Area 1; Figure 26: Standby Tank Area 2; Figure 27: WWTP Effluent Tanks. Figure 28: Sample Evaluation Decision Logic for Delineation. Site Drawings: CeramFab – Figure DEP_DU3. ARCADIS00022046.
153	June 2023 – Revision 4 - East Palestine Train Derailment Site Potable Water Well Sampling Quality Assurance Project Plan East Palestine, Ohio. CERCLA Docket No. V-W-23-C-004. Prepared for: Norfolk Southern Railway Company. ARCADIS00022489.
154	Day 284 Norfolk Southern East Palestine Executive Summary - Monday 11/13/2023 – Day 284. Liquid and Solid Wastes Categorized and/or Shipped and Soil Samples Taken. Total Number of VOC samples collected 371; Total Number of ISM samples collected 903; Total Number of samples collected 1,274. [From https://ism-2.itrcweb.org/. Incremental Sampling Methodology (ISM) is a structured composite sampling and processing protocol that reduces data variability and provides a reasonably unbiased estimate of mean contaminant concentrations in a volume of soil targeted for sampling. ISM provides representative samples of specific soil volumes defined as decision units by collecting numerous increments of soil (typically, 30 to 100 increments) that are combined, processed, and subsampled according to specific protocols.] ARCADIS00027053.
155	February 14, 2023 Arcadis Draft Quality Assurance Project Plan (QAPP) for the Norfolk Southern Railway Company February 3, 2023 Derailment East Palestine, Ohio. ARCADIS00121558.
156	March 5, 2026 Deposition of Justin Gaudi. CeramFab, Inc., CeramsSource, Inc., Yonggong, LLC and WYG Refractories, Inc. vs. Norfolk Southern Corporation and Norfolk Southern Railway Company. Case #: 4:23-cv-022026-BYP. In the United States District Court for the Northern District Court of Ohio – Western Division. a. Ex. 1 -Notice of Videotaped Deposition b. Ex. 2 - Arcadis invoice cover sheet c. Ex. 3 - Email chain ending April 11, 2023 d. Ex. 4 - Remedial action work plan e. Ex. 5 -Delineation report f. Ex. 6 - Email chain September 12, 2023

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157	February 26, 2026 Deposition of Kevin Smith. CeramFab, Inc., CeramsSource, Inc., Yonggong, LLC and WYG Refractories, Inc. vs. Norfolk Southern Corporation and Norfolk Southern Railway Company. Case #: 4:23-cv-022026-BYP. In the United States District Court for the Northern District Court of Ohio – Western Division. a. Ex. 1 - Employee List b. Ex. 2 - Photo Packet c. Ex. 3 - Photo Packet d. Ex. 4 - Five-year Purchasing plan of equipment e. Ex. 5 - CF equipment list as fixed assets as of June 19, 2023 f. Ex. 6 - CF equipment purchased and delivered for 6 lines as of June 18, 2023 g. Ex. 7 - CF equipment ordered but undelivered for 6 lines as of derailment h. Ex. 8 - Estimated mag carbon cost & margin breakdowns i. Ex. 9 - CeramFab Profit & loss January through December 2021 j. Ex. 10 - CeramFab profit & loss January through December 2022 k. Ex. 11 - CeramFab, Inc. open Sales orders by customer January 1, 2011, through June 21, 2023 l. Ex. 12 - Allen Refractories Company PO m. Ex. 13 - Camus PO n. Ex. 14 - Ceramic Fiber Enterprises Inc. PO o. Ex. 15 - CeramSource PO p. Ex. 16 - Fabrication Specialties PO q. Ex. 17 - Hayse International PO r. Ex. 18 - Hearthstone PO s. Ex. 19 - Joret PO t. Ex. 20 - Molten Metal Service PO u. Ex. 21 - National Refrigeration and Air Conditioning Products PO v. Ex. 22 - New Buck Corporation PO w. Ex. 23 - Olympic Kilns PO x. Ex. 24 - Prime Meatal Acquisition PO y. Ex. 25 - Precision Control Systems PO z. Ex. 26 - Reaco PO aa. Ex. 27 - Roxwell PO bb. Ex. 28 - SBI PO cc. Ex. 29 - Specialty Foundry Products PO dd. Ex. 30 - Timken Steel PO ee. Ex. 31 - Universal Stainless PO ff. Ex. 32 - CeramFab to Whom it May Concern Letters
158	February 20, 2026 Deposition of Christopher Hunsicker. CeramFab, Inc., CeramsSource, Inc., Yonggong, LLC and WYG Refractories, Inc. vs. Norfolk Southern Corporation and Norfolk Southern Railway Company. Case #: 4:23-cv-022026-BYP. In the United States District Court for the Northern District Court of Ohio – Western Division. Rough Draft. a. Ex. 1 - Notice of Deposition b. Ex. 2 - TribeLIVE article c. Ex. 3 - Responses and Objections d. Ex. 4 - Remedial Action Work Plan e. Ex. 5 - Map of Western Tributary to Sulfur Run f. Ex. 6 - Ideastream Public Media Article g. Ex. 7 - ABC News article h. Ex. 8 - Norfolk Southern MAKING IT RIGHT 12-Month Progress Report i. Ex. 9 - Access agreement j. Ex. 10 - Delineation Memo k. Ex. 11 - Color Copy of photo (Photo of blocked off ditch with a pipe running through it.) l. Ex. 12 - Color Copy of photo (Photo of empty canal being worked on)

Exhibit	Description
159	March 17, 2026, Declaration of Geoffrey C. Rathgeber, in Support of Defendants' Joint Statement. CeramFab, Inc., CeramsSource, Inc., Yonggong, LLC and WYG Refractories, Inc. vs. Norfolk Southern Corporation and Norfolk Southern Railway Company. Case #: 4:23-cv-022026-BYP. In the United States District Court for the Northern District Court of Ohio – Western Division.
160	March 17, 2026, Declaration of Rick Helmadollar, in Support of Defendants' Joint Statement. CeramFab, Inc., CeramsSource, Inc., Yonggong, LLC and WYG Refractories, Inc. vs. Norfolk Southern Corporation and Norfolk Southern Railway Company. Case #: 4:23-cv-022026-BYP. In the United States District Court for the Northern District Court of Ohio – Western Division.
161	Directory of Plaintiff Data Set #1 QA/AC's EDD files.
162	Directory of Petty Data Set #2 QA/AC's EDD files.
163	Directory of GEL Data Set #3 QA/AC's EDD files.
164	Directory of Smith Data Set #4 QA/AC's EDD files.
165	Arcadis US, Inc. Norfolk Southern Railway Company Phase I – Preliminary Residential/ Commercial/Agricultural Soil Sampling Plan. East Palestine Train Derailment Site, East Palestine, Ohio. March 6, 2023. Prepared for Norfolk Southern Railway Company. Prepared by: Arcadis US, Inc., 50 Fountain Plaza, Suite 600, Buffalo, New York 14202. Phone: 716 667 0900. Fax: 716 842 2612.
166	April 15, 2022. SVOC (Semi volatile organic compounds) Sampling Guidelines, Rev. 1.0. First Revision by Thomas J. McDonald on April 15, 2022. Downloaded from NIEHS (National Institute of Environmental Health Sciences) NIH (National Institute of Health) portal: https://portal.niehs.nih.gov/dr2/unmanaged/files/svoc_sampling_04_15_2022_508.pdf on April 1, 2026.
167	Extractions of Chain of Custody's from Exhibit 88 where No Sampler is Listed.
168	Extractions of Chain of Custody's from Exhibit 88 where Sampler is Listed.
169	February 21, 2023. US EPA Internal Memo. SUBJECT: Enforcement Action Memorandum – Determination of Threat to Public Health and the Environment at the East Palestine Train Derailment Site, East Palestine, Columbiana County, Ohio (Site ID: C5XR). FROM: Ralph Dollhopf, On-Scene Coordinator, Emergency Response Section 1 THRU: Jason H. El-Zein, Manager, Emergency Response Branch 1 TO: Douglas Ballotti, Director, Superfund & Emergency Management Division.
170	GEL EP02 raw sample results for VOC, SVOC and Dioxins for Standing Storm Water (SSW) results SSW-1 through SSW-4.
171	Norfolk Southern Railway Co. et al., vs. Oxy Vinyls LP, et al. Case No.: 4:23-CV-242, Trial United States District Court, Northern District of Ohio – Eastern Division. Judge Benita Y. Pearson. Transcripts Volumes 1-16.
172	Exponent Report of Chason Coelho and accompanying exhibits. Norfolk Southern Railway Co. et al., vs. Oxy Vinyls LP, et al. Case No.: 4:23-CV-242, Trial United States District Court, Northern District of Ohio – Eastern Division. Judge Benita Y. Pearson.
173	Exponent Report of Joseph Lemberg and accompanying exhibits. Norfolk Southern Railway Co. et al., vs. Oxy Vinyls LP, et al. Case No.: 4:23-CV-242, Trial United States District Court, Northern District of Ohio – Eastern Division. Judge Benita Y. Pearson.
174	Expert Report of James Rader and accompanying exhibits. Norfolk Southern Railway Co. et al., vs. Oxy Vinyls LP, et al. Case No.: 4:23-CV-242, Trial United States District Court, Northern District of Ohio – Eastern Division. Judge Benita Y. Pearson.

Exhibit	Description
175 a & b	Expert Report of Michael Lunsford and accompanying exhibits. Norfolk Southern Railway Co. et al., vs. Oxy Vinyls LP, et al. Case No.: 4:23-CV-242, Trial United States District Court, Northern District of Ohio – Eastern Division. Judge Benita Y. Pearson.
176 a & b	Expert Report of Joseph Poplawski and accompanying exhibits. Norfolk Southern Railway Co. et al., vs. Oxy Vinyls LP, et al. Case No.: 4:23-CV-242, Trial United States District Court, Northern District of Ohio – Eastern Division. Judge Benita Y. Pearson.
177 a & b	Expert Report of Gary Wolf and accompanying exhibits. Norfolk Southern Railway Co. et al., vs. Oxy Vinyls LP, et al. Case No.: 4:23-CV-242, Trial United States District Court, Northern District of Ohio – Eastern Division. Judge Benita Y. Pearson.
178	Expert Report of Dr. Allen Zaremsbki and accompanying exhibits. Norfolk Southern Railway Co. et al., vs. Oxy Vinyls LP, et al. Case No.: 4:23-CV-242, Trial United States District Court, Northern District of Ohio – Eastern Division. Judge Benita Y. Pearson.
179	Complete listing of all Data Set #4 East Palestine, OH Samples and Sample Locations (111).
180	April 6, 2025 Petty Expert Report – CeramFab and WYG Plaintiffs - NS Train Derailment in East Palestine, OH.
181	Expert Report of Michael Lunsford. Case No.: 4:23-CV-02206-BYP Trial United States District Court, Northern District of Ohio – Eastern Division. Judge Benita Y. Pearson.
182	May 15, 2026 Expert Report of Brent Finley, Ph.D. Case No.: 4:23-CV-02206-BYP Trial United States District Court, Northern District of Ohio – Eastern Division. Judge Benita Y. Pearson.
183	May 15, 2026 Expert Report of Adam H. Love, Ph.D. Case No.: 4:23-CV-02206-BYP Trial United States District Court, Northern District of Ohio – Eastern Division. Judge Benita Y. Pearson.
184	March 3, 2023 USEPA e-mail from Linda Birnbaum to Brian Gullet. EPA Orders Testing for highly toxic dioxins at Ohio derailment site.
185	FOIA EPA e-mails tp/from Linda Birnaum, Brian Gullet, Emily Smith and others from February 17, 2023 to March 15, 2023.
186	Excerpts from Gullet e-mails from Exh. 186 and Lester quotes in November 25, 2023 Huffington Post article by Chris D'Angelo - https://www.huffpost.com/entry/chemical-mixtures-toxicity-unknown-risk_n_655c9232e4b0662eb43b7c71
187	Domingueza, Thomas, Johanna Aurellb, Brian Gullettc, Robert Eningera, and Dirk Yamamotoa, 2018, Characterizing emissions from open burning of military food waste and ration packaging compositions, J Mater Cycles Waste Manag. 2018 ; 20(2): 902–913. doi:10.1007/s10163-017-0652-y.
188	Bio of Brian K. Gullett - Environmental Engineer in EPA's National Risk Management Research Laboratory
189	June 4, 1991 Brian K. Gullett U.S. Patent# 5,021,229. Reduction of Chlorinated Organics in the Incineration of Wastes.
190	February 9, 1993 Brian K. Gullett U.S. Patent# 5185,134. Reduction of Chlorinated Organics in the Incineration of Wastes.
191	October 25, 2023 Letter Report from Stephen U. Lester (Science Director) & Mihir Vohra (Science Fellow) from the Center for Health, Environment & Justice to Ms. Jami Wallace. RE: EPA's Dioxin Testing in East Palestine, OH Conducted March-April, 2023.
192	March 20, 2023 Health And Safety Plan (HASP) prepared for the East Palestine Train Derailment Site, Unified Command Group – Ver. 2 by US EPA (Shanna Horvatin, US EPA Safety Officer) and CTEH (Scott Skelton, CTEH Assistant Safety Director) – See site control map

Exhibit	Description
193	April 2026 Report and Cover Letter by Haley & Aldrich, Inc. (Catherine E. Regan, Principal & Scott Anderson, P.G., Principal), Greenville, South Carolina titled “Indoor Air Sampling Summary Report 900 E. Taggart Street and 193 N. James Street, East Palestine, OH 44413.
194	May 2026 Rebuttal Report Addressing the Expert Reports of Adam H. Love, Ph.D. Brent L. Finley, Ph.D. and Michael Lunsford Regarding Environmental Contamination, Exposure Risks, and Incident Response Following the February 3, 2023, Norfolk Southern Railway Train Derailment in East Palestine, Ohio by Paul Rosenfeld, Ph.D., Roseyfields, LLC, 2656 29th Street, Suite 201 Santa Monica, California 90405.
195	April 6, 2026 Expert Report by Paul Rosenfeld, Ph.D., Roseyfields, LLC, 2656 29th Street, Suite 201 Santa Monica, California 90405.