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June 1, 2019

Mr. Bradley S. Nave
Principal Remediation Project Manager
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C/O AECOM
500 West Jefferson Street
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Re: Waste Management Progress Report No. 7
For Period May 19, 2018 to May 18, 2019
Bioremediation Pilot Test – 2018 Field Season
Former DuPont Barksdale Explosives Plant
Remediation Variance Approval of May 22, 2012
Remediation Variance Renewal Approval of May 18, 2017
FID No.: 804009140
EPA ID No.: WIR000133447
BRRTS No. 02-04-000156

Dear Mr. Nave:

This letter report provides a summary of work conducted in 2018 in conjunction with the on-going Bioremediation Pilot Test Program (BPTP) at the Former E. I. du Pont de Nemours and Company (DuPont) Barksdale Works site (Figure 1). This letter and its attachments are provided for your communication to the Wisconsin Department of Natural Resources (WDNR) so that The Chemours Company, FC, LLC (Chemours) may fulfill Condition 7 of the Hazardous Waste Remediation Variance for Biodegradation of Contaminants and Removal of Residual Product and Debris (HWRV), which was originally issued for the site on May 22, 2012 and renewed on May 18, 2017. Condition 7 requires that annual progress reports be submitted to the department in accordance with s. NR 724.13(3), Wis. Adm. Code. The annual reports are required until the variance ends on May 18, 2022 and are due on or before June 1st of each year.

1.0 BACKGROUND INFORMATION

1.1 REQUIREMENTS OF THE VARIANCE

Condition 7 of the variance specifies that the progress reports shall be submitted annually in accordance with s. NR 724.13(3), and shall include:

a. *Documentation of the type and amount of product residuals and debris removed from biopilot cells. Documentation of any characterization and container storage of product residuals and debris removed from biopilot cells. Documentation of disposal of any product residuals and debris removed from the biopilot cells including manifest copies.*
b. *Documentation of any management, including consolidation, of discrete areas where impacted soil is located within narrow locations such as former ditches or locations that are contorted by the layout of former building features. Documentation of the location of those areas and the amount of soil that is moved. Documentation of the location of areas where the soil combined from discrete source areas is managed.*
c. *Documentation of any alternative treatment of large debris that facilitates management, including washing and physical resizing of large debris for off-site disposal. Documentation of management of all impacted waste streams generated by these activities, including amounts and volumes of waste treated and generated.*

Certified laboratory analytical testing for effectiveness, waste collection, management, and disposal associated with construction and operation of the BPTP are addressed in this progress report. Laboratory reports for data referenced in this report are included in Appendix D.

1.2 BIOREMEDIATION PILOT TEST PROGRAM HISTORY

The Barksdale BPTP is focused on biodegradation of nitroaromatic and nitramine organic compounds (NNOCs) in soil. The BPTP began in 2007 with the construction of four in-situ till areas (cells) intended to evaluate the effect of water, oxygen, and pH on the rate of in-situ microbial degradation of 2,4- and 2,6-dinitrotoluene (DNT) in site soil as a possible alternative to conventional remedies. These original cells are identified as cell locations C01 through C04 on Figure 2.

Early results indicated that degradation of these two primary DNT isomers was feasible; however, the presence of various other NNOCs was observed to affect degradation rates. As such, the program was expanded in 2008 to evaluate the range of this observed effect by adding three more cells that contained less complex NNOC mixtures. After initiating tilling, several of the 2008 cells were found to contain solid pieces of residual product that resulted in cell heterogeneity and limited the analysis of the test results. As a result, six additional cells within similar trinitrotoluene (TNT)/DNT ratios were constructed in 2009 at locations where the majority of such solids could be removed manually prior to tilling. Also in 2009, one of the 2008 cells was expanded to four times its original size with the construction of two contiguous new cells in order to evaluate potential economies of scale in cell operation. The cells constructed in 2008 and 2009 are identified as C05 through C15 on Figure 2.

In 2010, the investigation of new areas of the site discovered NNOCs within a sandy soil matrix. Because all cells constructed prior to 2010 had been in clayey soil, three additional cells were added in 2011 to evaluate degradation in the new soil types. These cells are identified as C16 through C18 on Figure 2. All debris and product residues encountered during development of the first 18 cells was collected, containerized, and shipped off-site for incineration.

Prior to the HWRV, there were several limitations with respect to construction; soil and waste handling; and test evaluation for the first 18 cells. These limitations included:

- Having to incinerate soil removed during cell construction, which would have otherwise been amenable to biodegradation.
- Having to remove product either by bulk removal prior to cell construction or by manually removing product solids on a periodic basis from the cell surface after tilling was initiated.
- Not having permission to consolidate disjointed areas for testing.
- Having limitations on the ability to control water content within the cells driven by the fact that all cells had to be constructed in-situ.

To address these constraints on the BPTP, Chemours, at the suggestion of WDNR, requested a hazardous waste remediation variance in July 2010. Following Chemours response to several sets of comments by the department, WDNR issued the HWRV on May 22, 2012. The permit specifies that a total of 10,000 cubic yards of soil may be treated as part of the operations permitted under the HWRV.

Since June of 2012, sixteen additional cells have been constructed to address waste being removed from within the area of concern (AOC). Cells C19, C20, C21, and C22 were constructed in 2012 to accommodate and evaluate material removed in and around areas investigated. Cell C22 has remained inactive since its construction due to obstacles that halted investigation and removal of waste from its proposed waste source area.

Cell C23 was constructed in 2013 to run a study in conjunction with the United States Army Corp of Engineers (USACE) that addressed degradation of TNT and other NNOCs by introducing additional stimuli (including hydrated lime) to accelerate the waste degradation process. The study on cell C23 was completed in 2014 and waste soils were subsequently removed from the cell and stored for further study or to await treatment or incineration. While the cell structure is still present, it has been unused since 2014. Soils stored from the cell were placed in treatment cells C12, C17, and C22 during the 2017 field season.

Further site investigation during 2014 to 2018 uncovered soil that contained varying concentrations of fine grained (i.e., sand sized or smaller) TNT. Cells C24 through C34 were constructed between 2015 and 2018 to store, test, and treat with methods developed as a direct result of the C23 study.

Table 1 lists the cells currently in place and includes information regarding their volume, status, and contaminant mass. Pilot test activities performed under the HWRV are conducted within the designated AOC. Any debris or product removed from cells is handled in accordance with Resource Conservation and Recovery Act (RCRA) rules, including land disposal restrictions (LDRs) and Best Demonstrated Available Technology (BDAT) requirements.

2.0 REPORTING REQUIRED BY THE VARIANCE

This section provides the information stipulated in HWRV.

2.1 PROGRESS OF THE BIOREMEDIATION PILOT TEST PROGRAM

2.1.1 Contaminant Removal

Table 1 includes estimates of contaminant mass removed within the biopilot test program over the calendar year and to date, as well as estimated contaminant mass remaining for each cell and constituent of potential concern (COPC). The estimated masses indicated in Table 1 are based on averaged values for all samples collected in a given cell at the first sampling of a COPC (typically 8 to 12 samples per cell) and in the most recent events that included that COPC (typically multiple locations within a cell to form a composite sample). Observations on contaminant removal during the past pilot test season are bulleted below.

- Distribution of COPCs in the soil in the cells is heterogeneous. As a result, the concentrations of a few COPCs are shown to have increased over time on Table 1. However, statistical analysis based on data collected across the full 12 years of the program show overall concentrations are decreasing. Such heterogeneity effects are more apparent in the single season product removal estimates than in the long-term, overall removal values. The apparent mass increases shown on Table 1 are generally on the order of a few micrograms per kilogram (µg/kg) and many of the apparent increases are due to changes in detection limits within the duration of the project.
- To date, an estimated total of 12,008 pounds (lbs) of COPCs in soils have been destroyed/removed via on-site treatment efforts in the entirety of the BPTP (Table 1).
- Over ninety percent of the COPCs being tracked have shown decreases over the life of the pilot program.
- Laboratory reporting limits (RLs) were evaluated by comparing them to risk-based levels in order to determine if they were low enough to make risk management decisions. Table 4 compares the laboratory RLs to default WDNR Residual Contaminant Levels (RCLs) for direct contact as well as site-specific direct contact RCLs (SSRCLs). This comparison shows that the laboratory RLs are well below, i.e., 6 to 11,000 times below, the direct contact RCLs and are considered suitable for making risk management decisions.

2.1.2 Operational Issues

Heterogeneity of the contaminant mixtures in the cells has been an on-going issue. Increased and sustained soil moisture due to heavy precipitation during the 2018 field season limited equipment access and tilling in some cells due the wet consistency of the cell material. A mix head attached to an excavator will be used to till cell contents for the 2019 field season, which should eliminate the moisture and access issues. Testing is being conducted in an off-site laboratory to address heterogeneity.

2.1.3 Evaluation of System Effectiveness

In general, the BPTP results continually show that the approaches being tested show promise remediation of affected site soil, but on-going evaluation is needed to determine if the process will be effective in reaching site-wide remedial goals for the varying COPC mixtures found in site soil.

Because this is a pilot test program, the activities do not address all impacted areas on the site; therefore, discussion of site-wide monitored natural attenuation and case closure are not applicable.

The status of the biopilot cells during the reporting period is as follows:

- Cells C01 to C05, C07, C08, C10, C11, C13 to C15, C18 to C20, C22, C23, C29, C30, and C32 were not tilled or sampled in 2018 and were not actively tested during the reporting period.
    - Control cells C01 to C04 were inactive in 2018 because historical analytical testing has showed that COPC concentrations have generally stabilized and were not responding to the previous treatment approach.
    - COPC concentrations in Cells C05, C07, C08, C10, C11, C13 through C15, and C18 through 20, are below SSRCLs on average and as such, active testing was not conducted in these locations during the reporting period. These cells were seeded and observed for vegetation regrowth, which was successful.
    - The soil tested in Cell C23 was containerized at the close of the 2013 season and has remained empty. The soil formerly located in C23 was spread in C22 (1 cubic yard of impacted soils), C12 (0.9 cubic yard of impacted soils), and C17 (0.8 cubic yard of impacted soils) in spring 2017 based on the similarities of the constituents.
    - Cell C22 has not yet been loaded with soil, with the exception of approximately 1 cubic yard of soil from Cell C23.
    - Cells C29, C30, and C32 have not yet been loaded with soil.
- Cells C06, C12, C16, C17, C21, C24 through C28, C31, and C33 are active alkaline hydrolysis (AH) cells. AH cells have been treated by pH adjustment as allowed under the HWRV for treatment of elevated NNOC concentrations using hydrated lime. Composite soil samples from each of the AH cells were collected in 2018.
    - Cells C33 and C34 were constructed in 2018. Cells C28 (constructed in 2017) and C33 were loaded to capacity in 2018 and the cells were tilled in 2018, following the application of lime. Cell C34 was partially loaded and it is anticipated that lime addition, mixing, and sampling will occur in the 2019 field season. Approximately 410 cubic yards of soil was added to C28, C33, and C34 in 2018.
    - Additional lime was added to cell C06 in 2018 to raise the pH. Lime was initially added to the cell in 2017. Cell C06 was tilled following the application of the lime.
    - Lime was added to cells C28 and C31 for the first time in 2018. These cells were also tilled in 2018, following the application of lime.
    - Cells C17, C21, and C28 were tilled in 2018.
- Willow trees were planted in Cell C09 prior to 2018 to evaluate the ability of the trees to control pore water. COPC concentrations fell below SSRCLs in 2010. Soil within the tree root zone and willow leaves were sampled in 2018.

With the completion of the 2018 field season, the total volume of soil currently being evaluated under the HWRV is 5,919 cubic yards, which is within the permitted maximum of 10,000 cubic yards. See Figure 5 for the general design of cells C1 through C22. See Figure 6 for the general design of cells C24 through C34 (ex-situ, lime addition cells).

2.1.4 System Status and Recommended Future Work

The bioremediation project has treated approximately 12,008 lbs of site contaminant to date (Table 1). The initial quantity of contaminants placed in all cells was approximated at 12,948 lbs. With the addition of 2018 contaminated soils, the approximated quantity of COPCs in current treatment cells is estimated to be 940 lbs. A visual representation of the cell data is provided in Appendix C.

Activities proposed for the 2019 work season include:

- COPC concentrations in Cells C05, C07, C08, C10, C11, C13 through C15, and C18 through C20, are below SSRCLs on average and were seeded and observed for vegetation regrowth, which was successful. Results of the vegetative regrowth will continue to be evaluated in 2019, and re-seeding will be conducted if necessary.
- Cell C12 will be removed as a result of site investigation processes:
    - Areas below and around sections of C12 have not been fully investigated. Consequently, the soil contained within C12 will be relocated to allow for subsequent investigation.
- Cells C01 through C04 will be removed as a result of site investigation processes:
    - The cells were initially constructed as “in-situ” test locations at the Lydol House in use area PAC.
    - On-going testing has indicated that biorememdiation is not occurring or is occurring slowly at these cells.
    - It is anticipated that further investigation of the Lydol House foundation is required.
    - The material from these cells will be removed and located to another cell for AH testing.
    - It is not known if this work will be part of the 2019 field effort.
- Inactive Cell C23 will be maintained for potential future testing.
- Cell C34 is anticipated to be filled to capacity from 2019 field investigation activities and receive lime treatment.
- Cells C29, C30, and C32 are currently empty and will be utilized as needed in 2019.
- Cells C06, C12, C16, C17, C21, C24 through C28, C31, and C33 will continue to receive monitoring.
- Two new cells are proposed for construction in 2019. These cells will support an evaluation of pH adjustment (addition of lime as allowed in the variance). These cells will be built using the general design depicted in Figure 6.
    - Cell C35 is planned to be located in the central part of use area PAH. It is expected to hold soil impacted with high levels of refined TNT which contains less DNT and other process residues.
    - C36 will be constructed as needed, with a similar intended use as the other cells.

The total volume of soil anticipated to be treated under the HWRV as of the end of 2019 is between 6,000 to 7,000 cubic yards, which will be within the permitted maximum of 10,000 cubic yards.

2.2 SITE MAPS

Site maps are provided in Figures 1 through 4. Figures 2 through 4 provide the locations of the test cells. Figures 5 and 6 provide details of the construction of the existing cells.

2.3 DATA PRESENTATION

Table 1 provides data indicating the progress of soil bioremediation. Table 2 lists debris and residuals removed for off-site disposal in the reporting period. Table 3 lists the source and quantities of soil moved to test cells in the reporting period. Table 4 provides a list of site-specific analyte screening criteria and a comparison to laboratory detection limits.

Prior to 2015, data represented in tables assumed non-detected concentrations as half the laboratory method detection limit (MDL). Subsequent reports assumed a concentration of zero for analyte concentrations below the MDL. This report has re-aligned the "initial analyte" table to reflect the zero value for analyte concentrations below the MDL.

2.4 DATA DOCUMENTATION

Waste manifests for all materials removed from site are attached in Appendix B. Scatter plots for bioremediation trend monitoring are attached in Appendix C. Laboratory reports for samples and waste characterization are attached in Appendix D.

2.5 REPORTING FORM

A completed copy of WDNR Form 4400-194: "Operation, Maintenance, Monitoring and Optimization Reporting of Soil and Groundwater Remediation Systems" is attached to this letter in Appendix A.

2.6 PRODUCT RESIDUALS AND DEBRIS REMOVED FROM BIOREMEDIATION PILOT CELLS [CONDITION 7a]

The cited variance condition requires:

- Documentation of the type and amount of product residuals and debris removed from biopilot cells.
- Documentation of any characterization and container storage of product residuals and debris removed from biopilot cells.
- Documentation and disposal of any product residuals and debris removed from the biopilot cells including manifest copies.

No product residuals were physically removed from any of the bioremediation pilot cells during the current reporting period. Debris, including concrete and steel pipes, stored in bio cells from previous investigation was cleaned and removed during this field season.

Approximately 410 cubic yards of soil was added to BPTP cells during the current reporting period (see Section 2.7).

Debris managed and/or removed by site investigation work during the current reporting period included scrap steel, concrete, and product residues (see Section 2.6.5) from historical operations within the AOC that had previously been investigated or were being investigated during the current reporting period. Debris removal locations are indicated on Figure 4. Table 2 provides a summary of all debris handled on-site during the 2018 field season.

2.6.1 Concrete Debris

Concrete from floors in buildings excavated to locate potentially explosive concentrations of NNOCs often needs to be removed in order to access the soil beneath. Concrete moved during investigations is field screened using an NNOC vapor detector (FIDO®) and/or Expray®. Concrete for which field screening does not indicate the presence of NNOCs is either returned to the source structure after completion of investigatory excavation or stockpiled for future reuse on-site. Concrete screening above background is stockpiled at a central storage site pending alternative treatment (see Section 2.8). All concrete moved during investigation work is managed within the AOC.

Concrete from the PAJ Refined Triton East and West Graining House foundations that screened positive for residual product was moved to cell C28. Concrete that screened below background was returned to the respective source structure and buried under clean soil. Concrete that was cleaned within C28 was removed following cleaning and buried at its source structure.

2.6.2 Metallic Debris

Metallic debris such as pipes, sheet metal or other discarded equipment components is often encountered during investigation activities. Metallic debris with accessible, visible internal channels is field screened using FIDO® and Expray® technology. Field screening is limited to flat or solid objects or pipes that are not bent, plugged, crushed, or otherwise obstructed. Metallic debris screening without detections is segregated and managed as "clean". "Clean" metallic debris is sent to an accumulation area pending pick-up by a recycler (see Section 2.8). Visually obstructed or bent metallic debris is accumulated on an impervious paved surface and fitted with a plastic cover to prevent contact with storm water or is temporarily stored within a test cell. The accumulated materials are processed as described in Section 2.8. All temporary storage of metallic debris is managed within the AOC.

One partially full large trailer of metallic debris was recovered during the current reporting period. This debris consisted of steel pipes from the PAJ Refined Triton Graining Houses (east and west) and the unknown foundation (Table 2). None of this metal screened above background levels; therefore, it was added to the uncontaminated stockpile (PAK-SP01). The stockpile was removed by Chicago Iron and Supplies Inc., Ashland, WI on November 1, 2018 for recycling.

2.6.3 Adhered Soil

Solids (soil and debris) generated during the site work have the potential to exhibit a characteristic of toxicity for dinitrotoluene (D030). As a result, these items are segregated for staging within the AOC until they are characterized and designated for disposal. Debris segregated in 2018 consisted of soiled personal protective equipment (PPE), plastic buckets, plastic sampling scoops, a wood pallet, and soiled tarps. An estimated total of 559 lbs of solids and debris were consolidated into a site-designated roll-off container for future shipment to Veolia Trade Waste Incinerator in Sauget, IL (EPA ID no: ILD098642424) for destruction by incineration upon further accumulation following future investigation.

Liquid (water) collected in decontamination processes was declared non-hazardous waste in 2018 based laboratory testing. Approximately 300 gallons of water was generated during site activities and was sent off-site to Veolia in Menomonee Falls, WI (EPA ID no: WID003967149).

The spent granular activated carbon (GAC) cylinders from the waste water treatment unit (WWTU) are exempt from solid waste regulation when sent for reclamation per 40 CFR 261.2(c)(3). The WWTU was not operated in 2018.

2.6.4 Asbestos Containing Material (ACM)

A small amount (< 2 lbs) of material suspected to be ACM was identified during excavation activities. The potential ACM material was appropriately containerized (following state guidelines outlined in NR 447) and stored on-site for future disposal.

2.6.5 Residual Solid Product

Residual solid product (RSP), identified by visual evidence and colorimetric test sprays (Expray®), was encountered during the current reporting period at dispersed locations within the Refined Triton East and West Graining House production areas and the Refined Triton East Graining House overflow area (in use area PAJ).

RSP removed during the current reporting period consisted of approximately 10 cubic feet (818-pounds) of residual TNT product/soil/water mix from the PAJ investigation area (Table 2). This RSP was wetted to

remove explosive characteristics then shipped in one event (October 25, 2016) under manifest 001537056VES to Veolia Trade Waste Incinerator in Sauget, IL (EPA ID no: ILD098642424) for destruction by incineration.

2.6.6 Wood Debris

There was no accumulation of wood debris from the current excavation period, with the exception of one pallet which was impacted during decontamination activities. The wooden pallet was placed in the site-designated roll-off container discussed in Section 2.6.3.

2.6.7 Vitrified Clay Pipes (VCP)

About 80 linear feet of VCP was encountered during the 2018 investigation. VCP was segregated from other debris and placed on tarps adjacent to the respective excavation. Some of the VCP from both the Refined Triton East and West Graining Houses was impacted with NNOCs. The remaining VCP, that did not test positive for NNOCs using field screening methods was left in place and covered with a tarp to await future disposal. About 0.75 cubic yards of VCP that tested positive for contamination was removed from the work and placed in C28 for cleaning.

2.7 MOVEMENT OF SOIL INTO PILOT CELLS [CONDITION 7b]

The cited variance condition requires:

- Documentation of any management, including consolidation, of discrete areas where impacted soil is located within narrow locations such as former ditches or locations that are contorted by the layout of former building features.
- Documentation of the location of those areas and the amount of soil that is moved.
- Documentation of the location of areas where the soil combined from discrete source areas is managed.

Approximately 410 cubic yards of soil was moved into bio cells in the current reporting period for treatability testing.

A total of 100 cubic yards of soil was moved to cell C28. A total of 250 cubic yards of soil was placed in cell C33. 60 cubic yards of soil consisting of mainly NNOC impacted coal combustion by-products was placed in cell C34.

Table 3 lists the source areas and destinations of the soil managed during the current reporting period, while Figure 3 depicts the locations listed in Table 3.

2.8 ALTERNATIVE TREATMENT OF LARGE DEBRIS [CONDITION 7c]

The cited variance condition requires:

- Documentation of any alternative treatment of large debris that facilitates management, including washing and physical resizing of large debris for off-site disposal.
- Documentation of management of all impacted waste streams generated by these activities, including amounts and volumes of waste treated and generated.

This section describes alternative treatment of debris that potentially contained RCRA hazardous constituents. As detailed in Section 2.6, most of the debris recovered did not test positive for hazardous constituents and was managed as non-regulated debris. Some non-regulated debris may be stored and resized to facilitate on-site reuse as aggregate or to meet off-site industrial facility acceptance requirements.

2.8.1 Alternative Treatment and Management of Metallic Debris

As discussed in Section 2.6.2, metallic debris (pipes) collected during investigation of former process building sites are typically field screened using FIDO® and Expray® at the time of discovery. Pipes that can be fully inspected and that do not have detections based on the screening are sent to an accumulation area in PAK (stockpile site PAK-SP01) for storage until pick-up by Chemours approved local steel recycling firm, Chicago Iron and Supply.

An accumulation of metal debris stored within bio cells over the past 3 years was washed, screened and transported to scrap metal bin located near PAK-SP01. Recovered metals stored at PAK-SP01, pending accumulation of sufficient metal to form a shipment, were also loaded into the scrap metal bin and removed from the site by Chicago Iron and Supply in November 2018. One partially full large trailer of metallic debris was removed from site in 2018 for recycling.

Pipes that are bent, plugged, crushed, or otherwise obstructed from adequate initial inspection are managed as potentially hazardous wastes based on the potential for shock reactivity (D003). Segregated pipes are sent to a hazardous waste accumulation area within the HWRV AOC (bio cells C24 and C28) until a sufficient amount is accumulated to set up remote controlled pipe opening equipment.

Accumulated pipes are transported to the site decontamination pad where they are sorted based on size and type of obstruction. Pipes that have one end accessible are scraped of loose internal debris with a wire pipe snake. Pipes that are closed too tightly to allow washing the interiors are transported to a remotely operated power hacksaw which is used to cut the obstruction(s) from the pipe. Cut pipes are returned to the decontamination pad.

Once opened, the pipes are processed using the alternative debris treatment method of “Water Washing and Spraying” (40 CFR 268.45, Table 1). In 2018, remaining impacted metal debris was decontaminated within the bio cell footprint on a decontamination pad constructed within cell C28. Water from the decontamination activities was used to hydrate the soil within the cell C28 to aid with alkaline hydrolysis. Once flushed, the pipe interiors are FIDO® screened then wipe tested using the wire snake and Expray® wipe pads. If the tests indicate continued contamination, the item is reprocessed using the above procedure.

All accumulated pipe suspected of containing hazardous material were cleared and sent to the scrap metal roll off box following cleaning and inspection at the end of the 2018 field season. Remote cutting was not necessary during this process.

2.8.2 Alternative Treatment and Management of Concrete Debris

In 2018, impacted concrete debris was decontaminated within the bio cell footprint on a decontamination pad constructed within cell C28. Water from the decontamination activities was used to hydrate the soil within cell C28 to aid with alkaline hydrolysis. The material was cleaned with water using a pressure washer until no solid product was detected using the FIDO® and Expray®. After cleaning, the concrete was placed back in the excavation from which it was removed in 2018.

2.8.3 Alternative Treatment and Management of Decontamination Water from Boot and Hand Washes and from Direct Push Investigation

In 2018, waste water was generated from boot and hand washes and during the washing of down hole samplers used during a direct push (i.e. Geoprobe) investigation at PAJ. The waste water was containerized in 55-gallon drums. Based on laboratory analytical results of waste characterization samples collected from the drums, the waste water was classified as non-hazardous. Six 55-gallon drums (approximately 3,000 lbs) of waste water was sent off-site to Veolia in Menomonee Falls, WI (EPA ID no: WID003967149) for disposal.

2.9 Other Waste

About 5,600 lbs of soil impacted with hydraulic fluid from a release from an excavator hydraulic line was containerized and sent off-site to Veolia in Menomonee Falls, WI (EPA ID no: WID003967149) for disposal.

The amount of hydraulic fluid released to the soil was estimated to be less than five gallons. NNOCs were not detected in the soil using field screening in the area of the release.

3.0 SUMMARY

The information contained within this report will allow Chemours to comply with the reporting requirements of the May 18, 2017 Hazardous Waste Remediation Variance issued for the Former DuPont Barksdale Works site and this report should be included with the filing.

Should you have any questions or comments, please do not hesitate to contact us.

Sincerely,

Nicholas Shorkey
Staff Geologist
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(469) 782-1517

C. E. Cary Pooler, III
Senior Project Manager
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Attachments:

Table 1: Contaminant Progress Summary
Table 2: Debris and Residuals Removed
Table 3: Soil Moved to Test Cells
Table 4: Comparison of Pace Analytical Detection Limits to RCLs

Figure 1: Regional Site Location
Figure 2: Site Layout and Bio-Cell Locations
Figure 3: Impacted Soil Recovery Locations
Figure 4: Debris Removal Locations
Figure 5: Typical Biopilot Sites Operation Stage 2007-2010
Figure 6: General pH Adjustment Cell Configuration

Appendix A: WDNR Form 4400-194: Remediation Site Operation, Maintenance, Monitoring and Optimization Report

Appendix B: Waste Documentation
- State of Wisconsin Annual Hazardous Waste Report
- Manifest - Non Regulated Material (13 Drums) – 00775213 VES
- Manifest – UN1356 - D001, D003, D008 Solids (Product) – 001537056 VES

Appendix C: Barksdale Summary Graphs 2018 Year End

Appendix D: Biodegradation Evaluation Lab Data
- Pace Analytical Reports
  - A182316 Final Report 061218 1708 (June Bioremediation Pilot pH Test Samples)
  - A18237 Final Report 061218 1647 (June Bioremediation Pilot Test Samples)
  - A184307 Final Report 111318 1030 (November Bioremediation Pilot Test Samples)
  - A184411 Final Report 111318 1048 (November Bioremediation Pilot pH Test Samples)
- TestAmerica Reports
  - 280-115205-1 Final Report 10232018 0949 (October Bioremediation Pilot Test Samples)
  - 280-115961-1 Final Report 1052018 0925 (October Bioremediation Pilot Test Samples)
  - 280-116093-1 Final Report 11282018 1352 (November Bioremediation Pilot Test Samples)
  - 280-116232-1 Final Report 12112018 1133 (December Bioremediation Pilot Test Samples)

Table 1
2018 Contaminant Progress Summary
Waste Management Progress Report No. 7
For Period May 19, 2018 to May 18., 2019
Bioremediation Pilot Test – 2018 Field Season
Former DuPont Barksdale Explosives Plant
Remediation Variance Approval of May 22, 2012
Remediation Variance Renewal Approval of May 18, 2017
Bayfield County, Wisconsin

Analyte	Amount remaining (lbs) as of 2018	Initial Amount (lbs)	Amount Decreased from 2017 to 2018 (lbs)	Amount Decreased (lbs) to Date for all Cells
2,4,6-TNT	423.16	8051.67	511.09	7628.51
2-A-4,6-DNT	5.41	57.68	13.95	52.27
4-A-2,6-DNT	21.51	63.38	12.36	41.88
2,3-DNT	0.85	102.41	0.09	101.56
2,4-DNT	5.82	2564.99	4.29	2559.18
2,5-DNT	0.34	0.51	0.00	0.17
2,6-DNT	4.77	908.18	1.08	903.42
3,4-DNT	1.47	136.00	0.18	134.54
3,5-DNT	0.11	2.80	0.08	2.69
Total DNT[1]	15.16	3715.57	4.58	3700.41
1,2-DM-3,4-DNB	39.31	92.77	2.44	53.47
1,2-DM-3,5-DNB	36.48	92.83	1.12	56.35
1,2-DM-3,6-DNB	9.31	23.49	0.73	14.18
1,2-DM-4,5-DNB	12.27	29.09	0.98	16.82
1,3-DM-2,4-DNB	97.67	255.03	4.16	157.36
1,3-DM-2,5-DNB	0.26	0.00	0.00	(0.26)
1,4-DM-2,3-DNB	63.26	145.03	3.63	81.77
1,4-DM-2,5-DNB	7.95	12.35	0.23	4.39
1,4-DM-2,6-DNB	28.44	25.32	1.64	(3.12)
1,5-DM-2,3-DNB	3.28	5.84	0.59	2.56
1,5-DM-2,4-DNB	172.55	349.84	9.29	177.29
Total DNX	471.38	1031.60	24.22	560.22
2,4,6-TNX	5.55	13.32	1.50	7.77
1,3,5-TNB	0.00	4.80	0.18	4.80
1,3-DNB	0.22	6.88	0.21	6.65
NB	0.00	0.56	0.00	0.56
3-NT	0.00	1.74	0.00	1.74
4-NT	0.04	0.39	(0.04)	0.35
2-NT	0.00	1.16	0.00	1.16
NG	0.00	0.00	NA	0.00
HMX	NA	0.00	NA	NA
All Analyte Totals	**940.03**	**12,948.08**	**569.78**	**12,008.05**

NOTES:

[1]Total DNT calculated by adding 2,3-, 2,4-, 2,5-, 2,6-, 3,4-, and 3,5-DNT isomers.	
Data listed	Is (most recent reported concentration)*lbs tilled averaged from each subcell.
Red Data (#.#)	This format implies a gain in concentration of a constituent over time.

Data Compilation Summary

If multiple sample were analyzed from a single cell, the average concentration of the samples was calculated.
Results reported below the method detection limit (MDLs) have been rounded to zero. This is a consequence of trying to compare varying/changing MDLs: over multiple years, using different laboratories, concentration dilutions, etc.
An average soil weight was calculated at 2,700 lbs per cubic yard to use as a standard to calculate concentration weight for site soils.

To calculate analyte weights, the following formula was used:

Average Analyte Concentration per Cell (Average of Laboratory Results) (mg / kg or ppm)	X	Volume of Soil in Cell (cuyd)	X	Standard for Soil Weight per Cubic Yard of Soil (2,700 lbs / cuyd)	X	Soil Concentration Conversion Factor from Parts Per Million (1 kg / 1,000,000 mg)	=	Recorded Analyte Concentration per Cell in Pounds (lbs)
(Appendix D)				(Standard = 2,700)		(Conversion Factor = 1 / 1,000,000)		(Reported Value used in Table 1)

Table 1
2018 Contaminant Progress Summary
Waste Management Progress Report No. 7
For Period May 19, 2018 to May 18., 2019
Bioremediation Pilot Test – 2018 Field Season
Former DuPont Barksdale Explosives Plant
Remediation Variance Approval of May 22, 2012
Remediation Variance Renewal Approval of May 18, 2017
Bayfield County, Wisconsin

Cell	C01	C02	C03	C04	C05	C06	C07	C08	C09	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24	C25	C26	C27	C28	C29	C30	C31	C32	C33	C34	Total for All Cells
Status	rest	rest	rest	rest	rest	active	rest	rest	phyto	rest	rest	active	rest	rest	rest	active	active	rest	rest	rest	active	rest	rest	active	active	active	active	active	inactive	inactive	active	inactive	new	new	12 active
Tilling Events in 2018	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	1	0	5.0
Debris Removed 2018 (lbs.)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Soil Added to Cell 2018 (cuyd)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**100.0**	0.0	0.0	0.0	0.0	**250.5**	**60.0**	410.5
Soil Quantity in Cell (cuyd)	13.6	13.6	13.6	13.6	432.9	68.4	189.4	115.4	229.2	392.5	244.4	300.9	369.4	189.4	468.5	176.8	136.6	57.0	106.5	76.0	41.1	1.5	0.0	263.0	250.0	307.0	277.0	850.0	0.0	0.0	11.4	0.0	250.5	60.0	5919.3

Analytes remaining (lbs) 2018 (Averages of subcells)	C01	C02	C03	C04	C05	C06	C07	C08	C09	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24	C25	C26	C27	C28	C29	C30	C31	C32	C33	C34	Total for All Cells
2,4,6-TNT	5.0	1.2	0.2	0.3	0.3	6.1	0.7	0.0	0.0	0.2	0.0	26.0	0.2	2.2	2.4	0.1	0.1	0.0	0.4	1.7	18.9	NA	NA	177.5	0.8	24.0	12.7	6.7	NA	NA	0.3	NA	135.3	NA	423.2
2-A-4,6-DNT	0.5	0.1	0.1	0.1	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.4	0.0	0.1	0.5	0.1	0.1	0.0	0.1	0.1	0.3	NA	NA	0.9	0.0	0.3	0.2	0.6	NA	NA	0.0	NA	0.5	NA	5.4
4-A-2,6-DNT	0.4	0.1	0.1	0.1	0.3	2.0	0.3	0.0	0.0	0.2	0.0	1.8	0.0	0.6	4.3	0.2	0.3	0.0	0.5	0.2	1.7	NA	NA	3.3	0.3	1.2	0.7	2.3	NA	NA	0.0	NA	0.7	NA	21.5
2,3-DNT	0.0	0.0	0.0	0.1	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	0.8
2,4-DNT	0.3	0.0	0.1	0.1	0.9	0.4	0.5	0.2	0.0	0.3	0.0	1.2	0.2	0.4	0.3	0.0	0.2	0.0	0.1	0.1	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.3	NA	5.8
2,5-DNT	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.0	ND	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	0.3
2,6-DNT	0.4	0.0	0.0	0.1	2.0	0.2	0.4	0.0	0.0	0.2	0.2	0.5	0.3	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	4.8
3,4-DNT	0.0	0.0	0.0	0.0	0.3	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	1.5
3,5-DNT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	0.1
Total DNT[1]	0.7	0.1	0.2	0.3	3.6	0.9	1.5	0.2	0.0	0.6	0.2	2.3	0.5	2.0	0.3	0.0	0.6	0.1	0.1	0.1	0.1	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	1.0	NA	15.2
1,2-DM-3,4-DNB	19.7	3.9	5.5	9.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	39.3
1,2-DM-3,5-DNB	21.7	3.8	3.0	7.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	36.5
1,2-DM-3,6-DNB	4.9	0.8	1.1	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	9.3
1,2-DM-4,5-DNB	6.0	1.3	1.6	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	12.3
1,3-DM-2,4-DNB	54.3	6.5	11.6	20.9	0.0	0.0	0.0	0.0	0.0	0.5	0.8	0.0	0.9	0.0	0.0	0.0	2.2	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	97.7
1,3-DM-2,5-DNB	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	0.3
1,4-DM-2,3-DNB	30.8	5.5	8.8	14.3	0.0	0.1	0.0	0.0	0.0	0.4	0.4	0.0	0.5	0.0	0.0	0.0	2.7	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	63.3
1,4-DM-2,5-DNB	4.6	0.6	0.7	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	8.0
1,4-DM-2,6-DNB	14.7	2.0	3.5	6.8	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.3	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	28.4
1,5-DM-2,3-DNB	1.6	0.3	0.5	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	3.3
1,5-DM-2,4-DNB	88.6	15.2	24.3	38.5	0.2	0.1	0.0	0.0	0.0	1.0	0.9	0.0	0.8	0.0	0.0	0.0	2.8	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	172.5
Total DNX	247.0	39.9	60.6	106.7	0.3	0.5	0.0	0.0	0.0	2.2	2.3	0.0	2.5	0.0	0.0	0.0	9.3	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	471.4
2,4,6-TNX	2.0	0.4	0.4	0.9	0.2	0.1	0.0	0.0	0.0	0.0	0.6	0.3	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.1	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	5.6
1,3,5-TNB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	0.0
1,3-DNB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.2	NA	0.2
NB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	0.0
3-NT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	0.0
4-NT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	0.0
2-NT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	0.0
NG	ND	ND	ND	ND	ND	ND	ND	0.0	0.0	0.0	0.0	ND	0.0	0.0	0.0	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	NA	NA	NA	ND	NA	ND	NA	0.0
HMX	ND	ND	ND	ND	ND	ND	ND	0.0	0.0	0.0	0.0	ND	0.0	0.0	0.0	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	NA	NA	NA	ND	NA	ND	NA	NA

NOTES:

[1]Total DNT calculated by adding 2,3-, 2,4-, 2,5-, 2,6-, 3,4-, and 3,5-DNT isomers.

0.0 Values	Indicate that there were no detections of the constituent. The constituent was not detected above the Method Detection Limit (MDL) and was rounded down to zero for these calculations to avoid confusing this as a false positive result.
NA	Not Active/Applicable (NA), these Cells have either reached RCLs and are temporarily closed to await testing later -and/or- are dormant or new and awaiting material addition for future testing or no data was collected for these constituents for comparison.
Grayed cells with numbers (#.#)	These cells are currently not active (resting or dormant). Data from cells C08, C09, C10, C11, C13, C15 (2014) and C14 (2015) are representative of last sample date.
C06, C12, C16, C17, C24 to C28, C31, C33	These cells have had lime added to their matrix.
C12, C17	These cells have had additional soil added to their matrix. The readings may not be indicative of actual constituent degradation over time.
C22, C29, C30, C32	Are not yet loaded with soil for treatment.
C34	Was constructed in 2018. It has been loaded with soil, however it has not been tilled and sampled.
C23	Was emptied in 2014. The remaining contents from the C23 stored soils were placed in cells C12, C17, and C22 in 2017.

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For Period May 19, 2018 to May 18., 2019
Bioremediation Pilot Test – 2018 Field Season
Former DuPont Barksdale Explosives Plant
Remediation Variance Approval of May 22, 2012
Remediation Variance Renewal Approval of May 18, 2017
Bayfield County, Wisconsin

Initial Analytes (lbs) (Averages of subcells)	C01	C02	C03	C04	C05	C06	C07	C08	C09	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24	C25	C26	C27	C28	C29	C30	C31	C32	C33	C34	Total for All Cells
Year cell was first sampled	**2007**	**2007**	**2007**	**2007**	**2008**	**2008**	**2008**	**2009**	**2009**	**2009**	**2009**	**2009**	**2009**	**2009**	**2009**	**2011**	**2011**	**2011**	**2012**	**2013**	**2012**	**ND**	**ND**	**2016**	**2015**	**2016**	**2017**	**2018**	**ND**	**ND**	**2017**	**ND**	**2018**	**ND**	**2007 to 2018**
2,4,6-TNT	15.8	5.5	0.6	0.6	3.2	991.0	171.0	0.5	0.3	9.0	0.7	1472.7	9.4	144.9	1553.9	294.6	47.0	0.0	130.4	24.9	1332.4	NA	NA	874.3	119.1	137.8	251.7	6.7	NA	NA	318.6	NA	135.3	NA	8,051.7
2-A-4,6-DNT	0.2	0.0	0.0	0.0	0.0	1.7	6.2	0.0	0.0	0.5	0.1	0.0	0.9	0.8	5.4	14.8	1.7	0.0	0.8	0.2	2.7	NA	NA	4.0	3.1	2.2	10.1	0.6	NA	NA	1.2	NA	0.5	NA	57.7
4-A-2,6-DNT	0.3	0.1	0.0	0.0	0.0	0.4	5.9	0.1	0.0	0.7	0.1	0.0	0.5	0.7	6.4	11.4	1.1	0.0	2.0	0.3	6.3	NA	NA	6.4	3.0	3.6	10.1	2.3	NA	NA	1.2	NA	0.7	NA	63.4
2,3-DNT	0.1	0.0	0.0	0.1	50.4	1.4	2.6	0.1	0.0	15.2	0.0	2.7	10.0	7.9	0.2	0.0	11.6	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	102.4
2,4-DNT	1.0	1.1	0.5	0.5	854.1	129.8	60.4	13.6	0.2	427.8	0.5	789.5	56.3	17.6	39.2	0.4	132.9	0.2	0.7	5.0	1.1	NA	NA	0.5	29.5	1.5	0.0	0.0	NA	NA	0.7	NA	0.3	NA	2,565.0
2,5-DNT	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	NA	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	0.5
2,6-DNT	0.8	1.0	0.6	0.8	447.9	20.9	54.0	1.7	0.0	147.3	0.1	32.3	21.9	79.4	1.5	0.0	95.7	0.1	0.0	0.0	0.0	NA	NA	0.0	1.9	0.2	0.0	0.0	NA	NA	0.0	NA	0.0	NA	908.2
3,4-DNT	0.2	0.1	0.0	0.1	55.3	2.4	4.0	0.1	0.0	21.3	0.0	6.2	14.1	13.8	0.4	0.0	17.8	0.0	0.0	0.0	0.0	NA	NA	0.0	0.1	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	136.0
3,5-DNT	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.6	1.1	0.1	0.0	0.0	0.0	0.0	0.2	0.1	NA	NA	0.1	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	2.8
Total DNT[1]	2.1	2.2	1.2	1.5	1407.7	154.6	121.1	15.6	0.3	612.0	0.7	830.7	102.9	120.1	41.4	0.4	258.1	0.4	0.7	5.2	1.2	NA	NA	0.6	31.5	1.7	0.0	0.0	NA	NA	0.7	NA	1.0	NA	3,715.6
1,2-DM-3,4-DNB	18.3	14.7	6.5	16.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.3	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	92.8
1,2-DM-3,5-DNB	17.8	14.2	6.5	16.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	37.4	0.1	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	92.8
1,2-DM-3,6-DNB	4.7	2.0	1.9	2.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	23.5
1,2-DM-4,5-DNB	5.5	4.3	1.9	5.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.0	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	29.1
1,3-DM-2,4-DNB	56.5	40.0	17.8	43.8	1.4	0.0	0.0	0.0	0.0	0.1	0.0	0.4	0.6	0.0	0.0	0.0	94.0	0.3	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	255.0
1,3-DM-2,5-DNB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	0.0
1,4-DM-2,3-DNB	31.0	24.8	11.2	29.7	0.6	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.0	0.0	0.0	0.0	47.1	0.2	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	145.0
1,4-DM-2,5-DNB	6.0	1.7	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	12.3
1,4-DM-2,6-DNB	4.9	3.8	1.6	3.8	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.8	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	25.3
1,5-DM-2,3-DNB	1.2	0.9	0.4	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	5.8
1,5-DM-2,4-DNB	84.2	58.7	25.1	61.1	1.6	0.1	0.0	0.1	0.0	0.2	0.0	0.6	0.5	0.0	0.0	0.0	117.3	0.3	0.1	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	349.8
Total DNX	230.1	165.0	75.1	179.6	4.9	0.2	0.1	0.2	0.0	0.5	0.0	1.2	1.5	0.0	0.0	0.0	372.4	0.9	0.1	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	1,031.6
2,4,6-TNX	1.0	0.6	0.2	0.8	0.2	0.2	0.0	0.0	0.0	0.0	5.0	2.6	0.1	0.0	0.0	0.1	1.3	0.0	0.0	0.5	0.4	NA	NA	0.0	0.2	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	13.3
1,3,5-TNB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.5	0.5	0.7	0.9	0.0	1.2	0.0	0.2	0.0	0.3	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.4	NA	4.8
1,3-DNB	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.3	0.0	0.4	0.3	0.1	0.3	0.1	3.2	0.0	0.0	0.0	0.5	NA	NA	0.2	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.2	NA	6.9
NB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.4	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	0.6
3-NT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.9	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	1.7
4-NT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	0.4
2-NT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.3	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	1.2
NG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0
HMX	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0

NOTES:

[1]Total DNT calculated by adding 2,3-, 2,4-, 2,5-, 2,6-, 3,4-, and 3,5-DNT isomers.	
Initial analyte concentrations	Not all analytes were initially sampled for each cell. TNX and some DNX & DNT isomers were added to the sampling program at later dates. The initial reading for each isomer was accounted for in this data and was taken from the earliest recorded data set for each analyte.
0.0 Values	Indicate that there were no detections of the constituent. The constituent was not detected above the Method Detection Limit (MDL) and was rounded down to zero for these calculations to avoid confusing this as a false positive result.
NA	Not Active/Applicable (NA), these Cells have either reached RCLs and are temporarily closed to await testing later -and/or- are dormant or new and awaiting material addition for future testing or no data was collected for these constituents for comparison.
C22, C29, C30, C32	Are not yet loaded with soil for treatment.
C34	Was constructed in 2018. It has been loaded with soil, however it has not been tilled and sampled.
C23	Was emptied in 2014. The remaining contents from the C23 stored soils were placed in cells C12, C17, and C22 in 2017.

Table 1
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Waste Management Progress Report No. 7
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Bioremediation Pilot Test – 2018 Field Season
Former DuPont Barksdale Explosives Plant
Remediation Variance Approval of May 22, 2012
Remediation Variance Renewal Approval of May 18, 2017
Bayfield County, Wisconsin

Decrease 2017 to 2018 (lbs) (Averages of subcells)	C01	C02	C03	C04	C05	C06	C07	C08	C09	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24	C25	C26	C27	C28	C29	C30	C31	C32	C33	C34	Total for All Cells
2,4,6-TNT	NA	NA	NA	NA	NA	5.6	NA	NA	NA	NA	NA	5.6	NA	NA	NA	1.2	(0.0)	NA	NA	NA	22.5	NA	NA	235.1	7.6	(5.8)	239.0	NA	NA	NA	0.3	NA	NA	NA	511.1
2-A-4,6-DNT	NA	NA	NA	NA	NA	0.6	NA	NA	NA	NA	NA	(0.1)	NA	NA	NA	0.1	0.7	NA	NA	NA	0.2	NA	NA	1.9	0.3	0.3	9.9	NA	NA	NA	0.0	NA	NA	NA	13.9
4-A-2,6-DNT	NA	NA	NA	NA	NA	0.7	NA	NA	NA	NA	NA	(0.3)	NA	NA	NA	0.2	0.7	NA	NA	NA	0.2	NA	NA	0.4	0.5	0.4	9.4	NA	NA	NA	0.1	NA	NA	NA	12.4
2,3-DNT	NA	NA	NA	NA	NA	(0.1)	NA	NA	NA	NA	NA	0.1	NA	NA	NA	0.0	0.0	NA	NA	NA	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	0.1
2,4-DNT	NA	NA	NA	NA	NA	0.3	NA	NA	NA	NA	NA	2.8	NA	NA	NA	0.0	0.7	NA	NA	NA	0.0	NA	NA	0.0	0.4	0.1	0.0	NA	NA	NA	0.0	NA	NA	NA	4.3
2,5-DNT	NA	NA	NA	NA	NA	0.0	NA	NA	NA	NA	NA	0.0	NA	NA	NA	0.0	0.0	NA	NA	NA	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	0.0
2,6-DNT	NA	NA	NA	NA	NA	0.4	NA	NA	NA	NA	NA	0.0	NA	NA	NA	0.0	0.6	NA	NA	NA	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	1.1
3,4-DNT	NA	NA	NA	NA	NA	(0.0)	NA	NA	NA	NA	NA	0.2	NA	NA	NA	0.0	0.0	NA	NA	NA	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	0.2
3,5-DNT	NA	NA	NA	NA	NA	0.0	NA	NA	NA	NA	NA	0.1	NA	NA	NA	0.0	0.0	NA	NA	NA	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	0.1
Total DNT[1]	NA	NA	NA	NA	NA	0.5	NA	NA	NA	NA	NA	2.5	NA	NA	NA	0.0	1.0	NA	NA	NA	(0.1)	NA	NA	0.0	0.4	0.1	0.0	NA	NA	NA	0.0	NA	NA	NA	4.6
1,2-DM-3,4-DNB	NA	NA	NA	NA	NA	(0.0)	NA	NA	NA	NA	NA	0.0	NA	NA	NA	0.0	2.4	NA	NA	NA	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	2.4
1,2-DM-3,5-DNB	NA	NA	NA	NA	NA	0.0	NA	NA	NA	NA	NA	0.0	NA	NA	NA	0.0	1.1	NA	NA	NA	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	1.1
1,2-DM-3,6-DNB	NA	NA	NA	NA	NA	0.0	NA	NA	NA	NA	NA	0.0	NA	NA	NA	0.0	0.7	NA	NA	NA	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	0.7
1,2-DM-4,5-DNB	NA	NA	NA	NA	NA	0.0	NA	NA	NA	NA	NA	0.0	NA	NA	NA	0.0	1.0	NA	NA	NA	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	1.0
1,3-DM-2,4-DNB	NA	NA	NA	NA	NA	0.0	NA	NA	NA	NA	NA	0.1	NA	NA	NA	0.0	4.0	NA	NA	NA	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	4.2
1,3-DM-2,5-DNB	NA	NA	NA	NA	NA	0.0	NA	NA	NA	NA	NA	0.0	NA	NA	NA	0.0	0.0	NA	NA	NA	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	0.0
1,4-DM-2,3-DNB	NA	NA	NA	NA	NA	(0.0)	NA	NA	NA	NA	NA	0.1	NA	NA	NA	0.0	3.6	NA	NA	NA	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	3.6
1,4-DM-2,5-DNB	NA	NA	NA	NA	NA	0.0	NA	NA	NA	NA	NA	0.0	NA	NA	NA	0.0	0.2	NA	NA	NA	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	0.2
1,4-DM-2,6-DNB	NA	NA	NA	NA	NA	0.0	NA	NA	NA	NA	NA	0.0	NA	NA	NA	0.0	1.6	NA	NA	NA	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	1.6
1,5-DM-2,3-DNB	NA	NA	NA	NA	NA	0.0	NA	NA	NA	NA	NA	0.0	NA	NA	NA	0.0	0.6	NA	NA	NA	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	0.6
1,5-DM-2,4-DNB	NA	NA	NA	NA	NA	(0.1)	NA	NA	NA	NA	NA	0.2	NA	NA	NA	0.0	9.2	NA	NA	NA	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	9.3
Total DNX	NA	NA	NA	NA	NA	(0.4)	NA	NA	NA	NA	NA	0.4	NA	NA	NA	0.0	24.2	NA	NA	NA	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	24.2
2,4,6-TNX	NA	NA	NA	NA	NA	0.2	NA	NA	NA	NA	NA	0.2	NA	NA	NA	0.0	0.6	NA	NA	NA	0.3	NA	NA	0.0	0.0	0.1	0.0	NA	NA	NA	0.0	NA	NA	NA	1.5
1,3,5-TNB	NA	NA	NA	NA	NA	0.0	NA	NA	NA	NA	NA	0.1	NA	NA	NA	0.0	0.0	NA	NA	NA	0.1	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	0.2
1,3-DNB	NA	NA	NA	NA	NA	0.0	NA	NA	NA	NA	NA	0.1	NA	NA	NA	0.0	0.1	NA	NA	NA	(0.0)	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	0.2
NB	NA	NA	NA	NA	NA	0.0	NA	NA	NA	NA	NA	0.0	NA	NA	NA	0.0	0.0	NA	NA	NA	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	0.0
3-NT	NA	NA	NA	NA	NA	0.0	NA	NA	NA	NA	NA	0.0	NA	NA	NA	0.0	0.0	NA	NA	NA	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	0.0
4-NT	NA	NA	NA	NA	NA	(0.0)	NA	NA	NA	NA	NA	0.0	NA	NA	NA	0.0	0.0	NA	NA	NA	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	(0.0)
2-NT	NA	NA	NA	NA	NA	0.0	NA	NA	NA	NA	NA	0.0	NA	NA	NA	0.0	0.0	NA	NA	NA	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	0.0
NG	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	ND	ND	NA	ND	ND	ND	NA	NA	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
HMX	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	ND	ND	NA	ND	ND	ND	NA	NA	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES:

[1]Total DNT calculated by adding 2,3-, 2,4-, 2,5-, 2,6-, 3,4-, and 3,5-DNT isomers.

0.0 Values	Indicate that there were no detections of the constituent. The constituent was not detected above the Method Detection Limit (MDL) and was rounded down to zero for these calculations to avoid confusing this as a false positive result.
Red Data (#.#)	This format implies a gain in concentration of a constituent over time.
NA	Not Active/Applicable (NA), these Cells have either reached RCLs and are temporarily closed to await testing later -and/or- are dormant or new and awaiting material addition for future testing or no data was collected for these constituents for comparison.
Grayed cells with numbers (#.#)	These cells are currently not active (resting or dormant). Data from cells C08, C09, C10, C11, C13, C15 (2014) and C14 (2015) are representative of last sample date.
C06, C12, C16, C17, C24 to C28, C31, C33	These cells have had lime added to their matrix.
C12, C17	These cells have had additional soil added to their matrix. The readings may not be indicative of actual constituent degradation over time.
C22, C29, C30, C32	Are not yet loaded with soil for treatment.
C34	Was constructed in 2018. It has been loaded with soil, however it has not been tilled and sampled.
C23	Was emptied in 2014. The remaining contents from the C23 stored soils were placed in cells C12, C17, and C22 in 2017.

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Bayfield County, Wisconsin

Analytes Decrease / Removed to Date (lbs) (Averages of subcells)	C01	C02	C03	C04	C05	C06	C07	C08	C09	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24	C25	C26	C27	C28	C29	C30	C31	C32	C33	C34	Total for All Cells
2,4,6-TNT	10.8	4.3	0.5	0.3	2.9	984.9	170.3	0.5	0.3	8.8	0.7	1446.7	9.2	142.7	1551.5	294.4	46.9	0.0	130.0	23.2	1313.5	NA	NA	696.8	118.3	113.8	239.0	NA	NA	NA	318.3	NA	NA	NA	7,628.5
2-A-4,6-DNT	(0.3)	(0.1)	(0.1)	(0.1)	0.0	1.5	6.0	0.0	0.0	0.5	0.1	(0.4)	0.9	0.7	4.9	14.7	1.6	0.0	0.6	0.1	2.5	NA	NA	3.1	3.1	1.9	9.9	NA	NA	NA	1.2	NA	NA	NA	52.3
4-A-2,6-DNT	(0.1)	(0.0)	(0.1)	(0.1)	(0.3)	(1.7)	5.6	0.1	0.0	0.5	0.1	(1.8)	0.5	0.2	2.1	11.3	0.8	0.0	1.4	0.0	4.6	NA	NA	3.0	2.8	2.4	9.4	NA	NA	NA	1.1	NA	NA	NA	41.9
2,3-DNT	0.1	0.0	0.0	0.0	50.2	1.4	2.4	0.1	0.0	15.2	0.0	2.7	10.0	7.7	0.2	0.0	11.6	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	101.6
2,4-DNT	0.7	1.0	0.4	0.3	853.1	129.4	59.9	13.4	0.2	427.5	0.5	788.3	56.1	17.1	39.0	0.4	132.7	0.2	0.6	4.9	1.1	NA	NA	0.5	29.5	1.5	0.0	NA	NA	NA	0.7	NA	NA	NA	2,559.2
2,5-DNT	0.0	0.0	(0.0)	0.0	(0.2)	0.0	(0.1)	0.0	ND	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	(0.0)	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	0.2
2,6-DNT	0.4	0.9	0.5	0.7	446.0	20.7	53.5	1.7	0.0	147.1	(0.0)	31.8	21.7	79.0	1.5	0.0	95.6	0.1	0.0	0.0	0.0	NA	NA	0.0	1.9	0.2	0.0	NA	NA	NA	0.0	NA	NA	NA	903.4
3,4-DNT	0.2	0.1	0.0	0.1	55.0	2.3	3.8	0.1	0.0	21.3	0.0	6.2	14.1	12.9	0.4	0.0	17.8	0.0	0.0	0.0	0.0	NA	NA	0.0	0.1	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	134.5
3,5-DNT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.6	1.0	0.1	0.0	0.0	0.0	0.0	0.2	0.1	NA	NA	0.1	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	2.7
Total DNT[1]	1.4	2.1	1.0	1.2	1404.1	153.7	119.6	15.4	0.3	611.4	0.5	828.4	102.4	118.2	41.1	0.4	257.5	0.3	0.7	5.1	1.1	NA	NA	0.6	31.5	1.7	0.0	NA	NA	NA	0.7	NA	NA	NA	3,700.4
1,2-DM-3,4-DNB	(1.5)	10.7	1.0	6.9	0.3	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35.9	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	53.5
1,2-DM-3,5-DNB	(3.9)	10.3	3.5	8.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	37.2	0.1	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	56.4
1,2-DM-3,6-DNB	(0.2)	1.2	0.8	(0.2)	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.4	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	14.2
1,2-DM-4,5-DNB	(0.5)	3.0	0.3	1.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.0	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	16.8
1,3-DM-2,4-DNB	2.2	33.5	6.2	22.9	1.4	0.0	0.0	0.0	0.0	(0.4)	(0.8)	0.4	(0.3)	0.0	0.0	0.0	91.8	0.3	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	157.4
1,3-DM-2,5-DNB	(0.1)	(0.0)	(0.0)	(0.1)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	(0.3)
1,4-DM-2,3-DNB	0.2	19.4	2.5	15.4	0.6	(0.0)	0.0	0.0	0.0	(0.3)	(0.4)	0.3	(0.5)	0.0	0.0	0.0	44.5	0.2	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	81.8
1,4-DM-2,5-DNB	1.4	1.1	1.5	(2.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	4.4
1,4-DM-2,6-DNB	(9.8)	1.8	(1.9)	(3.0)	0.3	0.0	0.0	0.0	0.0	(0.2)	(0.2)	0.0	(0.3)	0.0	0.0	0.0	10.1	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	(3.1)
1,5-DM-2,3-DNB	(0.4)	0.6	(0.1)	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	2.6
1,5-DM-2,4-DNB	(4.3)	43.5	0.7	22.7	1.4	(0.0)	0.0	0.1	0.0	(0.9)	(0.9)	0.6	(0.3)	(0.0)	0.0	0.0	114.5	0.3	0.1	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	177.3
Total DNX	(16.9)	125.1	14.5	72.9	4.6	(0.3)	0.1	0.2	0.0	(1.7)	(2.3)	1.2	(1.1)	(0.0)	0.0	0.0	363.1	0.9	0.1	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	560.2
2,4,6-TNX	(1.0)	0.2	(0.2)	(0.1)	0.1	0.1	0.0	0.0	0.0	0.0	4.5	2.2	0.1	0.0	0.0	0.1	0.7	0.0	0.0	0.4	0.4	NA	NA	0.0	0.2	0.0	0.0	NA	NA	NA	(0.0)	NA	NA	NA	7.8
1,3,5-TNB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.5	0.5	0.7	0.9	0.0	1.2	0.0	0.2	0.0	0.3	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.4	NA	NA	NA	4.8
1,3-DNB	0.0	(0.0)	(0.0)	(0.0)	1.3	0.0	0.0	0.0	0.0	0.3	0.0	0.4	0.3	0.1	0.3	0.1	3.2	0.0	0.0	0.0	0.5	NA	NA	0.2	0.0	0.0	0.0	NA	NA	NA	(0.0)	NA	NA	NA	6.7
NB	0.0	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.4	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	0.6
3-NT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.9	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	1.7
4-NT	0.0	0.0	0.0	0.0	0.0	(0.0)	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	0.4
2-NT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.3	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	NA	NA	NA	1.2
NG	ND	ND	ND	ND	ND	ND	NA	0.0	0.0	0.0	0.0	ND	0.0	0.0	0.0	ND	ND	NA	ND	ND	ND	NA	NA	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	0.0
HMX	ND	ND	ND	ND	ND	ND	NA	0.0	0.0	0.0	0.0	ND	0.0	0.0	0.0	ND	ND	NA	ND	ND	ND	NA	NA	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	0.0

NOTES:

[1]Total DNT calculated by adding 2,3-, 2,4-, 2,5-, 2,6-, 3,4-, and 3,5-DNT isomers.

0.0 Values	Indicate that there were no detections of the constituent. The constituent was not detected above the Method Detection Limit (MDL) and was rounded down to zero for these calculations to avoid confusing this as a false positive result.
(A)	The " (A) " following the cell ID indicates this cell was amended with lime following routine tilling & monitoring . Note that lime addition cells C24 through C34 do not include this number as soil was amended at the initiatiion of cell treatment, not
Red Data (#.#)	This format implies a gain in concentration of a constituent over time.
NA	Not Active/Applicable (NA), these Cells have either reached RCLs and are temporarily closed to await testing later -and/or- are dormant or new and awaiting material addition for future testing or no data was collected for these constituents for comparison.
Grayed cells with numbers (#.#)	These cells are currently not active (resting or dormant). Data from cells C08, C09, C10, C11, C13, C15 (2014) and C14 (2015) are representative of last sample date.
C06, C12, C16, C17, C24 to C28, C31, C33	These cells have had lime added to their matrix.
C12, C17	These cells have had additional soil added to their matrix. The readings may not be indicative of actual constituent degradation over time.
C22, C29, C30, C32	Are not yet loaded with soil for treatment.
C34	Was constructed in 2018. It has been loaded with soil, however it has not been tilled and sampled.
C23	Was emptied in 2014. The remaining contents from the C23 stored soils were placed in cells C12, C17, and C22 in 2017.

Table 2
2018 Debris and Residuals Removed
Waste Management Progress Report No. 7
For Period May 19, 2018 to May 18., 2019
Bioremediation Pilot Test – 2018 Field Season
Former DuPont Barksdale Explosives Plant
Remediation Variance Approval of May 22, 2012
Remediation Variance Renewal Approval of May 18, 2017
Bayfield County, Wisconsin

Items For Off-site Disposal						
Source	**Material Description**	**Quantity (cf)**	**Weight as received by vendor (lbs)**	**On Site Holding Location**	**Off-site Disposal Destination**	**Manifest**
Product						
PAJ Refined Triton West and East Graining House foundations & associateed southern drainage ditches and railgrades (PAJB0002, PAJD0007, PAJD0012/0013, PAJR0003)	TNT / soil mix	10.0	818	Magazine	VES Sauget, IL	001537056 VES
Decontamination Water	Rinse and Decontamination water from site investigation activities	300 gallons	3,000	SAJ-WP01	VES Menomonee Falls, WI	00775213 ZZ
Hydraulic Oil & Soil	Hydraulic oil / soil mix	350 gallons	5,600	SAJ-WP01	VES Menomonee Falls, WI	00775213 ZZ
Materials & PPE impacted while with TNT and placed in hazardous waste site roll off container (to be disposed of when the container is full at a future date)	5 Gallon Buckets, Tarps, Tyvek suits, Wooden pallet	8.7	559	Accumulation Container SAJ-WP01	On hold	--
Items For Off-Site Recycling						
Source	**Material Description**	**Quantity (cf)**	**Weight as received by vendor (lbs)**	**On Site Holding Location**	**Off-site Disposal Destination**	**Manifest**
Pipe, Steel						
Cleaned and/or cleared metalic debris from 2018 field season	steel pipes screening clean from Refined Triton East & West Graining Houses	5.0	Portion of one large trailer	PAR-SP01	Chicago Iron	Not Applicable
Cleaned and/or cleared metalic debris from previous field seasons (accumulation at holding pad)	steel pipes screening clean, sheet metal, posts, & rebar/bolts	N/A	Portion of one large trailer	PAR-SP01	Chicago Iron	Not Applicable

Items Not Requiring Off-site Disposal						
Source	**Material Description**	**Quantity (cf)**	**Weight (lbs)**	**On Site Holding Location**	**Off-site Disposal Destination**	**Manifest**
Vitrified Clay Pipe (VCP)						
PAJ Refined Triton West Graining House (PAJB0002) and associated ditches (PAJD0012 & PAJD0013)	6 to 8 inch diameter (about 1/2 inch thick) clay pipe, generally in 2 foot long sections	45 linear feet 15 cf	not weighed	Placed in C28	--	--
PAJ Refined Triton East Graining House (PAJB0001) and associated ditches (PAJD0007)	6 to 8 inch diameter (about 1/2 inch thick) clay pipe, generally in 2 foot long sections	80 linear feet or 27 cf	not weighed	Placed in C28	--	--
PAJ Unknown Foundation (PAJB0009)	6 to 8 inch diameter (about 1/2 inch thick) clay pipe, generally in 2 foot long sections	69 linear feet or 23 cf	not weighed	Left at source (buried within foundation footprint)	--	--
Concrete						
PAJ Refined Triton East Graining House (PAJB0001)	concrete screening > background	3,000	not weighed	Placed in C28	--	--
PAJ Refined Triton East Graining House (PAJB0001)	concrete screening < background	7,500	not weighed	Left at source (buried within foundation footprint)	--	--
PAJ Refined Triton West Graining House (PAJB0002)	concrete screening > background	10,000	not weighed	Placed in C28	--	--
PAJ Refined Triton West Graining House (PAJB0002)	concrete screening < background	10,000	not weighed	Left at source (buried within foundation footprint)	--	--
PAJ Unknown Foundation (PAJB0009)	concrete screening < background	20,000	not weighed	Left at source (buried within foundation footprint)	--	--
Other						

Table 3
2018 Soil Moved to Test Cells
Waste Management Progress Report No. 7
For Period May 19, 2018 to May 18., 2019
Bioremediation Pilot Test – 2018 Field Season
Former DuPont Barksdale Explosives Plant
Remediation Variance Approval of May 22, 2012
Remediation Variance Renewal Approval of May 18, 2017
Bayfield County, Wisconsin

Source	Destination	Volume (CY)	Date
Refined Triton Eastern Overflow Area	C28	99.85	07/10/18
Total C28	**C28**	**99.85**	**2018**
PAJ Refined Triton Western Graining House Southern Drain (PAJD0012 / PAJD0013)	C33	39.40	07/26/18
PAJ Refined Triton Western Graining House (PAJB0002)	C33	3.60	08/22/18
PAJ Refined Triton Eastern Graining House Southern Drain (PAJD0007)	C33	11.50	07/25/18
PAJ Refined Triton Eastern Graining House Southern Rail-grade (PAJR0003)	C33	196.00	10/17/18
Total C33	**C33**	**250.50**	**2018**
PAJ Refined Triton Eastern Graining House Southern Rail-grade (PAJR0003)	C34	60.00	09/27/18
Total for C34	**C34**	**60.00**	**2018**
Total for 2018	**ALL**	**410.35**	**2018**

Table 4
Comparison of Pace Analytical Detection Limits to RCLs
Waste Management Progress Report No. 7
For Period May 19, 2018 to May 18., 2019
Bioremediation Pilot Test – 2018 Field Season
Former DuPont Barksdale Explosives Plant
Remediation Variance Approval of May 22, 2012
Remediation Variance Renewal Approval of May 18, 2017
Bayfield County, Wisconsin

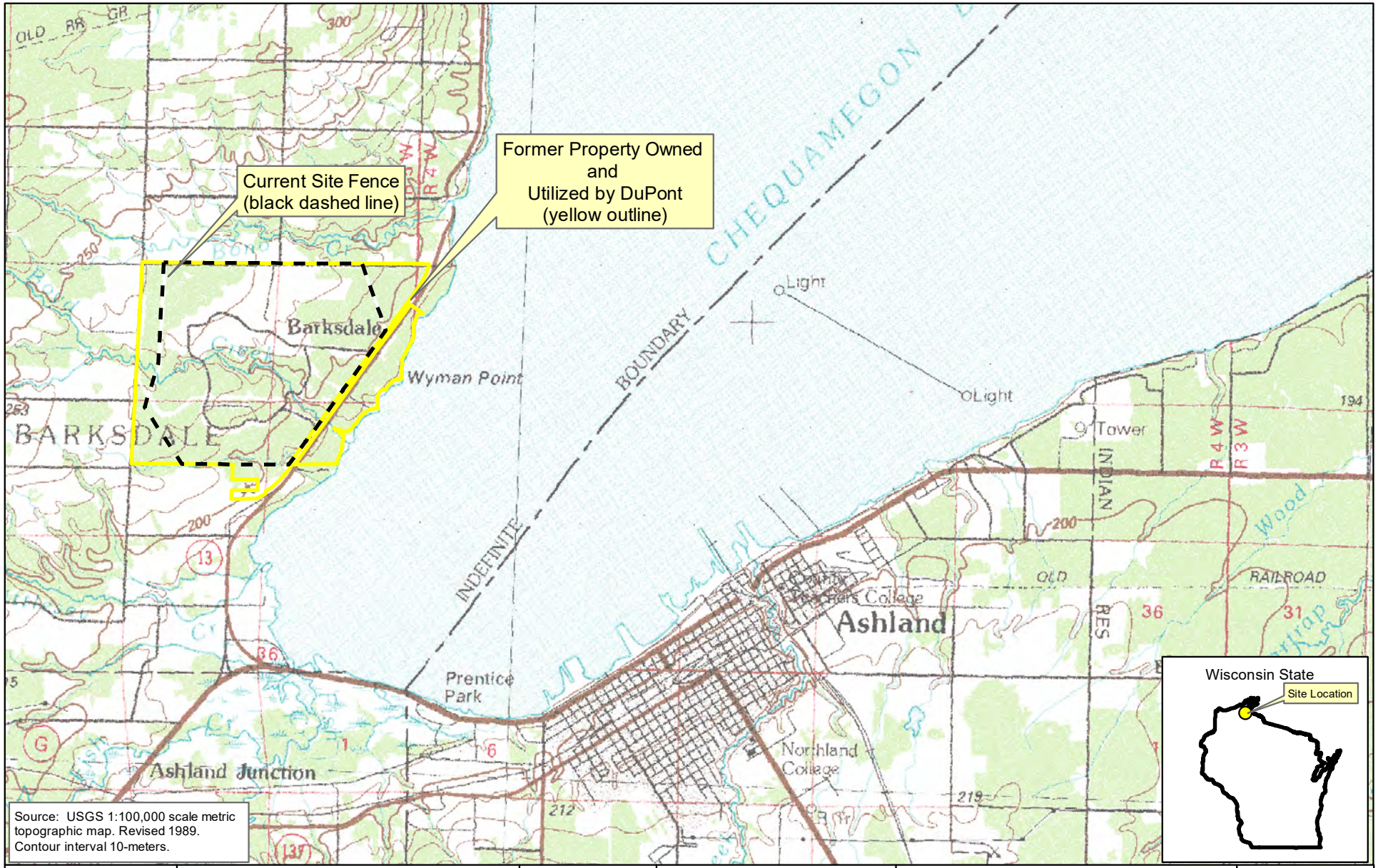
CAS Number	Chemical Constituent	WDNR Non-Industrial RCL January 2018 (mg/kg)	WDNR Industrial RCL January 2018 (mg/kg)	Site-specific Recreational RCL January 2018 (mg/kg)	Lowest Potential RCL (mg/kg)	Pace Analytical Laboratory Reporting Limit (mg/kg)
99-35-4	1,3,5-Trinitrobenzene	2,250	32,400	13,100	2,250	0.2
99-65-0	1,3-Dinitrobenzene	6.32	82.1	36.9	6.32	0.2
118-96-7	2,4,6-Trinitrotoluene	21.3	96	124	21.3	0.2
121-14-2	2,4-Dinitrotoluene	1.21	5.11	7.03	1.21	0.2
606-20-2	2,6-Dinitrotoluene	1.21	5.11	7.03	1.21	0.2
35572-78-2	2-Amino-4,6-Dinitrotoluene	154	2,280	900	154	0.2
88-72-2	2-Nitrotoluene	3.16	14.9	18.4	3.16	0.2
99-08-1	3-Nitrotoluene	6.32	82.1	36.9	6.32	0.2
19406-51-0	4-Amino-2,6-Dinitrotoluene	153	2,250	893	153	0.2
99-99-0	4-Nitrotoluene	33.9	144	198	33.9	0.2
98-95-3	Nitrobenzene	7.41	32.4	43.2	7.41	0.2
2691-41-0	HMX	3,860	57,000	22,500	3,860	Not analyzed
78-11-5	PETN	126	574	737	126	Not analyzed
121-82-4	RDX	8.34	38.4	48.6	6.06	Not analyzed
479-45-8	Tetryl	156	2,330	911	156	Not analyzed
55-63-0	Nitroglycerin	6.32	82.1	36.9	6.32	Not analyzed
602-01-7	2,3-Dinitrotoluene	1.21	5.11	7.03	1.21	0.2
618-85-9	3,5-Dinitrotoluene	1.21	5.11	7.03	1.21	0.2
610-39-9	3,4-Dinitrotoluene	1.21	5.11	7.03	1.21	0.2
619-15-8	2,5-Dinitrotoluene	1.21	5.11	7.03	1.21	0.2
632-92-8	2,4,6-Trinitro-3-Xylene	21.3	96	124	21.3	0.2
616-69-3	1,2-Dimethyl-3,5-Dinitrobenzene	19	247	111	19	0.2
603-02-1	1,3-Dimethyl-2,4-Dinitrobenzene	19	247	111	19	0.2
711-41-1	1,4-Dimethyl-2,6-Dinitrobenzene	19	247	111	19	0.2
65151-56-6	1,5-Dimethyl-2,3-Dinitrobenzene	19	247	111	19	0.2
616-72-8	1,5-Dimethyl-2,4-Dinitrobenzene	19	247	111	19	0.2
EVS0672	1,2-Dimethyl-3,4-Dinitrobenzene	19	247	111	19	0.2
EVS0709	1,2-Dimethyl-3,6-Dinitrobenzene	19	247	111	19	0.2
EVS0670	1,2-Dimethyl-4,5-Dinitrobenzene	19	247	111	19	0.2
EVS0708	1,3-Dimethyl-2,5-Dinitrobenzene	19	247	111	19	0.2
EVS0671	1,4-Dimethyl-2,3-Dinitrobenzene	19	247	111	19	0.2

Notes:

Not analyzed = With the exception of nitroglycerin, none of these compounds were histroically used or manuafactured on-site. Previous analytical sampling for these compunds supports this fact. Nitroglycerin was manufactured on-site; however, the manufacturing operation was located in the Boyd Creek valley and not associated with the bio-pilot test cells.

- = No value available

No RCL = No associated RCL is provided in the WDNR table.



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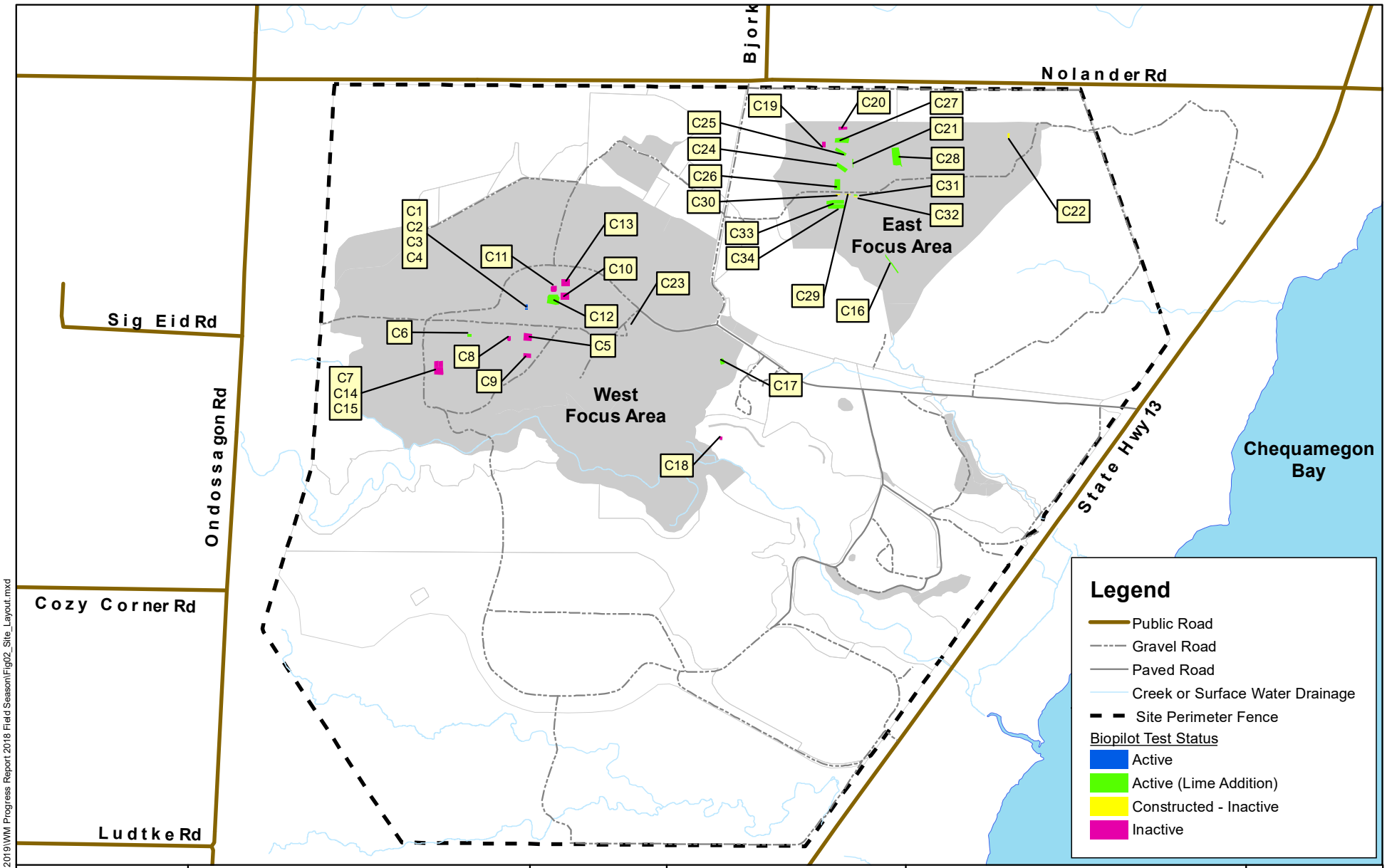
Regional Site Location

Waste Management Progress Report No. 7
Bioremediation Pilot Test – 2018 Field Season
Former DuPont Barksdale Works
Barksdale, Wisconsin 54806

PROJECT NUMBER:	60525839
DATE:	April 2019
FIGURE NUMBER:	1



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Area Map (Optional)

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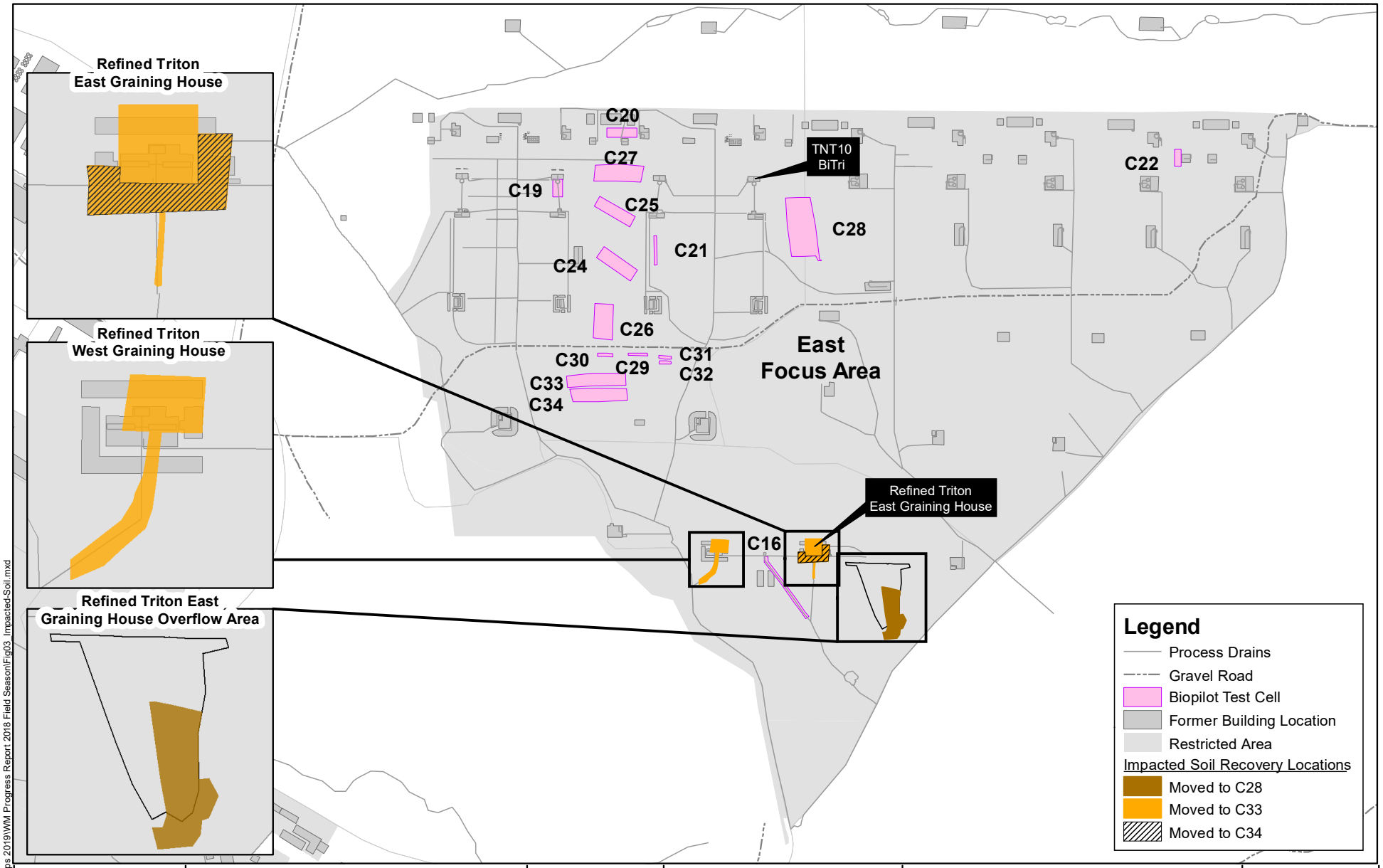
Site Layout and Bio-cell Locations

Waste Management Progress Report No. 7
Bioremediation Pilot Test – 2018 Field Season
Former DuPont Barksdale Works
Barksdale, Wisconsin 54806

PROJECT NUMBER: 60525839

DATE: April 2019

FIGURE NUMBER: 2



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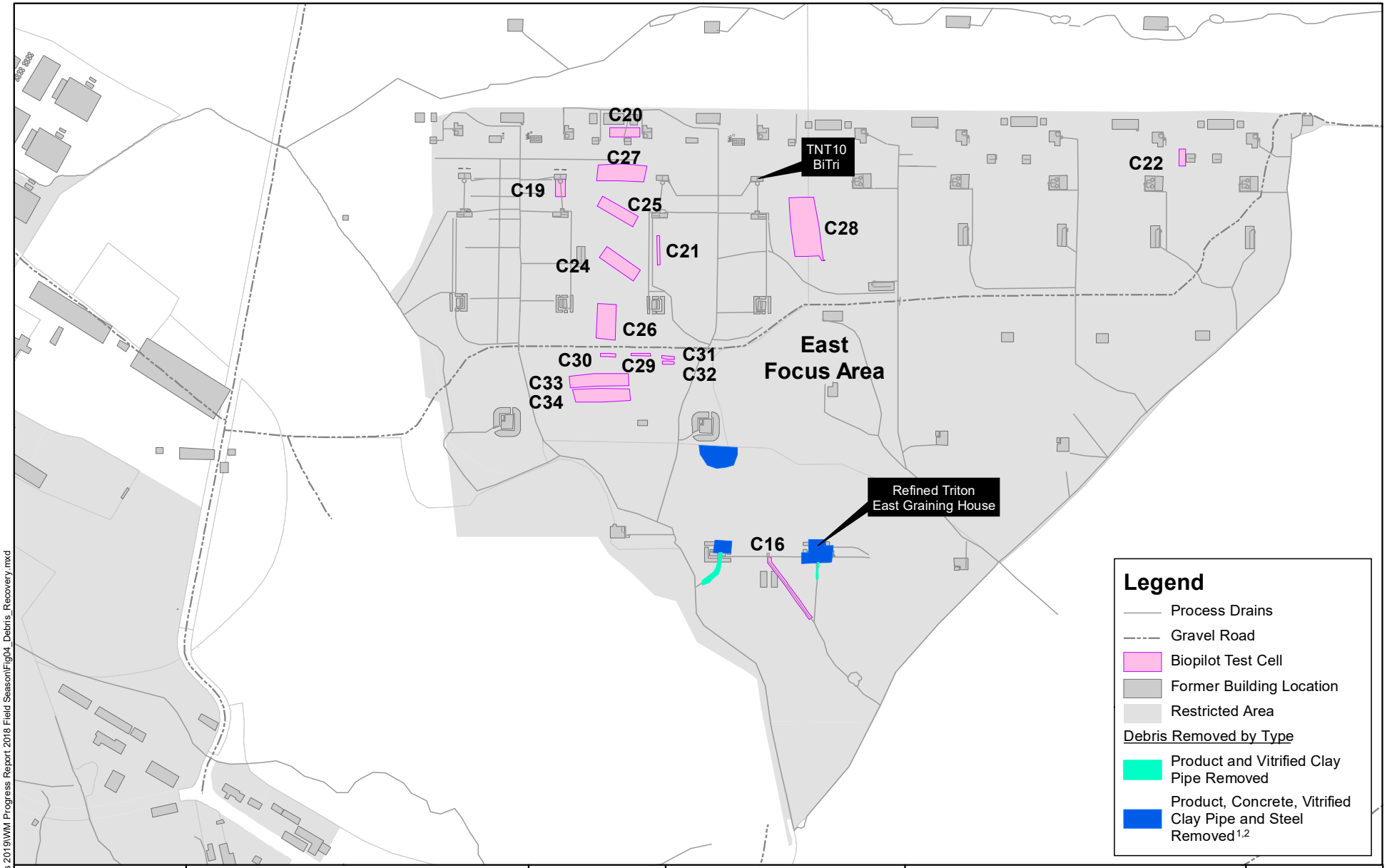
2018 Impacted Soil Recovery Locations

Waste Management Progress Report No. 7
Bioremediation Pilot Test – 2018 Field Season
Former DuPont Barksdale Works
Barksdale, Wisconsin 54806

PROJECT NUMBER: 60525839

DATE: April 2019

FIGURE NUMBER: 3



G:\Projects\Barksdale\GIS\Maps\Maps 2019\WM Progress Report 2018 Field Season\Fig04_Debris_Recovery.mxd

Notes:
[1]Impacted concrete from RTWGH and RTEGH was cleaned in C28 and returned to its source. Un-impacted and cleaned concrete was reburied at the source.

[2]Steel from RTWGH and RTEGH screened clean and was removed from the Site.

N
W E
S

0 125 250 500 750

Feet

1:5,000

MAP FORMATTED FOR "A" (8.5" X 11") SIZE SHEET.
SCALE NOT VALID FOR DIFFERENT PAGE SIZE.

FILE NUMBER:

DESIGNED BY: NS

DRAWN BY: VN

DATA QUALITY CHECK BY: NS

AECOM

AECOM
500 West Jefferson Street
Suite 1600
Louisville, Kentucky 40202

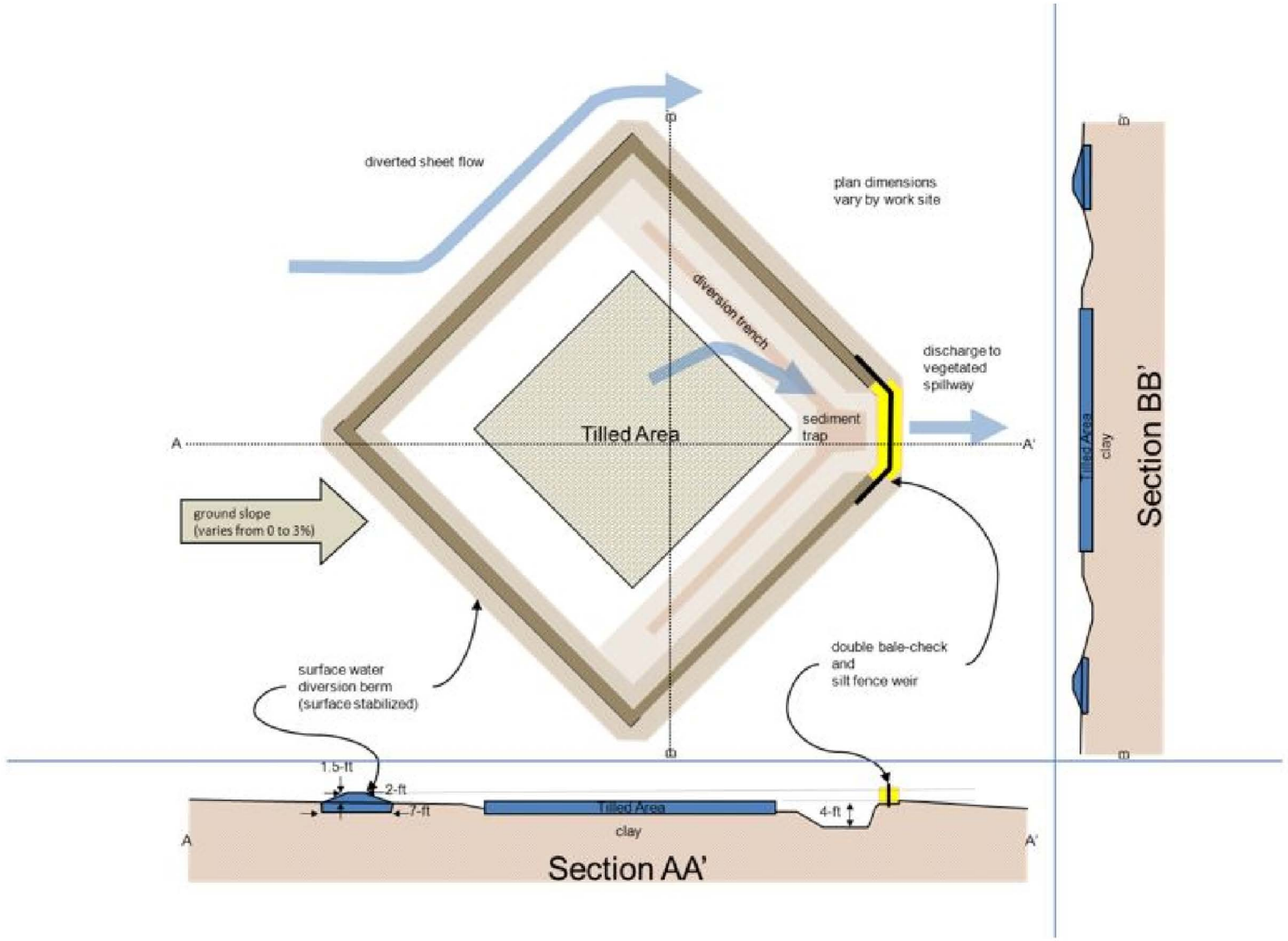
2018 Debris Removal Locations

Waste Management Progress Report No. 7
Bioremediation Pilot Test – 2018 Field Season
Former DuPont Barksdale Works
Barksdale, Wisconsin 54806

PROJECT NUMBER: 60525839

DATE: April 2019

FIGURE NUMBER: 4



Area Map (Optional)

FILE NUMBER:	
DESIGNED BY:	NS
DRAWN BY:	VN
DATA QUALITY CHECK BY:	NS

AECOM
500 West Jefferson Street
Suite 1600
Louisville, Kentucky 40202

Typical Biopilot Sites Operational Stage 2007-2010

Waste Management Progress Report No. 7
Bioremediation Pilot Test – 2018 Field Season
Former DuPont Barksdale Works
Barksdale, Wisconsin 54806

PROJECT NUMBER:	60525839
DATE:	April 2019
FIGURE NUMBER:	5

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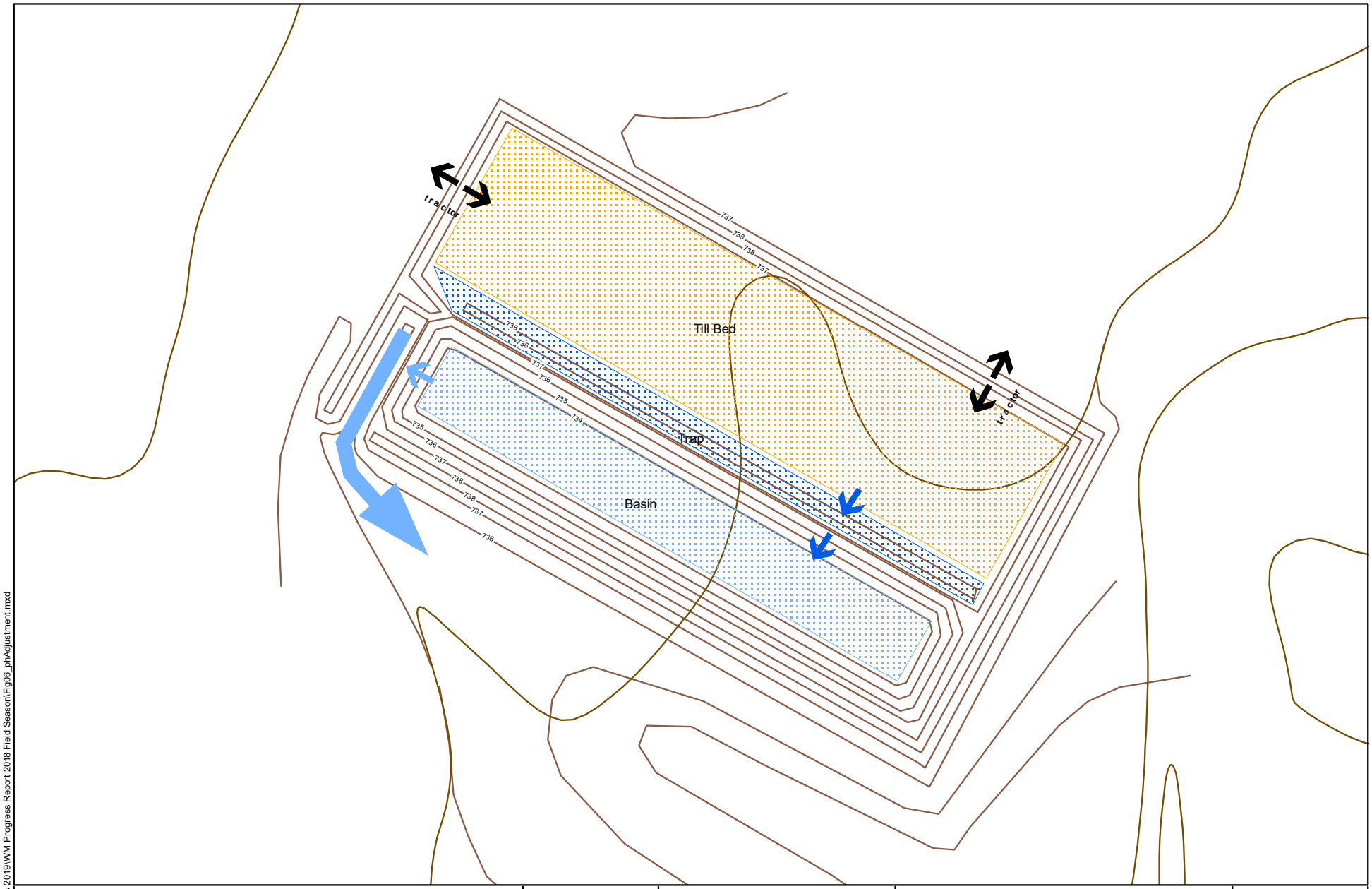

Area Map (Optional)

FILE NUMBER:	
DESIGNED BY:	NS
DRAWN BY:	VN
DATA QUALITY CHECK BY:	NS

AECOM
500 West Jefferson Street
Suite 1600
Louisville, Kentucky 40202

General pH Adjustment Cell Configuration

Waste Management Progress Report No. 7
Bioremediation Pilot Test – 2018 Field Season
Former DuPont Barksdale Works
Barksdale, Wisconsin 54806

PROJECT NUMBER:	60525839
DATE:	April 2019
FIGURE NUMBER:	6

G:\Projects\Barksdale\GIS\Maps\Maps 2019\WM Progress Report 2018 Field Season\Fig06_phAdjustment.mxd

State of Wisconsin
Department of Natural Resources
PO Box 7921, Madison WI 53707-7921
dnr.wi.gov

Remediation Site Operation, Maintenance, Monitoring & Optimization Report

GENERAL INSTRUCTIONS, PURPOSE AND APPLICABILITY OF THIS FORM: Completion of this form is required under s. NR 724.13(3), Wis. Adm. Code. A narrative report or letter containing the equivalent information required in this form may be submitted in lieu of the actual form. Failure to submit this form as required is a violation of s. NR 724.13(3), Wis. Adm. Code, and is subject to the penalties in s. 292.99, Wis. Stats. This form must be submitted every six months for soil or groundwater remediation projects that report operation and maintenance progress in accordance with s. NR 724.13(3), Wis. Adm. Code.

Note: Long-term monitoring results submitted in accordance with s. NR 724.17(3), Wis. Adm. Code are required to be submitted within 10 business days of receiving sampling results and are not required to be submitted using this form. However, portions of this form require monitoring data summary information that may be based on information previously submitted in accordance with s. NR 724.17(3), Wis. Adm. Code.

Note: Responsible parties should check with the State Project Manager assigned to the site to determine if this form is required to be submitted at sites responded to under the Federal Comprehensive Environmental Response and Compensation Act (commonly known as Superfund) or an equivalent State lead Superfund response.

Note: Responsible parties should check with the State Project Manager assigned to the site to determine if any of the information required in this form may be omitted or changed and obtain prior written approval for any omissions or changes.

Submittal of this form is not a substitute for reporting required by Department programs such as Waste Water or Air Management. Personally identifiable information on this form is not intended to be used for any other purpose than tracking progress of the remediation by the Bureau for Remediation and Redevelopment.

Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records Law (ss. 19.31-19.39, Wis. Stats.). Unless otherwise noted, all citations refer to Wisconsin Administrative Code.

Note: There is a separate semi-annual report required under s. NR 700.11(1), Wis. Adm. Code. Reporting under that provision is through an internet-based form:

http://dnr.wi.gov/topic/Brownfields/documents/regs/NR700progreport.pdf

Section GI - General Site Information

A. General Information

1. Site name

Former DuPont Barksdale Works

2. Reporting period from:	To:	Days in period:
05/22/2018	05/21/2019	365

3. Regulatory agency (enter DNR, DATCP and/or other)	4. BRRTS ID No. (2 digit program-2 digit county-6 digit site specific)
WDNR	02-04-000156

5. Site location

Region	County	Address
Northeast Region	Bayfield	72315 State Highway 13 South

Municipality name ◯ City ◉ Town ◯ Village	Township	Range ◯E ◉W	Section	¼	¼ ¼
Town of Barksdale, Bayfield County	48 N	5	24	NW	

6. Responsible party	7. Consultant
Name: Mr. Bradley S. Nave, Project Director, Chemours	☐ Select if the following information has changed since the last submittal
Mailing address: 7204 Overlook Cove, Georgetown, IN 47122	Company name: AECOM - Attention: Cary Pooler
Phone number: (812) 923-1136	Mailing address: 500 W Jefferson St., Suite 1600 Louisville, KY 40202
	Phone number: (502) 252-5878

8. Contaminants

Nitramine and Nitroaromatic Organic Compounds (NNOCs): TNT, DNT, DNX, TNX, NT

9. Soil types (USCS or USDA)

CL / SM-ML / SC

10. Hydraulic conductivity(cm/sec):	11. Average linear velocity of groundwater (ft/yr)
NA	NA

12. If soil is treated ex situ, is the treatment location off site? ◯ Yes ◉ No

If yes, give location: Region	County

Municipality name ◯ City ◯ Town ◯ Village	Township	Range ◯E ◯W	Section	¼	¼ ¼
	N				

B. Remediation Method

Only submit sections that apply to an individual site. Check all that apply:

- ☐ Groundwater extraction (submit a completed Section GW-1).
- ☐ Free product recovery (submit a completed Section GW-1).
- ☐ In situ air sparging (submit a completed Section GW-2).
- ☐ Groundwater natural attenuation (submit a completed Section GW-3).
- ☐ Other groundwater remediation method (submit a completed Section GW-4).
- ☐ Soil venting (including soil vapor extraction building venting and bioventing submit a completed Section IS-1).
- ☐ Soil natural attenuation (submit a completed Section IS-2).
- ☒ Other in situ soil remediation method (submit a completed Section IS-3).
- ☐ Biopiles (submit a completed Section ES-1).
- ☐ Landspreading/thinspreading of petroleum contaminated soil (submit a completed Section ES-2).
- ☒ Other ex situ remediation method (submit a completed Section ES-3).
- ☐ Site is a landfill (submit a completed Section LF-1).

C. General Effectiveness Evaluation for All Active Systems

If the remediation is active (not natural attentuation), complete this subsection.

1. Is the system operating at design rates and specifications? ○ Yes ◉ No
   If the answer is no, explain whether or not modifications are necessary to achieve the goal that was previously established in design.

   System is a pilot test, there are no applicable specifications.

2. Are modifications to the system warranted to improve effectiveness ◉ Yes ○ No
   If yes, explain:

   Results of prior seasons' testing are used to improve system performance in subsequent test cells. Current data indicate that elevated (above ground) cells and adjustments to pH are likely to accelerate remediation; however, data are still being acquired to support this finding.

3. Is natural attenuation an effective low cost option at this time? ○ Yes ◉ No
4. Is closure sampling warranted at this time? ○ Yes ◉ No
5. Are there any modifications that can be made to the remediation to improve cost effectiveness? ○ Yes ◉ No
   If yes, explain:

D. Economic and Cost Data to Date

1. Total investigation cost: $0.00
2. Implementation costs (design, capital and installation costs, excluding investigation costs: $0.00
3. Total costs during the previous reporting period: $0.00
4. Total costs during this reporting period: $0.00
5. Total anticipated costs for the next reporting period: $0.00
6. Are any unusual or one-time costs listed in the reporting periods covered by D.3., D.4. or D.5. above? ◉ Yes ○ No
   If yes, explain:

   System is a pilot test. Economic and cost data is not applicable.

7. If closure is anticipated within 12 months, estimated costs for project closeout: $0.00

E. Name(s), Signature(s) and Date of Person(s) Submitting Form

Legibly print name, date and sign. Only persons qualified to submit reports under ch. NR 712 Wis. Adm. Code are to sign this form for sites with any ongoing active remediation, monitoring or an investigation. Other persons may sign this form for sites with no response activities during the six month reporting period.

Registered Professional Engineers:

I hereby certify that I am a registered professional engineer in the State of Wisconsin, registered in accordance with the requirements of ch. A-E 4, Wis. Adm. Code; that this document has been prepared in accordance with the rules of Professional Conduct in ch. A-E 8, Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.

Print name	Title
Signature	**Date**

Hydrogeologists:

I hereby certify that I am a hydrogeologist as that term is defined in s. NR 712.03(1), Wis. Adm. Code, and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.

Print name	Title
Carroll E. Pooler, III	Project Manager, P.G. 1265
Signature 	**Date** 5/21/2019

Scientists:

I hereby certify that I am a scientist as that term is defined in s. NR 712.03(3), Wis. Adm. Code, and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.

Print name	Title
Nicholas Shorkey	Staff Geologist
Signature 	**Date** 4/1/2019

Other Persons:

Print name	Title
Signature	**Date**

Professional Seal(s), if applicable:

Section GW-1, Groundwater Pump and Treat Systems and Free Product Recovery Systems

A. Groundwater Extraction System Operation:

1. Total number of groundwater extraction wells or trenches available: _____ and the number in use during period: _____
2. Number of days of operation (only list the number of days the system actually operated, if unknown explain:

3. System utilization in percent (days of operation divided by reporting time period multiplied by 100). If < 80%, explain:

4. Quantity of groundwater extracted during this time period: _____ gallons
5. Average groundwater extraction rate: _____ gpm
6. Quantity of dissolved phase contaminants removed during this time period in pounds: _____ lbs

B. Free Product Recovery System Operation

1. Is free product (nonaqueous phase liquid) being recovered at this site? ◯ Yes ◯ No
   If yes, explain:

2. Quantity of free product extracted during this time period (enter none if none): _____ gallons
3. Average free product extraction rate: _____ gpm

C. System Effectiveness Evaluation

1. Is a contaminated groundwater plume fully contained in the capture zone? ◯ Yes ◯ No
   If no, explain:

2. If free product is present, is the free product fully contained in capture zone? ◯ Yes ◯ No
   If no, explain:

3. If free product is present in any wells at the site, but free product was not recovered during reporting period, explain:

4. If free product is not present, determine the single contaminant that requires the greatest percent reduction to achieve ch. NR 140 ES and PAL. Perform this calculation for all contaminants that were present at the site that have ch. NR 140 standards. Use the highest contaminant concentration measured in any sampling points during reporting period. If free product is present, write "FREE PRODUCT" in C.4.a.

   a. Contaminant: _____

   b. Percent reduction necessary to reach ch. NR 140 ES and PAL: _____ %

   c. Maximum contaminant concentration level in any monitoring well of that contaminant: _____ µg/L

   d. Maximum contaminant concentration level in any extraction well of that contaminant: _____ µg/L

e. If the maximum concentration in a monitoring well is more that one order of magnitude above the concentration measured in an extraction well, explain why the extracted groundwater contamination levels are significantly less than the levels at other locations within the aquifer.

D. Additional Attachments

Attach the following to this form:

- Most recent report to the DNR Wastewater Program, if applicable.
- Groundwater contour map with capture zone indicated.
- Groundwater contaminant distribution map (may be combined with contour map).
- Graph of cumulative contaminant removal, if both free product recovery and ground water extraction are used, provide separate graphs.
- Time versus groundwater contaminant concentration graphs for the contaminant listed in C.4.a. (above), as follows:
  - -- Graph of contaminant concentrations versus time for each extraction well in use during the period.
  - -- Graph of contaminant concentrations versus time for the monitoring well with the greatest level of contamination.
- Groundwater contaminant chemistry table.
- Groundwater elevations table.
- System operational data table.

Section GW-2, In Situ Air Sparging Systems

A. In Situ Air Sparging System Operation

1. Number of air injection wells at the site and the number actually in use during the period: _____
2. Number of days of operation (only list the number of days the system actually operated, if unknown explain):

3. System utilization in percent (days of operation divided by reporting time period multiplied by 100). If < 80%, explain:

B. System Effectiveness Evaluation

1. If free product is not present, determine the single contaminant that requires the greatest percent reduction to achieve ch. NR 140 ES and PAL. Perform this calculation for all contaminants that were present at the site that have ch. NR 140 standards. Use the highest contaminant concentration measured in any sampling points during reporting period. If free product is present, write "FREE PRODUCT" in B.1.a.

   a. Contaminant: _____

   b. Percent reduction necessary to reach ch. NR 140 ES and PAL: _____ %

   c. Maximum contaminant concentration level in any monitoring well: _____ µg/L

2. Is there any evidence that air is short circuiting through natural or man-made pathways? ◯ Yes ◯ No
   If yes, explain:

3. Is the size of the plume: ◯ Increasing ◯ Stabalized ◯ Decreasing ?
   If increasing, explain:

C. Additional Attachments

Attach the following to this form:

- Groundwater contour map.
- Groundwater contaminant distribution map (may be combined with contour map).
- When contaminants are aerobically biodegradable, attach a dissolved oxygen in groundwater map (dissolved oxygen may be combined with the contaminant data on a single map).
- Site map with all air injection wells and groundwater monitoring points.
- Graph of contaminant concentrations versus time for the contaminant listed in B.1.a. (above) for the monitoring point with the greatest level of contamination.
- Groundwater contaminant chemistry table.
- Groundwater elevations table.
- System operational data table.

Section GW-3, Natural Attenuation (Passive Bioremediation) in Groundwater

A. Effectiveness Evaluation

1. If free product is not present, determine the single contaminant that requires the greatest percent reduction to achieve ch. NR 140 ES and PAL. Perform this calculation for all contaminants that were present at the site that have ch. NR 140 standards. Use the highest contaminant concentration measured in any sampling points during reporting period. If free product is present, write "FREE PRODUCT" in A.1.a

   a. Contaminant: _____

   b. Percent reduction necessary to reach ch. NR 140 ES and PAL: _____ %

   c. Maximum contaminant concentration level in any monitoring well of that contaminant: _____ µg/L

2. Aquifer parameters:

   a. Hydraulic conductivity: _____ cm/sec

   b. Groundwater average linear velocity: _____ ft/yr

3. Is there a downgradient monitoring well that meets ch. NR 140 standards? ◯ Yes ◯ No

4. Based on water chemistry results, is the plume: ◯ Expanding ◯ Stabalized ◯ Contracting ?

5. If the answer in 4. (above) is "expanding," is natural attenuation still the best option? ◯ Yes ◯ No
   If yes, explain:

6. Biodegradation parameters:

   a. Upgradient (or other site specific background) DO level: _____ µg/L

   b. DO levels in the part of the plume that is most heavily contaminated _____ µg/L

7. Is site closure a viable option within 12 months from the date of this form? ◯ Yes ◯ No

8. Are there any modifications that can improve cost effectiveness? ◯ Yes ◯ No
   If yes, explain:

9. Have groundwater table fluctuations changed the contaminant level trends over time? ◯ Yes ◯ No
   If yes, explain:

10. Has the direction of groundwater flow changed during the reporting period? ◯ Yes ◯ No
    If yes, approximate change in degrees: _____

B. Additional Attachments

Attach the following:

- Groundwater contour map.
- Groundwater contaminant distribution map (may be combined with contour map).
- When contaminants are aerobically biodegradable, attach a dissolved oxygen in groundwater map (dissolved oxygen may be combined with the contaminant data on a single map).
- Graph of contaminant concentrations versus time for the contaminant listed in A.1.a. (above) for the monitoring point with the greatest level of contamination.
  Note: This is the minimum required graph; however, it is recommended that multiple time versus contamination concentration graphs as described in the instructions on page 24 for Natural Attenuation of Groundwater be submitted.
- Graph of contaminant concentrations versus distance.
- Groundwater contaminant chemistry table.
- Groundwater biological parameters.
- Groundwater elevations table.

Section GW-4, Other Groundwater Remediation Methods

A. Effectiveness Evaluation

1. If free product is not present, determine the single contaminant that requires the greatest percent reduction to achieve ch. NR 140 ES and PAL. Perform this calculation for all contaminants that were present at the site that have ch. NR 140 standards. Use the highest contaminant concentration measured in any sampling points during reporting period. If free product is present, write "FREE PRODUCT" in A.1.a.

   a. Contaminant: _____

   b. Percent reduction necessary: _____ %

   c. Maximum contaminant concentration level in any monitoring well: _____ µg/L

2. Is the size of the plume: ◯ Increasing ◯ Stabalized ◯ Decreasing ?

3. Describe the method used to remediate groundwater at the site:

4. List any additional information required by the DNR for this method for this site:

B. Additional Attachments

Attach the following:

- Groundwater contour map.
- Groundwater contaminant distribution map (may be combined with contour map).
- When contaminants are aerobically biodegradable, attach a dissolved oxygen in groundwater map (dissolved oxygen may be combined with the contaminant data on a single map).
- Graph of contaminant concentrations versus time for the contaminant listed in A.1.a. (above) for the monitoring point with the greatest level of contamination.
- Groundwater contaminant chemistry table.
- Groundwater elevations table.
- Any other attachments required by the DNR for this remediation method.

Section IS-1, Soil Venting (Including Soil Vapor Extraction, Building Venting and Bioventing)

A. Soil Venting Operation

Note: This form is not required for building vapor mitigation systems that are installed proactively to protect building occupants/users and are not considered part of ongoing active soil remediation.

1. Number of air extraction wells available and number of wells actually in use during the period: _____
2. Number of days of operation (only list the number of days the system actually operated, if unknown explain):

_____

3. System utilization in percent (days of operation divided by reporting time period multiplied by 100). If < 80%, explain:

_____

4. Average depth to groundwater: _____ gpm

B. Building Basement/Subslab Venting System Operation

1. Number of venting points available and number of points actually in use during the period: _____
2. Number of days of operation (only list the number of days the system actually operated, if unknown explain):

_____

3. System utilization in percent (days of operation divided by reporting time period multiplied by 100). If < 80%, explain:

C. Effectiveness Evaluation

1. Average contaminant removal rate for the entire system: _____ pounds per day
2. Average contaminant removal rate per well or venting point: _____ pounds per day
3. If the average contaminant removal rate is less than one pound per day for the entire system, or if the average contaminant removal rate per well is less than one tenth of a pound per day, evaluate the following:
   a. If contaminants are aerobically biodegradable and confirmation borings have not been drilled in the past year:
      i. Oxygen levels in extracted air: _____ percent
      ii. Methane levels in extracted air (ppm_V) If over 10 ppm_V, explain:

      _____

      iii. If methane is not present above 10 ppm_V and if oxygen is greater than 20 percent in extracted air, you should either:
      - Drill confirmation borings during the next reporting period, if the entire site should be considered for closure.
      - Or, perform an in situ respirometry test in a zone of high contamination. Do not perform the test in an air extraction well, use a gas probe or water table well. If a zero order rate of decay based on oxygen depletion is less than 2 mg/kg per day, then you should drill confirmation borings, if the entire site should be considered for closure. If the rate of decay is between 2 and 10 mg/kg, operate for one more reporting period before evaluating further. If the zero order rate of decay is greater than 10 mg/kg total hydrocarbons, continue operating the system in a manner than maximizes aerobic biodegradation.

   b. If contaminants are not aerobically biodegradable and confirmation borings have not been recently drilled during the past year, you should drill confirmation borings during the next reporting period if the entire site should be considered for closure.
   c. If soil borings were drilled during the past year and soil contamination remains above acceptable levels, explain if the system effectiveness can be increased and/or if other options need to be considered to achieve cleanup criteria.

D. Additional Attachments

Attach the following to this form:

- Well and soil sample location map indicating all air extraction wells. If forced air injection wells are also in use, identify those wells.
- If water table monitoring wells are present at the site, a map of well locations.
- Time versus vapor phase contaminant concentration graph.
- Time versus cumulative contaminant removal graph.
- Groundwater elevations table, if water table wells are present at the site; also list screen lengths and elevations.
- Table of soil contaminant chemistry data.
- Soil gas data, if gas probes are used to monitor subsurface conditions in locations other than where air is extracted.
- System operational data table.

Section IS-2, Natural Attenuation (Passive Bioremediation) in Soil

A. Effectiveness Evaluation

1. Soil gas information in the soil that is most contaminated from a permanently installed gas probe(s) or water table monitoring well(s).
   a. Hydrocarbon levels: _____ ppm, with an FID
   b. Oxygen levels: _____ percent
   c. Carbon dioxide levels(specify ppm or percent): _____
   d. Methane levels: _____ ppm
2. Soil gas information in background (uncontaminated soil) from permanently installed gas probe(s)or water table monitoring well(s):
   a. Hydrocarbon levels: _____ ppm, with an FID
   b. Oxygen levels: _____ percent
   c. Carbon dioxide levels(specify ppm or percent): _____
   d. Methane levels: _____ ppm
3. List the results of the single boring that had the highest levels of soil contamination during the last round of soil sampling, and the date those samples were collected. Since soil borings are only drilled periodically, list the most recent data even if the data is prior to this reporting period. Since this data is used to assess progress based on the most recent soil sampling event, do not list data from prior sampling events.
   a. Total hydrocarbons (Specify if GRO and/or DRO): _____ µg/kg
   b. Specific compounds (µg/kg):
      i. Benzene: _____ µg/kg
      ii. 1,2 Dichloroethane: _____ µg/kg
      iii. Ethylbenzene: _____ µg/kg
      iv. Toluene: _____ µg/kg
      v. Total xylenes: _____ µg/kg
4. Is there any evidence that contaminants are leaching into groundwater? ◯ Yes ◯ No
   If the answer is yes and if groundwater quality is not being monitored, explain:
5. Is site closure a viable option within 12 months from the date of this form? ◯ Yes ◯ No
6. Are there any modifications that can be made to the remediation to improve cost effectiveness? ◯ Yes ◯ No
   If yes, explain:

B. Additional Attachments

Attach the following to this form:

- Well and soil sample location map.
- Cross sections showing the water table, soil sampling locations, screened intervals for gas probes or water table wells, geologic contacts, and any former excavation boundaries.
- Graphs of contaminant concentrations, oxygen, carbon dioxide and methane levels over time.
- Groundwater elevations table, if water table wells are present at the site.
- Table of soil contaminant chemistry.
- Table of soil gas readings.

Section IS-3, Other In Situ Soil Remediation Methods

A. Effectiveness Evaluation

1. Describe the method used to remediate soil at the site:

The Bioremediation Pilot Test program is a preliminary evaluation of the efficacy of enhanced attenuation of NNOCs using periodic soil tilling with moisture and pH adjustment. The test program, initiated June 16, 2007, is currently evaluating alternate till bed configurations, tilling frequencies, and cell construction methods. Analytical data is currently being collected to evaluate the effects of soil moisture, pH and various NNOC mixtures on degradation pathways and is anticipated to provide information needed to implement a full scale program within several years.

2. List all information required by the DNR for this remediation method for this site:

This progress report was required to support the Remediation Variance issued by WDNR for the Bioremediation Pilot Test program. Methods to achieve remediation are currently not fully evaluated and will not be available until the test program is completed. Until such time, annual progress reports attached to this form will provide waste tracking data requested by the Remediation Variance for the following topics:

- Product Residuals and Debris Removed from Bioremediation Pilot Cells
- Movement of Impacted Soils into Bioremediation Pilot Cells
- Alternative Treatment of Large Debris

This page IS-3 covers the test cells constructed in-situ: cells C01 through C18. These cells were constructed using the configuration shown on Figure 5 of the attached report. Contaminated soil in these cells is tilled in-place with surface and rain water diverted to the sides as much as possible.

B. Additional Attachments

Attach the following to this form:

- Any other attachments required by the DNR for this remediation method.

Section ES-1, Ex Situ Soil Treatment Using Biopiles

A. Effectiveness Evaluation

1. Volume of soil in the biopile (if multiple biopiles, list number of piles and total volume):

2. Monitoring used to assess progress and verify optimal conditions for biodegradation.
   a. Vapor phase measurements of gases (average of all readings from most recent sampling event):
      i. VOCs by FID: _____ ppm
      ii. Oxygen: _____ percent
      iii. Carbon dioxide: _____ percent
      iv. Methane: _____ ppm
   b. Soil temperature: _____ °F
   c. Soil moisture sensors, if used: _____ percent
3. Treatment amendments added to the soil during construction:
   a. Artificial nutrients, excluding manure.
      i. Types and total pounds added:

      ii. Nitrogen and phosphorous content of the added amendment: _____ percent
   b. Manure: _____ total pounds
   c. Natural organic materials (straw, wood chips, etc.)(type and total pounds):

4. Forced air biopiles only answer the following:
   a. Total air flow rate of the ventilation system: _____ scfm
   b. Average contaminant removal rate: _____ pounds per day
   c. Average biodegradation rate based on oxygen utilization: _____ pounds per day
5. If soil samples have been taken to monitor progress, list results. Only list the most recent results. If none collected enter NA.
   a. Total hydrocarbons. Specify if GRO and/or DRO: _____ µg/kg
   b. Specific compounds (µg/kg):
      i. Benzene: _____ µg/kg
      ii. 1,2 Dichloroethane: _____ µg/kg
      iii. Ethylbenzene: _____ µg/kg
      iv. Toluene: _____ µg/kg
      v. Total xylenes: _____ µg/kg

B. Additional Attachments

Attach the following to this form:

- Figure showing the construction details of the biopile and any sampling locations within the biopile.
- Table of soil contaminant chemistry data.
- Table of operational data.

Section ES-2, Ex Situ Soil Treatment Using Landspreading/Thinspreading

A. Effectiveness Evaluation

1. Method used: ◯ landspreading ◯ thinspreading

Note: For purposes of this form, "landspreading" is the placement of contaminated soil on native topsoil, incorporation of that soil into the native soil and planting crops or other plants on it. The term "thinspreading" refers to placing contaminated soil on an impervious base for aeration.

2. Was any progress monitoring using field screening on soil conducted during this reporting period? ◯ Yes ◯ No

3. If the answer to A.2. (above) is yes:

i. List monitoring method:

_____

ii. List monitoring results:

_____

4. Is there any evidence of soil erosion at the landspreading/thinspreading location? ◯ Yes ◯ No

5. Spreading thickness: _____ inches

6. Type of crop planted (if thinspreading with no crop planted, so state):

_____

7. Confirmation sampling date: _____ Anticipated confirmation sampling date: _____

8. Most recent soil sample results, if soil samples for laboratory analysis have been collected to monitor progress. Only list the highest result of the most recent sampling round. If no samples have been collected, enter NA.

a. Total hydrocarbons. Specify if GRO and/or DRO: _____ µg/kg

b. Specific compounds (µg/kg):

i. Benzene: _____ µg/kg

ii. 1,2 Dichloroethane: _____ µg/kg

iii. Ethylbenzene: _____ µg/kg

iv. Toluene: _____ µg/kg

v. Total xylenes: _____ µg/kg

B. Additional Attachments

Attach the following to this form:

- Map of the landspreading/thinspreading area. If soil samples have been collected, specify locations of samples and dates of sampling.
- Table of soil contaminant chemistry data.
- Table of any field screening results with dates of sample collection.

Section ES-3, Other Ex Situ Soil Remediation Methods

A. Effectiveness Evaluation

1. Describe the method used to remediate soil at the site:

The Bioremediation Pilot Test program is a preliminary evaluation of the efficacy of enhanced attenuation of NNOCs using periodic soil tilling with moisture and pH adjustment. The test program, initiated June 16, 2007, is currently evaluating alternate till bed configurations, tilling frequencies, and cell construction methods. Analytical data is currently being collected to evaluate the effects of soil moisture, pH and various NNOC mixtures on degradation pathways and is anticipated to provide information needed to implement a full scale program within several years.

2. List all information required by the DNR for this remediation method for this site:

This progress report was required to support the Remediation Variance issued by WDNR for the Bioremediation Pilot Test program. Methods to achieve remediation are currently not fully evaluated and will not be available until the test program is completed. Until such time, annual progress reports attached to this form will provide waste tracking data requested by the Remediation Variance for the following topics:

Product Residuals and Debris Removed from Bioremediation Pilot Cells
Movement of Impacted Soils into Bioremediation Pilot Cells
Alternative Treatment of Large Debris

This page ES-3 covers the test cells constructed ex-situ: cells C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C-33, and C-34. These cells were constructed after receipt of the May 22, 2012 Hazardous Waste Remediation Variance issued for the project by the department. They use the configuration shown on Figure 6 of the attached report. Contaminated soil in these cells is excavated and placed into clay lined cells constructed above grade with drainage materials below the test soils to allow rain water to move out of the soil pore space thus increasing subsurface oxygen content. Smaller ex-situ clay-lined cells C29, C30, C31, and C32 were created with the purpose of keeping all water within the cell to evaluate how saturation may affect the cell contents.

B. Additional Attachments

Attach the following to this form:

- Any other attachments required by the DNR for this remediation method.

~~Section ES-3~~ Section LF-1, Landfills

Note: Reporting forms or reporting requirements in a Department approved Operation and Maintenance Plan for a landfill may take the place of this form.

Specific Inspection Items	Potential Problem Areas	Status	Notes
Perimeter Security Fencing	Broken or missing wood slats, torn chain link fabric, barbed wire, other - list		
Entrance Gate and Locking Mechanism	Lock broken/missing, mechanism inoperative.		
Monitoring Wells and Wellhead Covers	Signs of tampering, casing damaged, lock missing.		
Final Cover Vegetation	Bare spots, stressed vegetation, deep rooted vegetation.		
Final Cover Slope (explain below)	Gullies, lack of vegetation, subsidence, ponding.		
Evidence of Burrowing Animals	Damage to final cover, evidence of waste.		
Stormwater Drainage Channels	Gullies, erosion, debris, culvert blocked.		
Passive Landfill Gas Venting System	Damaged or blocked vent risers, stressed vegetation.		
Active Landfill Gas Extraction System	Damaged or blocked piping, cleanouts, other blower flare, knockouts, etc.		
Leachate Collection System	Pumps, connection piping, collection system piping, extraction wells, collection tanks, tanker truck loading system or sanitary sewer discharge piping.		
Access Road Cover Mowing; Tall Vegetation Removal	Ponding, rutting, erosion, cracked or damaged pavement. Mowing and tall vegetation removal done to specified vegetation.		

Summary of Deficiencies and/or Corrective Actions:

B. Additional Attachments

Attach the following to this form:

- Any photographs documenting problems and maintenance activities.
- Maps, drawings showing site features requiring maintenance.
- Records for leachate pumping/discharge/hauling.
- Records for active gas extraction volumes.

Section INS- 1, Section by Section Instructions and Information

Specific Section by Section Instructions for This Form. The site name and reporting period is listed on every page. Then if the pages are inadvertently separated, that information can be used to determine which pages form the report.

General Site Information

-- A.1. List the name as it appears on the DNR tracking system. If the person filling out the form does not know what the name on the tracking system is, use the name that the DNR used in the most recent correspondence.

-- A.2. The reporting period should be either from January 1 to June 30 or July 1 to December 31 for active systems. For passive systems, use a calendar year basis. If however the report covers a newly installed system, list the actual startup date instead of January 1 or July 1. For new passive systems, use the first date that monitoring data is available as the date of startup.

-- A.3. Enter all regulatory agencies that regulate the site.

-- A.4. This form is a DNR form. For that reason, list the DNR site number. If there are other agencies regulating the site, listing identification numbers for other agencies is also recommended, but not mandatory, unless specified by those other agencies.

-- A.5. If the information listed for the site location is not sufficient information for a person to use to drive to a site (example: no street address in a rural area), also include a map that is sufficient for a person to use to drive to the site. A U.S. G.S. topographic map that shows the site location may be used.

-- A.8. List the contaminants that have at one time exceeded the PALs or Table Values in ch. NR 720. If GRO and/or DRO exceed the ch. NR 720 standards, also list GRO and/or DRO. Do not list other contaminants that have never exceeded state standards at the site. If more room is necessary, write "SEE ATTACHED SHEETS" and list all contaminants on a separate sheet.

-- A.9. List the predominant soil types that are contaminated. If there is both contaminated soil and groundwater at the site, list soil types both above and below the water table. If only some soil is contaminated, do not list the soil types that are uncontaminated. If the site soils meet soil cleanup criteria, but groundwater is contaminated, so state that. Specify if the USCS or USDA system is used for soil descriptions. This line specifies soil because the vast majority of contaminated sites do not have contaminated bedrock. If bedrock is contaminated, also list that bedrock type.

-- A.10. If the groundwater meets ch. NR 140 standards, enter "NA - NO NR 140 EXCEEDANCES". Otherwise, list the estimated hydraulic conductivity and the method used to estimate it (bail-down tests, calculations based on grain size, pumping test, etc.) If the hydraulic conductivity has not been determined, state when the tests are to be conducted. When a number of test results are available, list the range of results and the geometric mean. If however some results have a low level of accuracy and some results have a high level of accuracy, you should only list the most accurate results. See the Section on aquifer testing in the *Guidance on Design, Installation and Operation of Ground Water Extraction and Product Recovery Systems* for more information.

-- A.11. If the groundwater meets ch. NR 140 standards, enter "NA - NO NR 140 EXCEEDANCES". Otherwise, enter groundwater average linear velocity as a function of hydraulic conductivity, effective porosity and the groundwater gradient. You should use the geometric mean from A.11. (above) and the most representative value for the gradient at the site. Estimate the effective porosity based on soil types and geologic origin of the soil. If there are reasons to believe that the average liner velocity estimate is less than the actual rate at the site, so state that reason. Secondary porosity effects, flow through submerged utility trenches, widespread contaminant distribution in low permeability soils, etc., are reasons to assume that the actual migration rate is much greater than the predicted average linear velocity. In such cases, you should explain the reasoning for doubting the predicted average linear velocity.

-- A.12. If the information listed for the soil treatment location is not sufficient information for a person to use to drive to a site, also include a map that is sufficient for a person to use to drive to the site. A U.S.G.S. topographic map or a plat map that shows the site location may be used.

-- B. Check all methods used at a site. For example, if groundwater extraction, free product recovery and soil venting are used, check all three methods and submit the additional pages for those methods. If dual-phase or bioslurping are used, these methods extract both air and groundwater, check boxes for and attach additional pages for both soil venting and pump and treat.

-- C. Remediation systems that use any form of enhancement are considered "active" and sites where there are no enhancements of any kind are considered "passive" forms of remediation. For purposes of these forms, natural attenuation (also called naturally occurring bioremediation) is "passive" and all other remediation methods are "active" methods.

-- C.1. Design flow rates refers to flow rates such as gallons per minute extracted by a ground water extraction system, standard cubic feet per minute extracted by a soil venting system, standard cubic feet per minute injected by an in situ air sparging system, etc. If the actual flow rate is within 80 percent of the rate predicted in the design, consider that as meeting the design specification.

-- D. The cost data in this section is used by DNR staff to evaluate whether or not the selected remedy is the most cost effective remedy and whether or not system modifications may be warranted to improve efficiency and/or cost effectiveness. Responsible parties and consultants are encouraged to submit cost information so that DNR staff may assist responsible parties and consultants accomplish environmental cleanups in the most cost effective manner.

Total costs for past costs are all costs to date. This information is for all costs that were incurred to investigate and/or remediate the site. These costs include but are not limited to: consulting labor and supplies, laboratory testing, transportation, equipment, etc. If the consultant does not pass all costs through the consulting firm, the consultant will need to contact their client for other non-consulting costs to determine total costs. Exceptions include costs for attorney fees, accounting, claim assistance in preparing claims to state reimbursement funds, or other indirect expenses that are not essential to remediating the site.

-- D.2. The initial implementation costs are all costs that are incurred to start implementing a remedy at a site. Costs for the investigation however are excluded because those costs are incurred prior to remedy selection. Since costs for treatability and/or pilot testing are used to procure data for remedial design and are specific to different remediation methods, these costs should be included in implementation costs and not investigation costs. Startup or shakedown costs are also considered implementation costs and should not be considered operation and maintenance costs.

-- D.3. Costs for implementation or investigation should not be repeated here or they will be double counted.

-- D.4. Costs for implementation or investigation should not be repeated here or they will be double counted.

-- D.5. Costs for implementation or investigation should not be repeated here or they will be double counted.

-- D.6. Examples of one-time or unusual costs include the following:
- Replacing a burned out motor on a pump.
- Replacement of a well that was destroyed by a snowplow.
- Confirmation sampling to determine if the site meets closeout criteria. This type of cost is considered an unusual cost because this type of sampling is not conducted during most reporting periods.

-- D.7. This estimate of costs is for all costs to close out a site minus the salvage value of any remediation equipment. Pertinent costs include items such as well abandonment, equipment removal from the site, consulting costs associated with these items, etc. Do not include any costs that will not be paid by a state reimbursement fund, such as repaving.

Section GW-1, Groundwater Extraction and Product Recovery

-- A.1. List two numbers, the total number of extraction wells at the site and the number that were in actual use during the period. If all wells were in use, state that on the form.

-- A.2. The number of days of operation are the number of days that the system was actually operated. If the system was shut down for reasons such as: repairs were necessary, piping froze, shut down to provide time for subsurface conditions to equilibrate before sampling, etc., do not list those days as being in operation.

-- A.3. System utilization is a measure of the amount of time that the system operated relative to the amount of time that it could have operated.

-- A.5. The average is for the entire site, not per well or trench. For purposes of determining the average ground water extraction rate, calculate the average based on the total volume of groundwater extracted divided by the time of the reporting period. For example, if the system operated at 10 gallons per minute for one month, the amount of water extracted would be approximately 432,000 gallons. If the reporting period was six months long, then the time period is approximately 260,000 minutes. Therefore, the average flow rate over six months is 432,000 divided by 260,000 minutes for an average flow rate of 1.67 gallons per minute (gpm).

-- A.6. Calculate the total dissolved contaminants removed in pounds. If the estimate is a sum of BTEX and not based on a total hydrocarbon test (GRO and/or DRO), so state that on the form.

-- B.3. The average should be based on the entire site over the entire reporting period. See instructions above for A.5. List the free product recovery rate as gallons per day (gpd), not gallons per minute (gpm).

-- C.1. To answer this question, a thorough evaluation of water levels and chemical analyses in all monitoring points at the site is necessary.

-- C.2. If the capture zone has not been determined mathematically, it will need to be determined to answer this question. See the *Guidance on Design, Installation and Operation of Ground Water Extraction and Product Recovery Systems* for and any recent update or errata sheets for more information on plume capture.

-- C.4. When free product is present, line C.4.a. should state "FREE PRODUCT" and lines C.4.b. through C.4.d. are left blank. Otherwise, complete the following calculations.
There typically are several compounds at most contaminated sites that exceed the standards in ch. NR 140. The purpose of this question is to focus on the single contaminant that requires the most treatment to achieve groundwater quality standards on a percent reduction basis. For example, the most recent round of sampling at an example site demonstrated the highest levels of contaminants were 1,000 µg/L benzene and 1,000 µg/L toluene in the most heavily contaminated monitoring well. The ES and PAL for benzene is 5 µg/L and 0.5 µg/L (respectively) and for toluene the ES and PAL is 343 µg/L and 68.6 µg/L (ES and PAL data as of August 1995). Therefore the percent reduction to meet the ES and PAL for benzene is 99.5 and 99.95 percent and for toluene it is 65.7 and 93.14 percent. For that reason, the single contaminant that is most critical to reaching state groundwater standards is benzene. Therefore benzene is entered on line a. In this example, 99.5 and 99.95 percent is entered on line b. In this example, 1,000 µg/L is entered on line c. In this example, benzene is the driving factor, therefore enter the maximum benzene level in the single most heavily contaminated extraction well during the most recent sampling period on line d.

-- D. See the generic discussion at the end of the instructions (below) for figures, graphs and tables, starting on page INS-2.

Section GW-2, In Situ Air Sparging

-- B.1. See instructions for Section GW-1, Item C.4.

-- C. See the generic discussion at the end of the instructions (below) for figures, graphs and tables, starting on page INS-2.

Section GW-3, Natural Attenuation in Groundwater

-- A.1. See instructions for Section GW-1, Item C.4.

-- A.2.a. List the estimated hydraulic conductivity that was listed on line A.11 in Section GI-1.

-- A.2.b. List the groundwater average linear velocity that was listed on line A.12 in Section GI-1.

-- A.3. Assess the monitoring well network to determine if there is a down gradient well that has not been impacted by the contaminants. Consider the possibility of a submerged (or diving) plume in that assessment. If all evidence indicates that the plume does not extend to the farthest "clean" downgradient well, indicate "YES" on the form. Otherwise indicate "NO" on the form. If there are not plans to install such a well, explain.

-- A.4. Based on the contaminant distribution, evaluate whether or not the plume is expanding, stabilized, or contracting. When making this determination, consider the contaminant that requires the greatest percent reduction to achieve ch. NR 140 standards.

-- A.5. If the plume is expanding and a justification is necessary, add additional sheets justifying why natural attenuation is still the appropriate remedy. If it is not, further describe in the explanation the plans to use a different remedy.

-- A.6.a. Enter the upgradient dissolved oxygen (DO) level(s). If however there are contaminants measured in the upgradient well, it is not a true background measurement. In that case enter "UNKNOWN" on the form.

-- A.6.b. Enter the range of DO values measured in wells within the plume.

-- B. See the generic discussion at the end of the instructions (below) for figures, graphs and tables, starting on page INS-2.

Section GW-4, Other Groundwater Remediation Methods

-- A.1. See instructions for Section GW-1, Item C.4.
-- A.2. Self explanatory.
-- A.3-4. Enter the information specified by the DNR for this method at this site.

Section IS-1, Soil Venting (Including both Soil Vapor Extraction and Bioventing)

-- B.3. This subsection is used as a trigger for determining if the system requires an evaluation for future activities, such as improvements, converting the site to monitoring for natural attenuation, closure, etc. If an in situ respiration test must be performed, see Hinchee, R.E. and Ong, S.K. 1992. A Rapid In Situ Respiration Test for Measuring Aerobic Biodegradation Rates of Hydrocarbons in Soil. *Journal of the Air and Waste Management Association.* Volume 42, Number 10. Pages 1305 to 1312 for general procedures. For a discussion of methane monitoring, see the instructions for Section IS-2, item A.1.d., below. If the contaminant extraction rate in B.3. is greater than the trigger levels, leave lines B.3.a.i. and B.3.a.ii. blank.

-- C. See the generic discussion at the end of the instructions (below) for figures, graphs and tables, starting on page INS-2.

Section IS-2, Natural Attenuation in Soil

-- A.1. This data is used to assess subsurface conditions based on soil gas data. Whenever possible, a permanently installed gas probe should be used. If at all possible, the gas probe should be located in the part of the site that is most heavily contaminated, since that is the part of the site that is likely to take the longest amount of time to meet ch. NR 720 standards. Water table wells that have screen exposed above the water table are also good measuring points. When installing permanent gas probes, you should install the screen deep enough that a true measure of the most heavily contaminated soil is possible, but install the screen shallow enough to assure that it is not submerged by groundwater table fluctuations. In some situations where the depth of contamination is variable, consideration should be given to using nested gas probes instead of only using probes at a single depth. Measuring points that should not be used include temporary gas probes because these points are less repeatable from one monitoring event to the next. Also, if there has been an active soil venting system in use at the site, the air extraction wells should not be used because these wells are in locations that have had much more aggressive treatment than the rest of the site.

-- A.1.a. A flame ionization detector (FID) is specified instead of a photo ionization detector (PID) because PIDs often read inaccurately in moist oxygen deficient/carbon dioxide rich atmospheres. Also, PIDs do not detect some petroleum compounds.

-- A.1.d. Methane readings are used to measure for anaerobic conditions. When the original product that is lost is a refined petroleum product (not crude oil), there should not be any methane within the product. Methane however may be produced under very anaerobic conditions. Any method may be used for measuring methane provided that the detection limit is less than a few ppm_V. One convenient method is to use an FID that is equipped with a granular activated carbon filter to filter out non-methane components. Some instrument manufacturers make these filters available as options. In some cases an FID will flame out due to an oxygen deficiency. Some instrument manufacturers offer a dilution device as an accessory that is designed to prevent flameouts and also raises the upper limit of measurement to 10,000 ppm_V or higher. If the meter "pegs" at 10,000 ppm_V (or one percent), enter ">10,000 ppm_V."

-- A.2. The background monitoring point is predominantly used to measure natural oxygen and carbon dioxide levels in soil over time. For this reason, the background monitoring point should be reasonably close to the site, but not so close that the conditions are no longer representative. Considerable variations over time can occur, this background point should be measured during every sample event. Considerations for determining if a background point is representative include:
- If an on-site background point has minor levels of VOCs in it due to gas phase diffusion, that is acceptable, but if the levels are high, it may not be representative of true background conditions.
- Background oxygen and carbon dioxide levels vary with soil type and natural organic carbon content. For this reason, if at all possible, the soil types should be identical within the screened interval of all gas probes.
- The same depths should be used for all gas probes to allow comparison from one location to the next. If the depth to water varies greatly across the site, a certain amount of confusion in the data is likely. In this case, use professional judgement to provide the best data possible at a reasonable cost.

-- A.3. Enter this data for petroleum fuel sites. For other sites, provide the data that is most appropriate for the situation.

-- B. Cross sections are self explanatory, see the generic discussion at the end of the instructions (below) for other attachments.

Section IS-3, Other In Situ Soil Treatment Methods

-- A.2. Enter the information specified by the DNR for this method at this site.

Section ES-1, Ex Situ Soil Treatment Using Biopiles

-- A.3.a. The term "artificial nutrients" essentially means agricultural fertilizers or any other fertilizer products.

-- A.3.a.i. The types of fertilizers that are added should be listed here by chemical names, not by vendor trade names.

-- A.3.a.ii. List nitrogen content as N, list phosphorous content as phosphoric acid (P_2O_5). Note: Fertilizer ratings are based not on actual content of N, P and K, but on nitrogen (as N), phosphorous (as P_2O_5) and potassium (as K_2O).

-- A.4.c. See example calculations at the end of this set of instructions.

-- A.5. Enter this data for petroleum fuel sites. For other sites, provide the data that is most appropriate for the situation.

-- B. The figure is self explanatory. See the generic discussion at the end of the instructions (below) for instructions for the tables.

Section ES-2, Ex Situ Soil Treatment Using Landspreading/Thinspreading

-- B. A map to scale of the landspreading location including and landmarks or benchmarks. When samples have been collected, the distances to any landmarks or benchmarks should be indicated.

Section ES-3, Other Ex Situ Soil Treatment Methods

-- A.2. Enter the information specified by the DNR for this method at this site.

Section INS- 2, Figures, Graphs and Tables

When figures and graphs are specified, they should at a minimum contain the following information, or an explanation as to why the information is not necessary.

Maps. All maps should include the applicable information specified in s. NR 724.11(6), Wis. Adm. Code. In most cases, all information can be combined into a single map. There are times that a single map will have so much data that it is essentially unreadable. The consultant should use professional judgement when determining if a single map or multiple maps best portray the information necessary.

- Groundwater Contour Map Guidelines.

  -- List groundwater elevations for each measuring point on the map.
  -- Use the most recent data available.
  -- For water table maps, do not use data from deeper piezometers. If piezometer data is shown, use a different symbol for the piezometers than used for water table wells.
  -- If any wells are dry, indicate that on the map.
  -- If free product is present at site, shade the area where free product is estimated to be present.
  -- If groundwater is extracted with a pump and treat system, also denote plume capture zone.
  -- If in situ air sparging or soil venting is in use, specify on the map if the system was operating or shut down during the water level measurements. See the Subsection on water table maps in the *Guidance on Design, Installation and Operation of Ground Water Extraction and Product Recovery Systems* for more information on this topic.

- Groundwater Contaminant Distribution Map Guidelines.

  -- Only contaminants that exceed the ch. NR 140 ES or PAL should be shown on the map. When contaminants are above the PAL or ES at some data points and below the PAL or ES at other data points, list the data for all locations to portray which areas of the site meet ch. NR 140 groundwater quality standards.
  -- If a well is not sampled due to the presence of free product indicate "FREE PRODUCT" at those data points.
  -- If more than five contaminants exceed ch. NR 140 ES, only the five contaminants that require the greatest percent reduction to achieve ch. NR 140 ES or PAL should be shown on the map.
  -- Drawing isoconcentration lines is optional, unless specified for the site on a site specific basis.
  -- If the contamination has crossed the property line, that property line should be clearly denoted on the map.
  -- If in situ air sparging is used, water samples from ch. NR 141 type monitoring wells may not represent aquifer water quality as a whole. For that reason, groundwater data should be obtained from driven probes with no filter pack. If there are no driven probes and conventional ch. NR 141 monitoring wells are used, shut down the air injection system at least two weeks prior to collecting groundwater samples. See the *Guidance on Design, Installation and Operation of In Situ Air Sparging Systems* and the August 1995 update sheets for more information on this topic.

- Dissolved Oxygen Map Guidelines.

  -- Dissolved oxygen data may be shown on the contaminant concentration graphs or on a separate graph.
  -- Dissolved oxygen maps are optional for ground water extraction and product recovery systems.
  -- When in situ air sparging is used, monitoring points may not represent aquifer water quality as a whole. For that reason, groundwater data should be obtained from driven probes with no filter pack. If there are no driven probes and conventional ch. NR 141 monitoring wells are used, shut down the air injection system at least two weeks prior to collecting groundwater samples for DO. See the *Guidance on Design, Installation and Operation of In Situ Air Sparging Systems* and the August 1995 update sheets for more information on this topic.

- Well and Soil Sample Location Map Guidelines. Well and sample location maps for all methods should clearly indicate the location(s) of the release or the area where soil contamination historically has been highest. Also, if part of the contamination has been excavated, the pit boundaries.

  The recommended documentation for each remedial method is as follows:

  -- Groundwater Extraction and Product Recovery - separate well location maps should not be provided, instead the wells should be indicated on the groundwater contour and contaminant distribution maps.
  -- In Situ Air Sparging - the map should indicate all air injection wells, soil venting extraction wells, and all groundwater monitoring points.

Maps (Continued).

-- Natural Attenuation in Groundwater - separate well location maps should not be provided, instead the wells should be indicated on the groundwater contour maps.
-- Soil Venting - indicate all air extraction wells. If any gas probes are used to assess subsurface conditions in either contaminated zones or background locations, also indicate those data points with a different symbol. If soil samples have been collected recently to track progress, indicate those locations with the date of sampling noted on the map.
-- Natural Attenuation in Soil - show all monitoring points. Indicate which data points are background measuring points. If soil samples have been collected recently to track progress, indicate those locations with the date of sampling noted on the map. If the site was previously treated by soil venting, the locations of former air extraction wells should also be shown since these are areas where aggressive treatment has been applied. Also show area(s) of paved and unpaved ground surface. If pavement is significantly broken to allow significant water infiltration and air diffusion, map that area as broken pavement.

Graphs. All graphs that show time versus contaminant concentration or cumulative contaminant removal should be based on total time, not only operation time. All graphs that denote cumulative removal should use pounds of contaminant removed. Graphs should accurately show the time period(s) when the system was not operating. Plot time on the X axis, concentration or cumulative removal data on the Y axis.

- Time Versus Cumulative Removal. The recommended documentation for each remedial method is as follows:

  -- Groundwater Extraction and Product Recovery - separate graphs should be used for free product recovery and dissolved phase recovery. A single graph for each phase is adequate, per well graphs are only necessary when specified by the Department on a site specific basis.
  -- In Situ Air Sparging - no graph is necessary (removal data is shown on the graphs for the soil venting system).
  -- Natural Attenuation in Groundwater - no graph is necessary.
  -- Soil Venting - provide a graph of cumulative removal for total VOCs for the total system.
  -- Natural Attenuation in Soil - no graph is necessary.
  -- Ex Situ Soil Treatment Using Biopiles - Provide two graphs, one showing cumulative removal of total VOCs and a second graph showing total contaminant biodegradation over time.
  -- Ex Situ Soil Treatment Using Landspreading/Thinspreading - no graphs are needed.

- Time Versus Contamination Concentration Graphs. Create graphs with contamination level on the y axis (semilog scale) and time on the x axis (linear scale). If free product is present, time versus contamination concentration graphs are not necessary.

  The recommended documentation for each remedial method is as follows:

  -- Groundwater Extraction and Product Recovery - graph the contaminant level over time for the groundwater that is extracted by the extraction system. List all compounds that exceed ch. NR 140 ES or PAL. If over five contaminants exceed ch. NR 140 ES or PAL, only list the five contaminants that exceed ch. NR 140 standards by the greatest percent.
  -- In Situ Air Sparging - provide a graph for the single monitoring well that is most heavily contaminated. If over five contaminants exceed ch. NR 140 ES or PAL, only list the five contaminants that exceed ch. NR 140 standards by the greatest percent.
  -- Natural Attenuation in Groundwater - provide a graph for all monitoring wells that contain any compounds that exceed ch. NR 140 standards. If over five contaminants exceed ch. NR 140 ES or PAL, only list the five contaminants that exceed ch. NR 140 standards by the greatest percent.
  -- Soil Venting - provide a graph of contaminant concentration over time for the entire system for total VOCs. If any gas probes are used to assess subsurface conditions in either contaminated zones, also provide a graph with the data from the most heavily contaminated gas probe.
  -- Natural Attenuation in Soil - provide a graph of contaminant concentration over time for total vapor phase VOCs as measured with an FID, oxygen, carbon dioxide and methane in an gas probe.
  -- Ex Situ Soil Treatment Using Biopiles - no graph is necessary.
  -- Ex Situ Soil Treatment Using Landspreading/Thinspreading - no graphs are needed.

Graphs (Continued).

- Graph of Contaminant Concentrations Versus Distance. If free product is present, a graph of contaminant concentrations versus distance is not necessary.

  The recommended documentation for each remedial method is as follows:

  -- Groundwater Extraction and Product Recovery - no graph is necessary.
  -- In Situ Air Sparging and Natural Attenuation in Groundwater - plot a graph with distance (on the x axis, linear scale) and contaminant concentrations (y axis, log scale) from the upgradient measurement point to the farthest downgradient data point along the centerline of the plume. List the same contaminants as shown on the Time Versus Contaminant Concentration Graphs. Clearly show the source area on the graph. If free product has been present, label the data points that previously contained free product. For in situ air sparging, see comments above about samples collected from conventional monitoring wells with filter packs versus driven probes.

Tables. Whenever possible, data over the life of the project should be listed.

The recommended documentation for each type of table is as follows:

- Groundwater Contaminant Chemistry Data.

  List:
  -- Contamination levels for all contaminants that exceed ch. NR 140 standards.
  -- Dissolved oxygen levels if applicable.
  -- Other biological parameters, if applicable (nitrogen, phosphorous, manganese, sulphate, iron, dissolved methane, redox potential, pH, microbial population size, etc.). See instructions for page GW-3 for more information on these parameters. Also, list the dates the samples were collected and the standard methods used to analyze the samples.

- Groundwater Biological Parameters.

  For natural attenuation in groundwater only, these measurements should be listed (if known) to provide information on biodegradation. This table is not necessary for free product extraction, groundwater extraction or in situ air sparging.

  Provide a table that includes any results of tests conducted for dissolved oxygen, nitrate, manganese, iron, sulphate, methane, redox potential, heterotrophic and/or hydrocarbon degrading microorganism populations. Identify on the table if the monitoring locations are upgradient, side gradient, downgradient, or within the plume, dates of sampling, and the analytical methods used for those parameters. Include all data for the life of the project. Since some of these tests are only conducted once, or periodically - enter "NS" in the table for not sampled for any parameters that were not sampled during a particular round of sampling.

  When asked to list the standard methods, list the method if a standard method exists. There are however some tests (for example dissolved methane) where there are no official standard laboratory or field methods. In this case the laboratory will have to create their own standard procedures. In these cases list the name of the laboratory and that laboratory's name for that test.

  Specific considerations for each parameter are as follows:

  -- Dissolved oxygen (mg/L). The most efficient mechanism for natural or enhanced biodegradation of petroleum compounds is aerobic biodegradation.
  -- Nitrate (mg/L as N). Nitrate (NO_3^{-1}) is a potential electron acceptor for denitrification and also serves as a nutrient for heterotrophic microbial populations to enhance aerobic biodegradation. Decreasing nitrate levels from background wells to wells within the plume are an indication of either aerobic or anaerobic biodegradation.
  -- Manganese as Mn^{+2} (mg/L). Manganese as Mn^{+4} is converted to soluble manganese as Mn^{+2} under anaerobic biodegradation. For this reason, total manganese analysis is not appropriate, only soluble manganese as Mn^{+2}. When the levels of soluble manganese are higher in wells within the plume than in background wells, that is an indication of anaerobic biodegradation.
  -- Iron as Fe^{+2} (mg/L). Iron as Fe^{+3} is converted to soluble iron as Fe^{+2} under anaerobic biodegradation. For this reason, total iron analysis is not appropriate, only soluble iron as Fe^{+2}. When the levels of soluble iron are higher in wells within the plume than in background wells, that is an indication of anaerobic biodegradation.

Tables (Continued).

-- Dissolved sulphate (SO_4^{-2}, mg/L). Sulphate (SO_4^{-2}) is a potential electron acceptor. Decreasing sulphate levels from background wells to wells within the plume are an indication of anaerobic biodegradation.
-- Dissolved methane (mg/L). Methane is produced under anaerobic conditions. Since background methane levels can usually be assumed to be zero, in most cases only measurements within the plume are used. Exceptions are when the natural soils have very high levels of TOC (for example peat), background methane levels are also warranted. When the contaminant is crude oil instead of a refined petroleum product, methane measurements may however cause erratic results. Significant amounts of methane may be created when other electron acceptors (NO_3^{-1}, Mn^{+4}, Fe^{+3} and SO_4^{-2}) are exhausted. For this reason, significant levels of methane are indicative of very very anaerobic conditions.
-- Redox potential (millivolts, include + or - sign). Redox potential is another measure of the level of aerobic/anaerobic conditions, however it is a much more sensitive measurement than DO at very low levels of DO.
-- Heterotrophic and hydrocarbon degrading microorganism populations (CFU/mL). Heterotrophic and specific hydrocarbon degrader population sizes should be listed for both background locations and locations within the plume, if there is information available. There is disagreement by many of the experts within the field as to the merits of sampling for this parameter. Refer to other DNR guidance documents on natural attenuation (or passive bioremediation) for more information on this topic.

- Soil Gas Data.

The recommended documentation for each remedial method is as follows:

-- When natural attenuation in soil is used, provide a graph of all soil gas readings over time for every data point.
-- When soil venting is used, if a gas probe is used to assess subsurface conditions over time in a location where air is not extracted, provide that data in a table.

- System Operational Data.

The recommended documentation for each remedial method is as follows:

-- Groundwater Extraction and Product Recovery:

◦ Well by well flow rates in gpm for each extraction well. If a well is off line, list flow rate as "ZERO." Clearly denote on the table periods of system shutdown.

-- In Situ Air Sparging:

◦ Air pressure and injection flow rates in scfm for each well. If a well is off line, list flow rate as "ZERO." Clearly denote on the table periods of system shutdown.

-- Natural Attenuation in Groundwater - no table needed.

-- Soil Venting:

◦ Vacuum readings and extraction rates in scfm for each well. If a well is off line, list flow rate as "ZERO." Clearly denote on the table periods of system shutdown.
◦ Air concentrations in ppm_V or in mg/L for total VOCs.
◦ Total system contaminants removed in pounds and the pounds per day removal rate.

-- Natural Attenuation in Soil - no table needed.

Tables (Continued).

-- Ex Situ Soil Treatment Using Biopiles:

- If forced air ventilation is used:
  - System extraction rates in scfm.
  - Air concentrations in ppm_V for total VOCs.
  - Total system contaminants removed in pounds and the pounds per day removal rate.
  - Temperature.
- If passive ventilation is used, a table of temperatures.

-- Ex Situ Soil Treatment Using Landspreading/Thinspreading - no table is needed.

Acronyms and Abbreviations:

CFU/mL	colony forming units per milliliter
cm/sec	centimeters per second
DATCP	Department of Agriculture, Trade and Consumer Protection
DCOM	Department of Commerce
DNR	Department of Natural Resources
DO	Dissolved Oxygen
DRO	Diesel Range Organics
ES	Enforcement Standards in NR 140
FID	Flame Ionization Detector
ft/yr	feet per year
gpd	gallons per day
gpm	gallons per minute
GRO	Gasoline Rage Organics
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
NR	prefix for rules established by the DNR
P.E.	Registered Professional Engineer
P.G.	Registered Professional Geologist
PAL	Preventative Action Limit in NR 140
PECFA	the state sponsored cleanup fund for certain petroleum contaminated sites
ppm_V	parts per million by volume (vapor phase only)
scfm	standard cubic feet per minute
TOC	Total Organic Carbon
USCS	Unified Soil Classification System
USDA	United States Department of Agriculture
µg/kg	micrograms per kilogram
µg/mL	micrograms per milliliter
VOC	Volatile Organic Compounds
Y/N	Yes or No

Section INS-3, Example Calculations for Determining the Biodegradation Rate on Forced Air Biopiles

Important Note: This page uses a nonproportional font and characters that are unique to WordPerfect. If the user received this document electronically, this page may need to be converted to a different font for the formulas to print correctly. The original font used for this page was prestige elite with 16.67 characters per inch.

Assumptions:

- The measurements at the stack are as follows:
  - -- Average flow rate is 20 scfm.
  - -- Average oxygen level extracted from biopile is 14.0 percent by volume.
  - -- Average carbon dioxide level extracted from biopile is 3.5 percent by volume or 35,000 ppm_V.
- Atmospheric air contains 21 percent oxygen by volume and 400 ppm_V (or 0.04 percent) carbon dioxide. (Note: On each site visit, the consultant should check atmospheric air to assure that the instrument is spanned correctly.)
- Atmospheric air weight 0.0763 pounds per cubic foot at standard temperature and pressure (Gibbs, 1971).
- Average molecular weight of air is 28.97 (Gibbs, 1971) which is rounded off to 29, molecular weight of O_2 is 32, molecular weight of CO_2 is 44.
- For every pound of contaminants biodegraded, 3.3 pounds of oxygen is utilized and up to 3.2 pounds of carbon dioxide is generated.
  - -- The stoichiometry of aerobic benzene biodegradation can be described as follows:

    $$C_6H_6 + 7.5\ O_2 \text{ -- -- -->} 6\ CO_2 + 3\ H_2O$$

    Based on this, benzene biodegradation requires that 3.07 pounds of oxygen are utilized to fully oxidize one pound of benzene, assuming no electron acceptors other than oxygen are used. Assuming no biomass is produced and no geochemical reactions consume carbon dioxide, 3.38 pounds of carbon dioxide is generated from one pound of benzene.
  - -- The stoichiometry of aerobic hexane biodegradation can be described as follows:

    $$C_6H_{14} + 9.5\ O_2 \text{ -- -- -->} 6\ CO_2 + 7\ H_2O$$

    Based on the above assumptions, hexane biodegradation requires 3.52 pounds of oxygen and generates up to 3.06 pounds of carbon dioxide.

  Other hydrocarbons also require a similar ratio of oxygen for aerobic biodegradation. For purposes of this guidance it is assumed that a pound of petroleum contamination requires 3.3 pounds of oxygen and generates up to 3.2 pounds of carbon dioxide and 1.1 pounds of water in the biodegradation reaction.

Calculations:

Oxygen utilization rate:

$$(0.21 - 0.14) * \frac{32}{29} * 0.0763 \frac{\text{pounds}}{\text{ft}^3} * 20 \frac{\text{ft}^3}{\text{min}} * 60 \frac{\text{min}}{\text{hour}} * \frac{\text{pounds}}{\text{hour}} = 7.07$$

Carbon dioxide production rate:

$$(0.035 - 0.0004) * \frac{44}{29} * 0.0763 \frac{\text{pounds}}{\text{ft}^3} * 20 \frac{\text{ft}^3}{\text{min}} * 60 \frac{\text{min}}{\text{hour}} * \frac{\text{pounds}}{\text{hour}} = 4.81$$

Calculations (Continued):

Biodegradation rate based on oxygen:

7.07 / 3.3 = 2.1 pounds per hour

Biodegradation rate based on carbon dioxide:

4.81 / 3.2 = 1.5 pounds per hour

Since the biodegradation rate is based on oxygen utilization and/or carbon dioxide generation, it is a measure of the overall biodegradation rate of all carbon sources, including natural organic carbon and any organic materials that were added. For this reason, the biodegradation rate is not specific to hydrocarbons and it is likely that the measured biodegradation rate will overestimate the rate of contaminant reduction.

Commonly the measured biodegradation rate based on carbon dioxide generation is less than the rate estimated with oxygen. Because of geochemical interferences and biomass formation, estimates based on carbon dioxide measurements are often low. If however the biodegradation rate estimate based on carbon dioxide is significantly greater than the estimate based on oxygen, it is likely that there is a measurement or calculation error. In this way, the carbon dioxide measurements can be used to double check the oxygen measurements and calculations.

VEOLIA
ENVIRONMENTAL SERVICES

SHIPPING DOCUMENT	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Shipping Document Tracking Number
	W I R 0 0 0 1 3 3 4 4 7	1	(877) 518-0037	ZZ 00775213

GENERATOR

5. Generator's Name and Mailing Address
BETSY BISHOP
CHEMOURS BARKSDALE WORKS
17221 W 17TH PL
GOLDEN, CO 80401-2508
Generator's Phone: 303 216-2558

Generator's Site Address (if different than mailing address)
72315 STATE HIGHWAY 13
WASHBURN, WI 54891

6. Transporter 1 Company Name
VEOLIA ES TECHNICAL SOLUTIONS
U.S. EPA ID Number: N J D 0 8 0 6 3 1 3 6 9

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
VEOLIA ES TECHNICAL SOLUTIONS,
W124 N9451 BOUNDARY
MENOMONEE FALLS, WI 53051
Facility's Phone: 262 255-6655
U.S. EPA ID Number: W I D 0 0 3 9 6 7 1 4 8

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Codes
	1. NON-REGULATED MATERIAL, NON-RCRA, NON-DOT , (PPE AND SAMLING EQUIPMENT DECON WATER)	06	D M	3,000	P	NONE
	2. NON-REGULATED MATERIAL, NON-RCRA, NON-DOT., (SOIL, HYDRAULIC OIL)	07	D M	5600	P	NONE
	3.					
	4.					

14. Special Handling Instructions and Additional Information
ER Service Contracted by VESTS -|- ER SERVICES CONTRACTED BY VESTS
VEOLIA SUPPLIES PLACARDS AND ERG BOOK O/J 36210 -|- Contract retained by generator confers agency authority on initial transporter to add or substitute additional transporters on generator's behalf. -|- 1) W 381419 A CWDSGRNHL 2) W 381115 A
QF032120038 PO# 9900296962 PO# 9900296962 CRG: 507975

15. **GENERATOR S/OFFEROR S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Elizabeth Bishop
Signature: [signature] on behalf of Chemours
Month: 10 Day: 25 Year: 18

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Shipment

Transporter 1 Printed/Typed Name: Brandon O'Brien
Signature: [signature]
Month: 10 Day: 25 Year: 18

Transporter 2 Printed/Typed Name:
Signature:
Month: Day: Year:

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Shipping Document Tracking Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month: Day: Year:

19. Report Management Method Codes (i.e., codes for treatment, disposal, and recycling systems)

1.	2.	3.	4.

20. Designated Facility Owner or Operator: Certification of receipt of shipment except as noted in Item 18a

Printed/Typed Name:
Signature:
Month: Day: Year:

GENERATOR / SHIPPER'S INITIAL COPY

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	WIR000133447	1	(877) 818-0087	001537056 VES

GENERATOR

5. Generator's Name and Mailing Address
BETSY BISHOP
CHEMOURS BARKSDALE WORKS
17221 W 17TH PL
GOLDEN, CO 80401-2508
Generator's Phone: 303 216-2558

Generator's Site Address (if different than mailing address)
72315 STATE HIGHWAY 13
WASHBURN, WI 54891

6. Transporter 1 Company Name
VEOLIA ES TECHNICAL SOLUTIONS
U.S. EPA ID Number: NJD080631369

7. Transporter 2 Company Name
U.S. EPA ID Number:

8. Designated Facility Name and Site Address
LIA ES TECHNICAL SOLUTIONS
7 MOBILE AVENUE
ET, IL 62201-1069
U.S. EPA ID Number: ILD098642424
Facility's Phone: 618 271-2804

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
X	1. UN1356, WASTE TRINITR TOLUENE, WETTED WITH NOT LESS THAN 30 PERCENT W TER, BY MASS, 4.1, I, RQ (D001)	18	D F	818	P	D003 D001	D008	
	2.							
	3.							
	4.							

14. Special Handling Instructions and Additional Information
ER Service Contracted by VESTS -|- ER SERVICES CONTRACTED S
VEOLIA SUPPLIES PLACARDS AND ERG BOOK O/U 36210 -|- Contract retained by generator confers agency authoi tial
transporter to add or substitute additional transporters on generator's behalf -| 1) ERG:113 W 781464 A.TW1095799
9900296962 - PAILS OVERPACKED IN A CUYD BOX
PO#9900296962 CRG587

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Elizabeth B Bishop
Signature: ON behalf of chemours
Month: 10 Day: 25 Year: 18

INT'L

16. International Shipments
☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Brandon O'Brien
Signature:
Month: 10 Day: 25 Year: 18

Transporter 2 Printed/Typed Name:
Signature:
Month: Day: Year:

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number:
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month: Day: Year:

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name:
Signature:
Month: Day: Year:

Transportation Activity Report

JOB NO: **3162293000** WO NO: **3162293000**
BILL DOC NO **LE81019861** EPA ID: **WIR000133447**
GENERATOR NO **623264**

BILL TO: **CHEMOURS COMPANY, F.C., LLC**
CHEMOURS-NORTH AMERICA
PO BOX 696014
SAN ANTONIO, TX 78269
(302) 892-5739

JOB SITE: **CHEMOURS BARKSDALE WORKS**
72315 STATE HIGHWAY 13
WASHBURN, WI 54891
(303) 216-2558

CONTACT: **GLENN JOHNSON**

CONTACT: **BETSY BISHOP**

MANIFEST NUMBER(S):
001537056VES, ZZ00775213

CUSTOMER P.O. NUMBER	PROJECT NUMBER	SHIP DATE	TERR.
9900296962		**10/25/2018**	**CB2**

DESCRIPTION	# CONT.	CONT./CODE	QTY	UOM	PG/LN	WASTE AREA
Manifest # 001537056VES WIP 781464 / Approval TWI095799 WETTED TRINITROTOLUENE (IN PAILS)		051H2-DF		P	1 / 1	
Manifest # ZZ00775213 WIP 381115 / Approval QF03212003S NON REGULATED SOIL WITH HYDRAULIC OIL		551A2-DM		P	1 / 2	
Manifest # ZZ00775213 WIP 381419 / Approval CWDSGRNHL NON REGULATED DECONTAMINATION WATER		551A2-DM		P	1 / 1	
Misc. - CONTAINER TRANSPORTATION		3132	7	EACH		
Misc. - CONTAINER TRANSPORTATION		3132	6 ~~10~~	EACH		
Misc. - CONTAINER TRANSPORTATION		3132	1	EACH		
Misc. - FUEL SURCHARGE (EACH)		3400	682.08	EACH		
Misc. - TRANSPORTER DEMURRAGE FEE		1243	2	HOUR		

Veolia Environmental Solutions is permitted for and has capacity to accept waste listed above in container quantities.

Transportation Activity Report

JOB NO: **3162293000** WO NO: **3162293000**
BILL DOC NO **LE81019861** EPA ID: **WIR000133447**
GENERATOR NO **623264**

BILL TO: **CHEMOURS COMPANY, F.C., LLC**
CHEMOURS-NORTH AMERICA
PO BOX 696014
SAN ANTONIO, TX 78269
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(303) 216-2558

CONTACT: **GLENN JOHNSON**

CONTACT: **BETSY BISHOP**

MANIFEST NUMBER(S):
001537056VES, ZZ00775213

CUSTOMER P.O. NUMBER	PROJECT NUMBER	SHIP DATE	TERR.
9900296962		**10/25/2018**	**CB2**

DESCRIPTION	# CONT.	CONT./CODE	QTY	UOM	PG/LN	WASTE AREA
Mtrl. - CYD11G-CUBIC YARD POLY FABRIC BOX		3883	1	EACH		

Total Hours: **2**

Veolia Environmental Solutions is permitted for and has capacity to accept waste listed above in container quantities.

Transportation Activity Report

JOB NO: **3162293000** WO NO: **3162293000**
BILL DOC NO **LE81019861** EPA ID: **WIR000133447**
GENERATOR NO **623264**

BILL TO: **CHEMOURS COMPANY, F.C., LLC**
CHEMOURS-NORTH AMERICA
PO BOX 696014
SAN ANTONIO, TX 78269
(302) 892-5739

CONTACT: **GLENN JOHNSON**

JOB SITE: **CHEMOURS BARKSDALE WORKS**
72315 STATE HIGHWAY 13
WASHBURN, WI 54891
(303) 216-2558

CONTACT: **BETSY BISHOP**

MANIFEST NUMBER(S):
001537056VES, ZZ00775213

CUSTOMER P.O. NUMBER	PROJECT NUMBER	SHIP DATE	TERR.
9900296962		10/25/2018	CB2

TOTAL LOADING DEMURRAGE (HRS)	COMMENTS	TOTAL UNLOADING DEMURRAGE (HRS)
START TIME: 8:15am	UNIT IN #:	START TIME:
END TIME: 11am	UNIT OUT #:	END TIME:
TOTAL (HRS):	WASHOUT: YES / NO	TOTAL (HRS):
	USED: 0 / 1 / 2 / 3 LINERS	

SIGNATURES		DATES
CUSTOMER	X	10/25/18
DRIVER		10/25/18

COMMENTS OR DELAY EXPLANATIONS:

Customer authorizes Contractor to make changes on Customer's behalf in regards to transporters used and to perform the Services, including adding or changing transporters listed on manifests. If Customer provides an approved transporter list in writing to Contractor at the time Customer executes this Agreement, Contractor shall select only those transporters on that list when providing transportation services to Customer. If Customer does not provide an approved transporter list in writing to Contractor at the time Customer executes this Agreement, Customer authorizes Contractor to select any permitted transporter to provide transportation services to Customer.

Veolia Environmental Solutions is permitted for and has capacity to accept waste listed above in container quantities.

Land Disposal Restriction Notification Form

Generator Name **CHEMOURS BARKSDALE WORKS**

EPA ID Number **WIR000133447** Manifest **001537056VES**

This notice is being provided in accordance with 40 CFR 268.7 to inform you that this shipment contains waste restricted from land disposal by the USEPA under the land disposal restriction program. Identified below for each container is the designation of the waste as a wastewater or non-wastewater, the Clean Water Act (CWA) permit status associated with the treatment/disposal facility, applicable waste codes and any corresponding subcategories, list of any F001-F005 solvent constituents that are present in the waste, and any underlying hazardous constituents (UHC) that are present.

Container Number: **LE-3162293999-001 (1/ 1)**

WIP / Approval Code:	**781464 / TWI095799**
Form Designation / CWA Status:	**Non-Wastewater / Non-CWA**
Waste Codes (Subcategories):	**D001 (IGNITABLE CHARACTERISTIC WASTE, OTHER THAN LIQUIDS >=10% TOC (INCLUDES ALL IGN. GASES, FLAMMABLE SOLIDS & OXIDIZERS)), D003 (OTHER REACTIVES BASED ON 261.23(a)(1) INCLUDES AIR REACTIVES), D008 (NONE)**
Constituents (F001 - F005):	**None**
UHCs Present:	**None**
Treatment Requirements:	**Restricted waste requires treatment to applicable standards.**
Additional Notices:	

I hearby certify that all information in this and associated land disposal restriction documents is complete and accurate to the best of my knowledge and information.

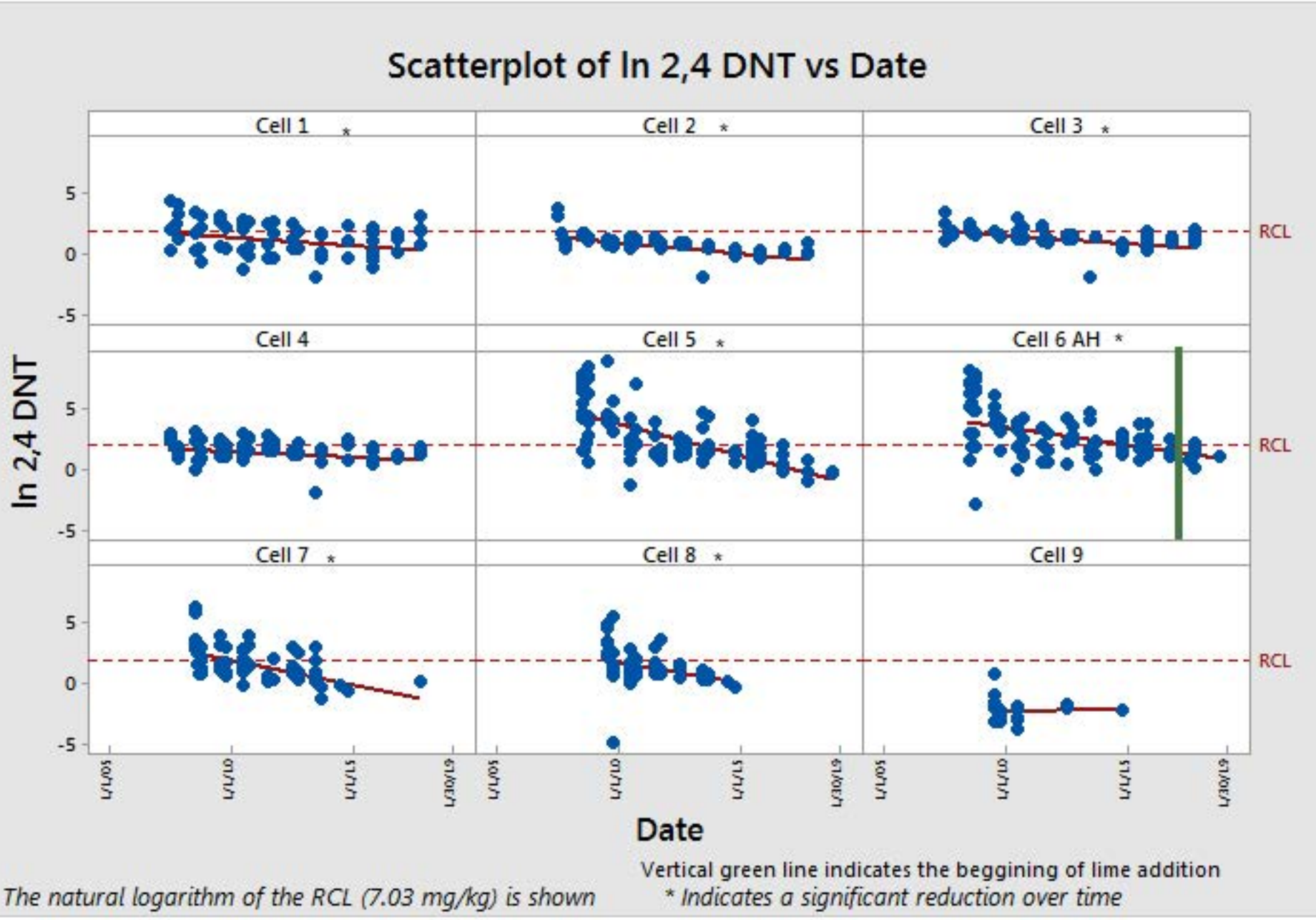
Signature [signature] (on behalf of Chemours)

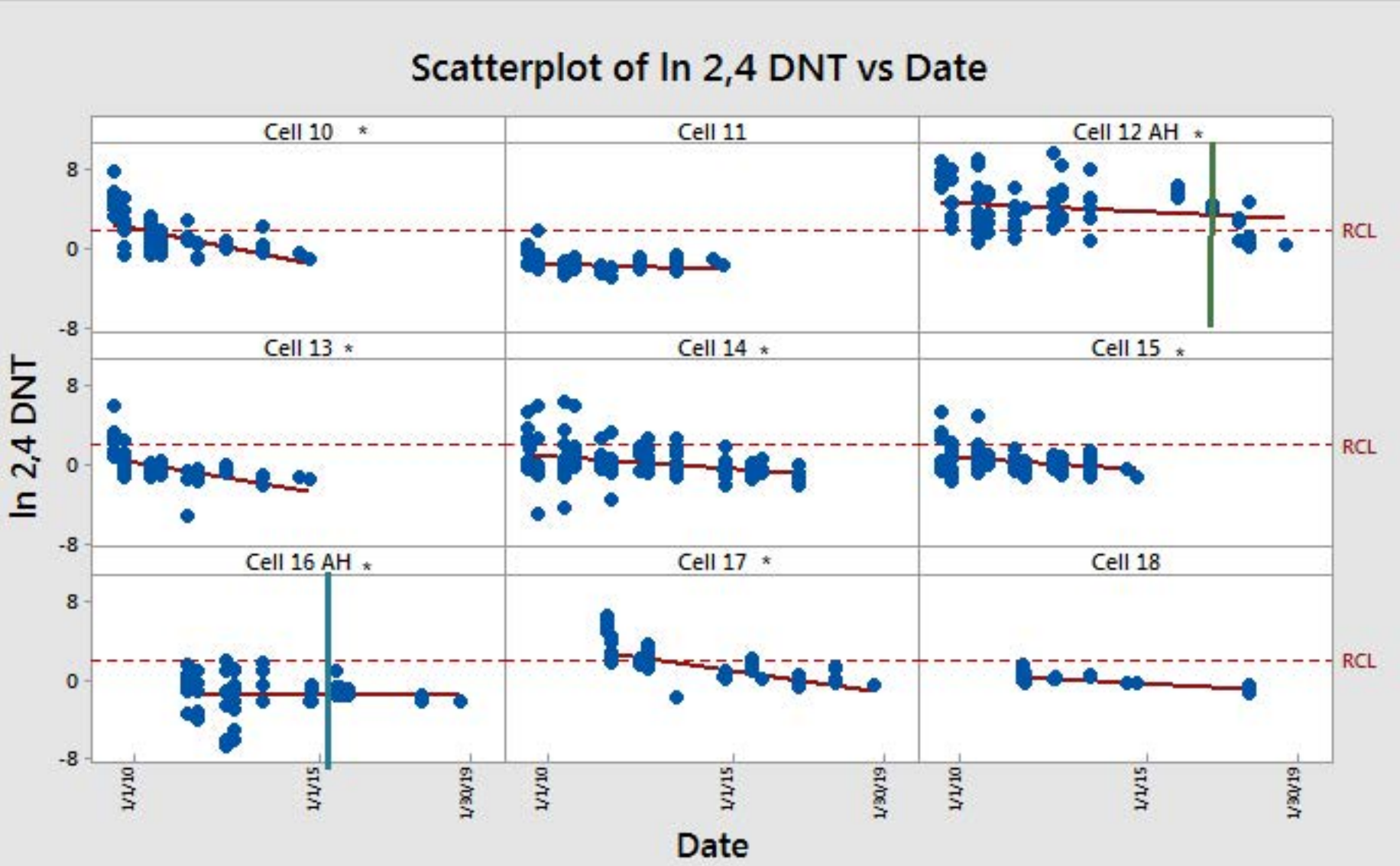
Title Senior Engineer Date 10-23-18

Barksdale Summary Graphs 2018 Year End

DNT, TNT, DNX, TNX,

NB, Amino DNT

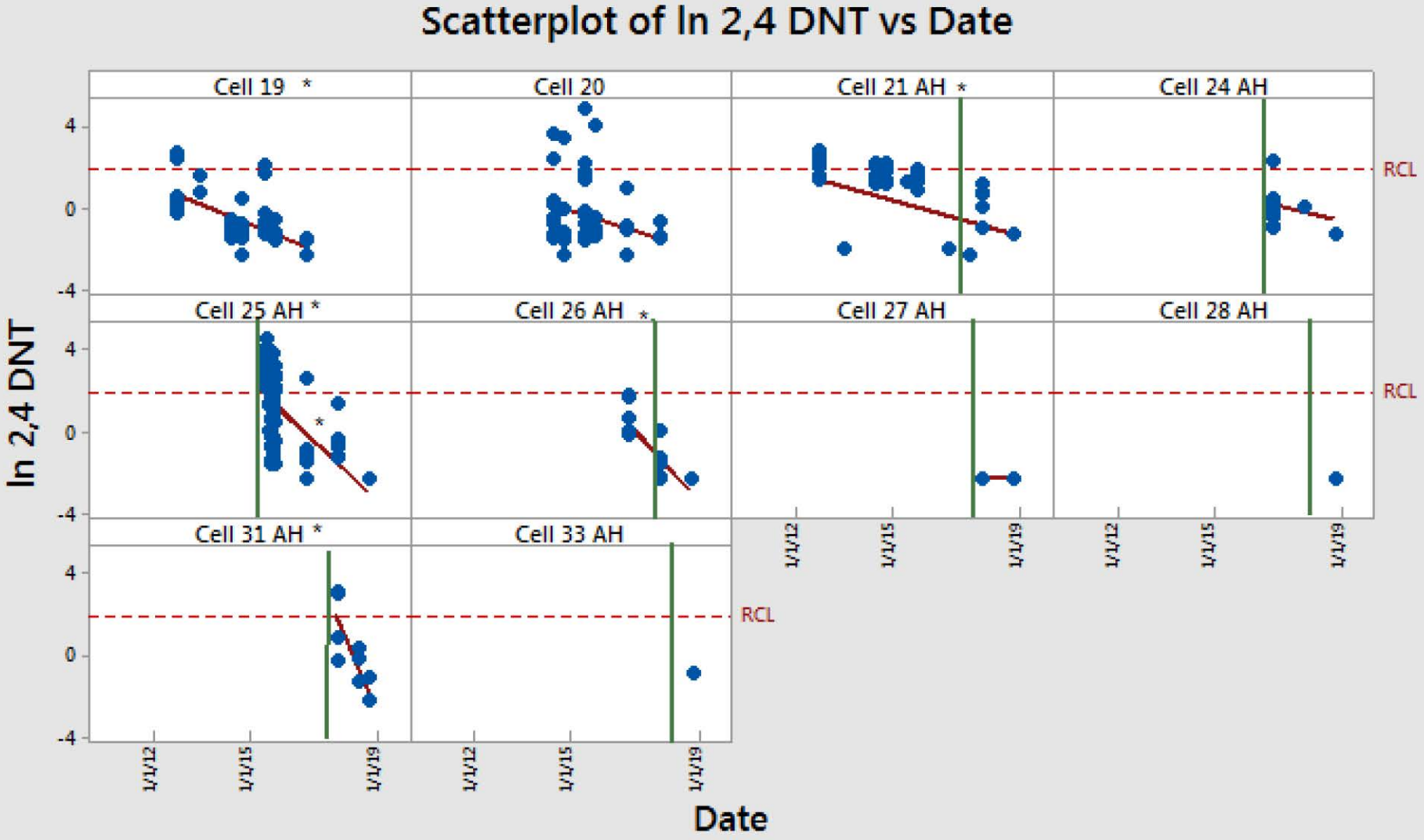

Scatterplot of ln 2,4 DNT vs Date
Cell 1 *
Cell 2 *
Cell 3 *
Cell 4
Cell 5 *
Cell 6 AH *
Cell 7 *
Cell 8 *
Cell 9
RCL
ln 2,4 DNT
5
0
-5
1/1/05
1/1/10
1/1/15
6/30/19
Date
Vertical green line indicates the beggining of lime addition
* Indicates a significant reduction over time
The natural logarithm of the RCL (7.03 mg/kg) is shown



Vertical green line indicates the beginning of lime addition

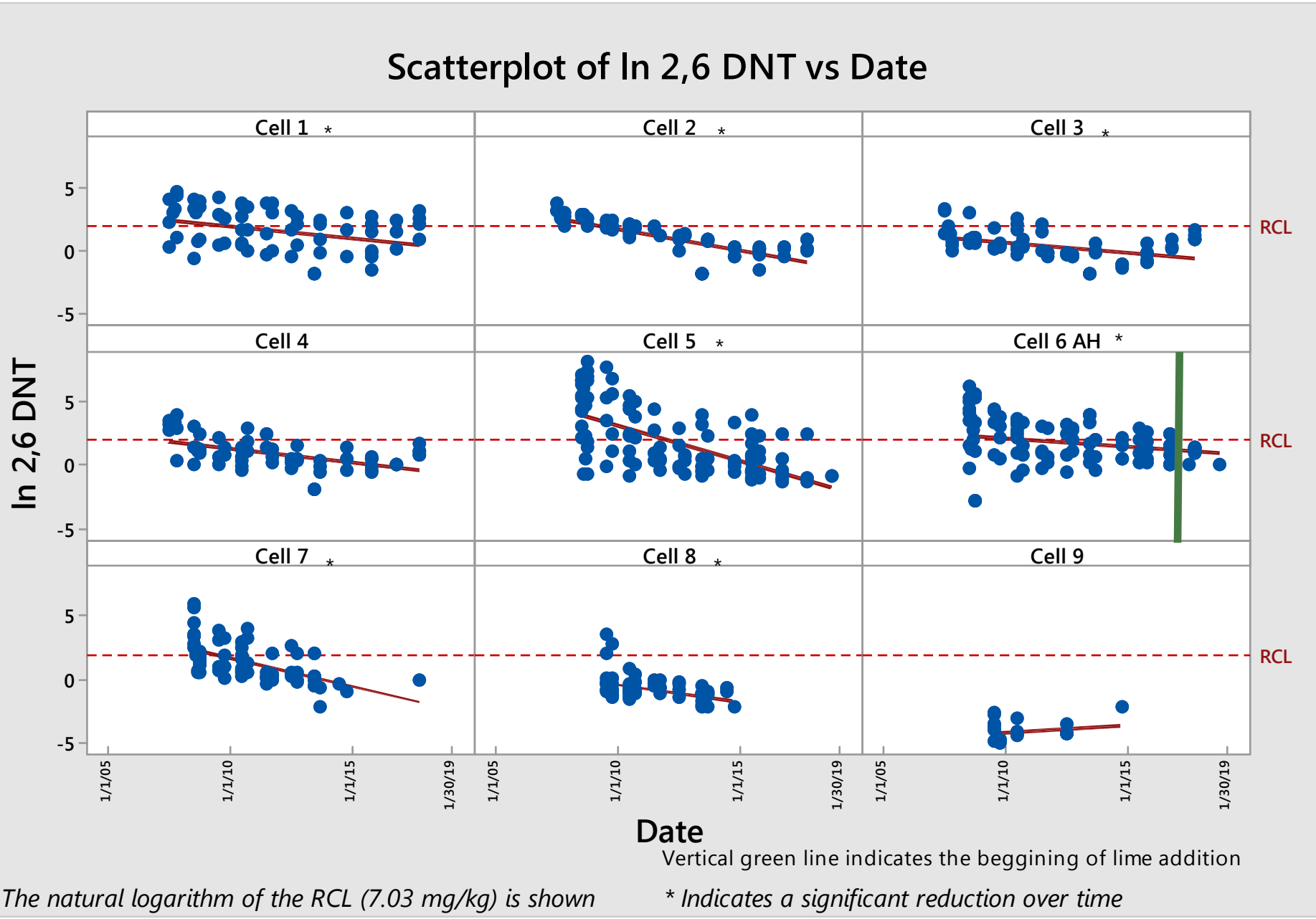
The natural logarithm of the RCL (7.03 mg/kg) is shown

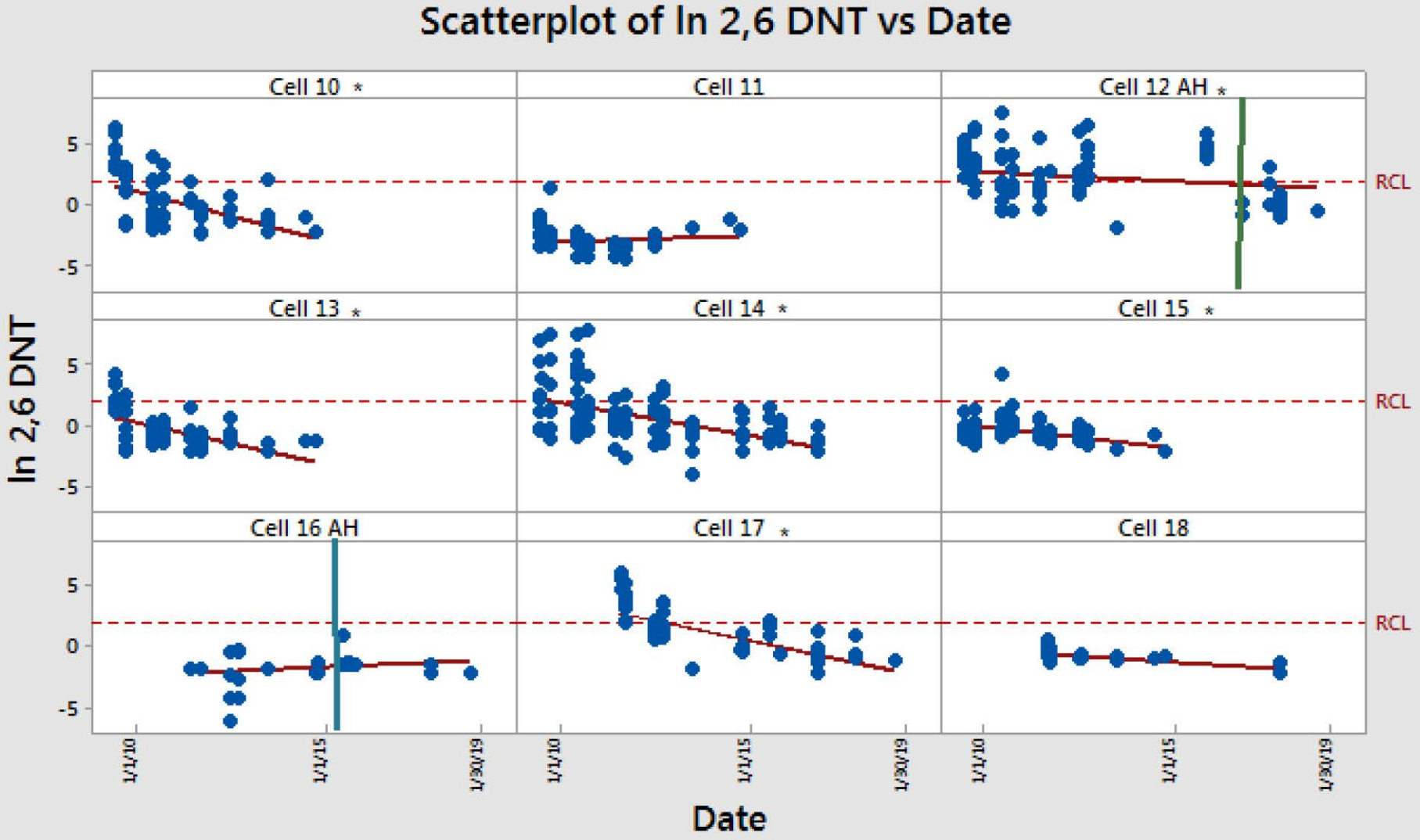
** Indicates a significant reduction over time*



Vertical green line indicates the beginning of lime addition
The natural logarithm of the RCL (7.03 mg/kg) is shown

** Indicates a significant reduction over time*

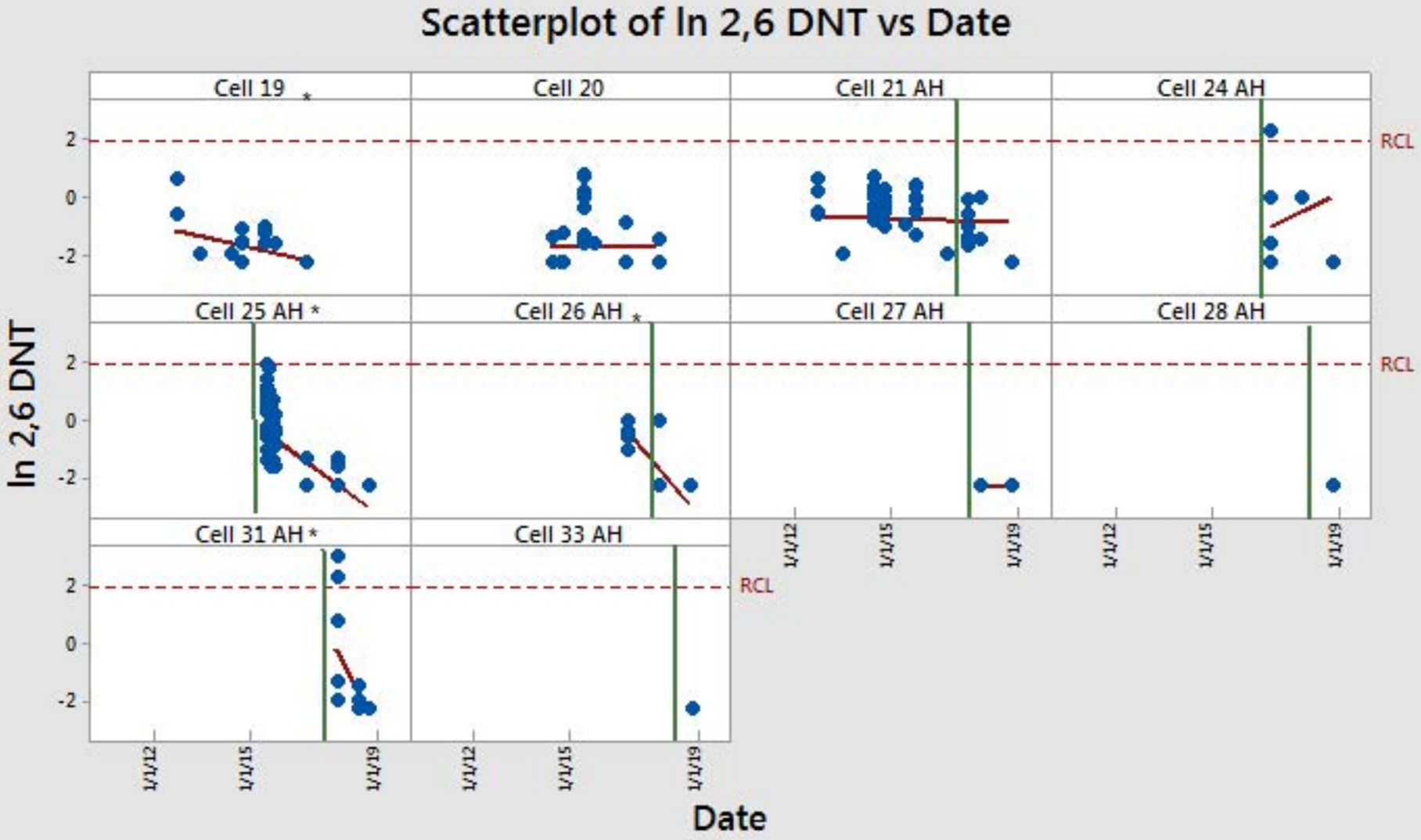

Scatterplot of ln 2,6 DNT vs Date
Cell 1 *
Cell 2 *
Cell 3 *
Cell 4
Cell 5 *
Cell 6 AH *
Cell 7 *
Cell 8 *
Cell 9
RCL
ln 2,6 DNT
5
0
-5
1/1/05
1/1/10
1/1/15
1/30/19
Date
Vertical green line indicates the beggining of lime addition
The natural logarithm of the RCL (7.03 mg/kg) is shown
* Indicates a significant reduction over time



Vertical green line indicates the beginning of lime addition

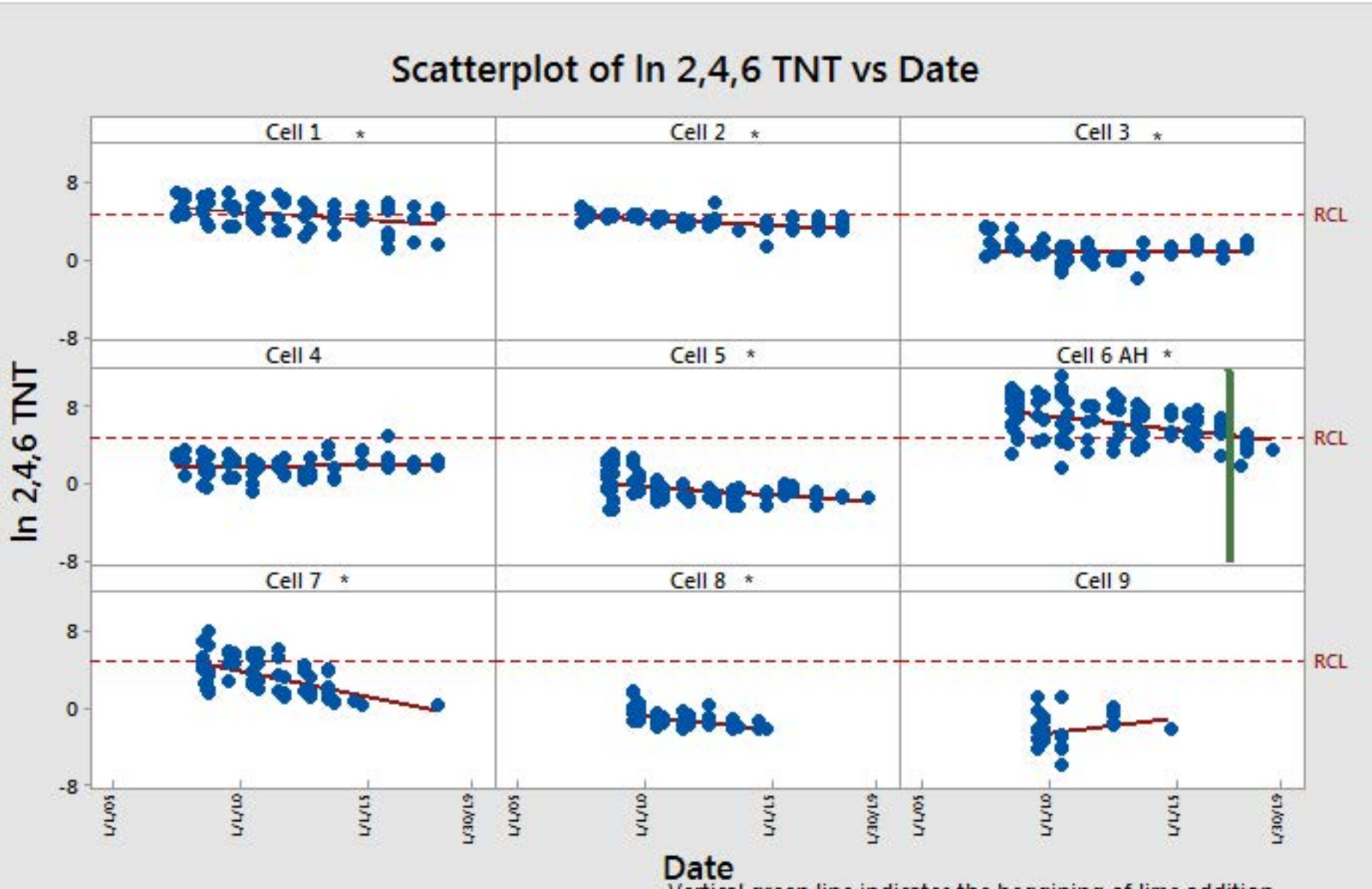
The natural logarithm of the RCL (7.03 mg/kg) is shown

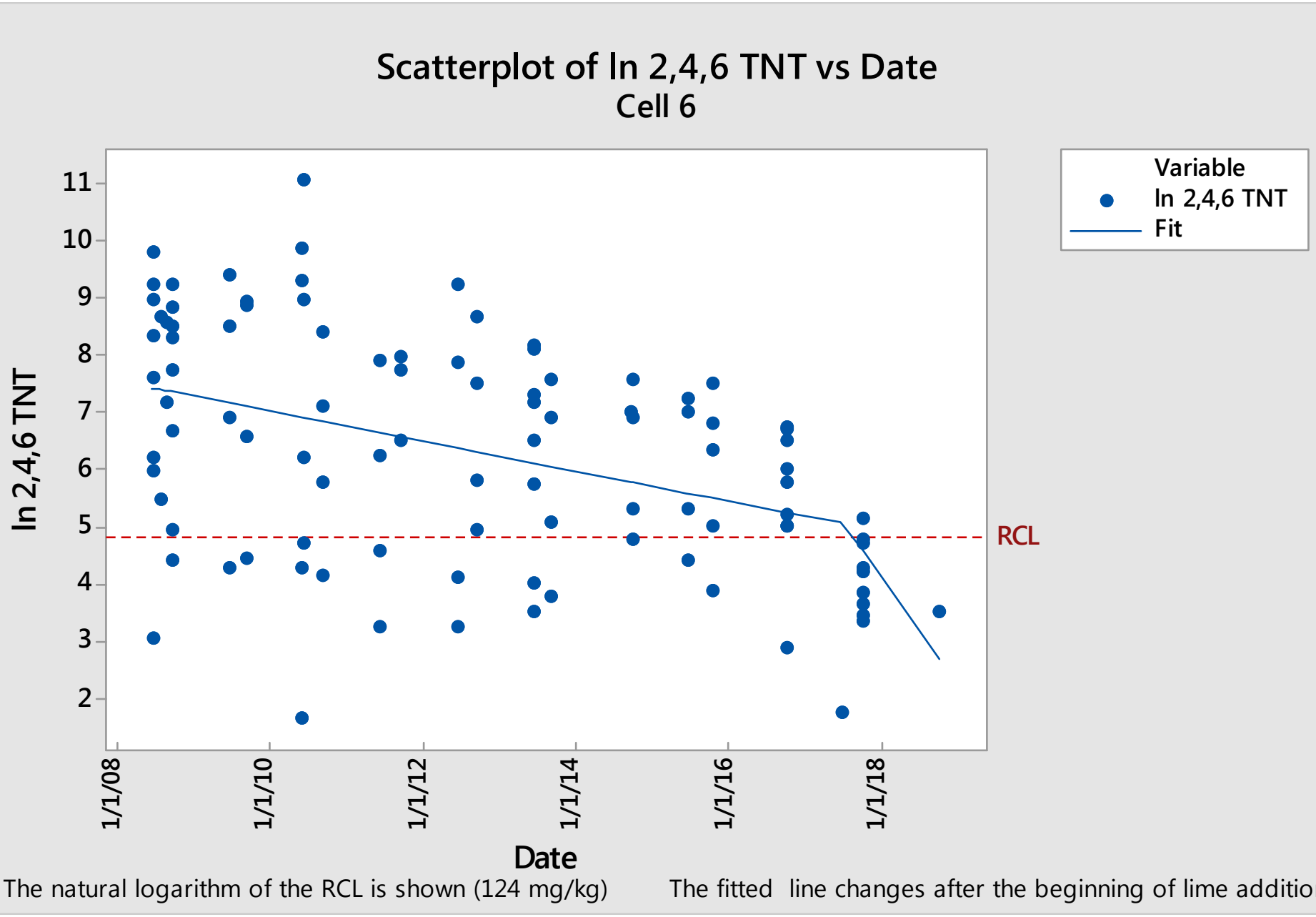
** Indicates a significant reduction over time*



Vertical green line indicates the beginning of lime addition
The natural logarithm of the RCL (7.03 mg/kg) is shown

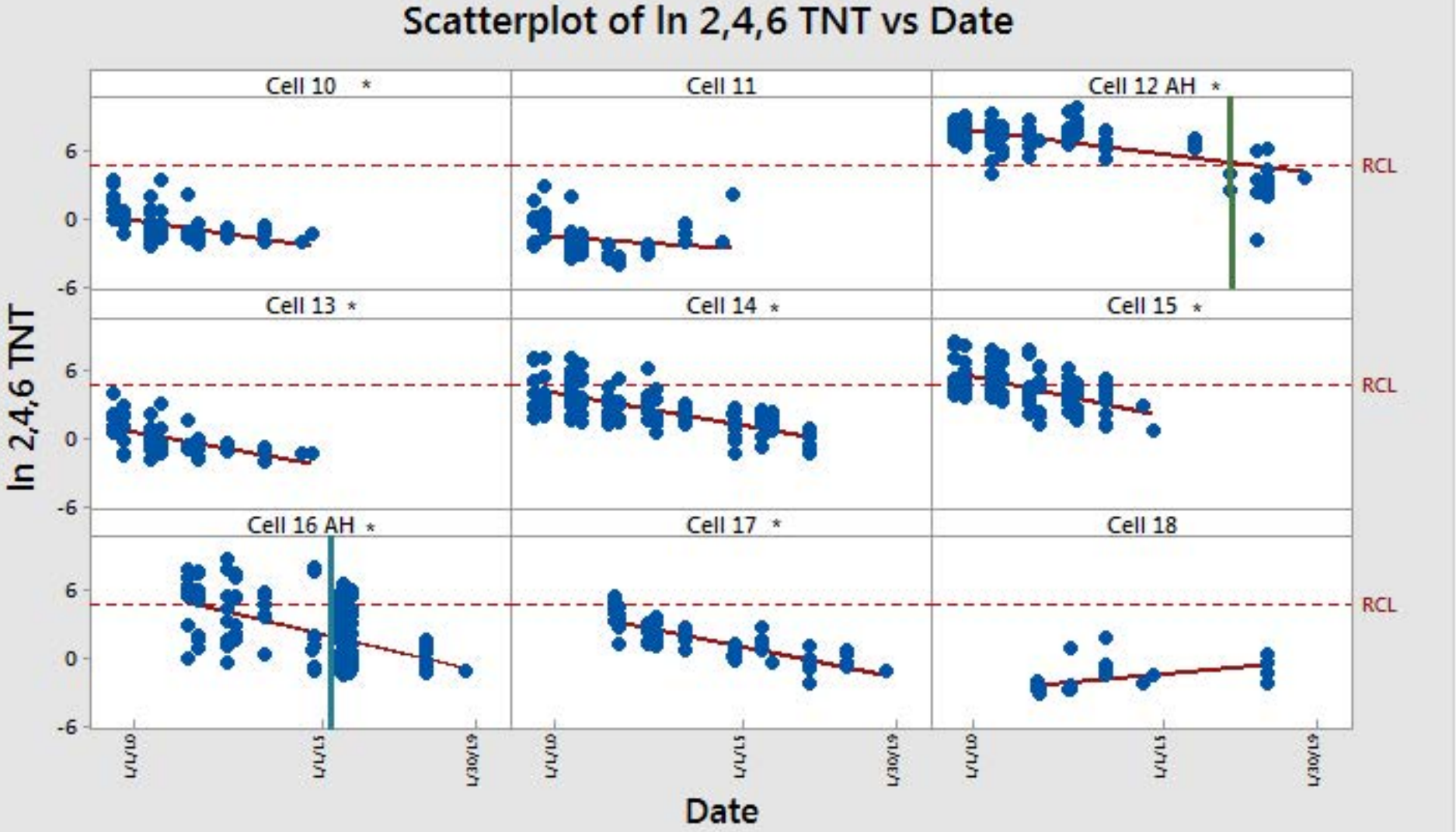
** Indicates a significant reduction over time*


Scatterplot of ln 2,4,6 TNT vs Date
Cell 1 *
Cell 2 *
Cell 3 *
Cell 4
Cell 5 *
Cell 6 AH *
Cell 7 *
Cell 8 *
Cell 9
RCL
ln 2,4,6 TNT
8
0
-8
1/1/05
1/1/10
1/1/15
6/30/19
Date
Vertical green line indicates the beggining of lime addition
The natural logarithm of the RCL (124 mg/kg) is shown
* Indicates a significant reduction over time



The natural logarithm of the RCL is shown (124 mg/kg)

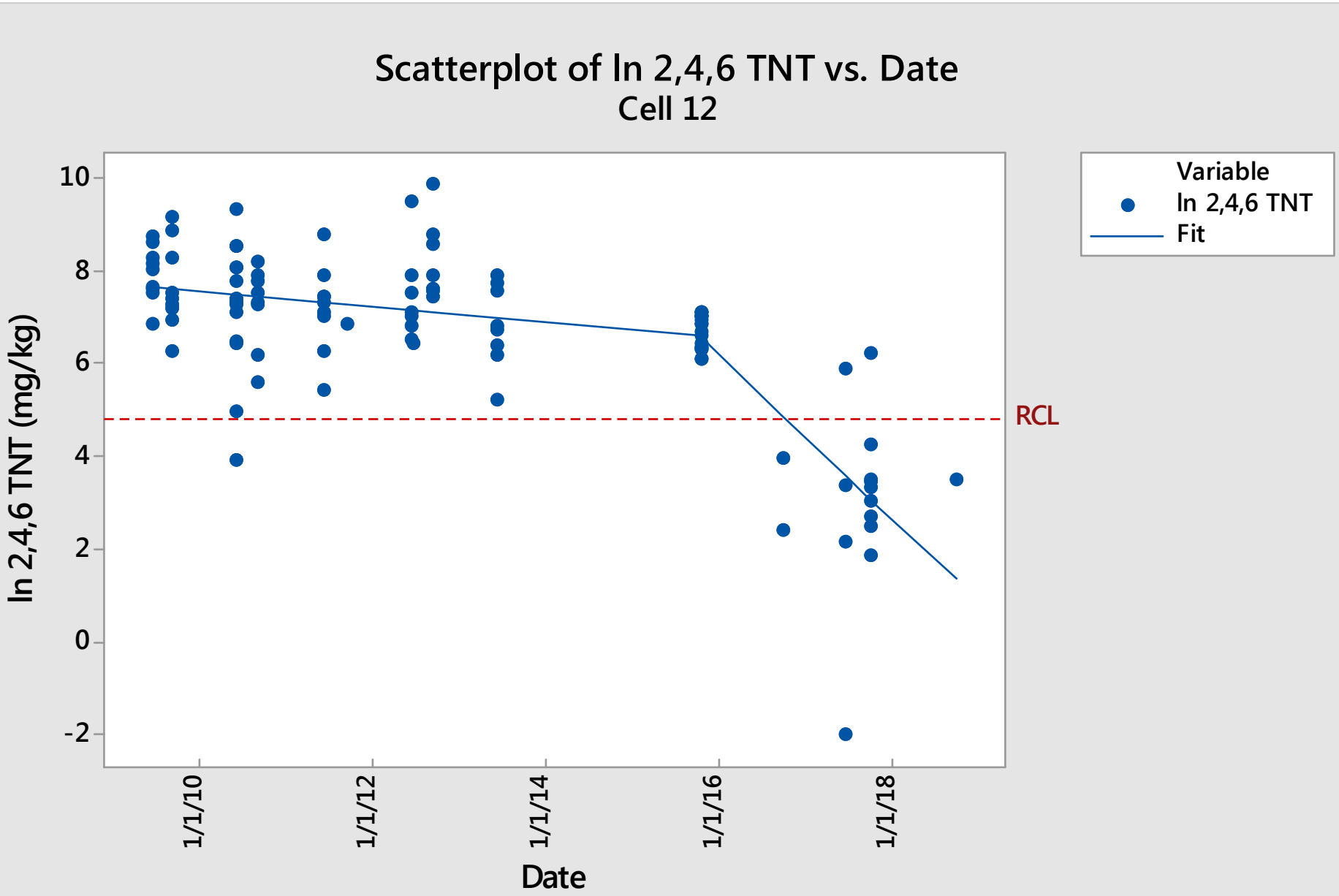
The fitted line changes after the beginning of lime addition



Vertical green line indicates the beginning of lime addition

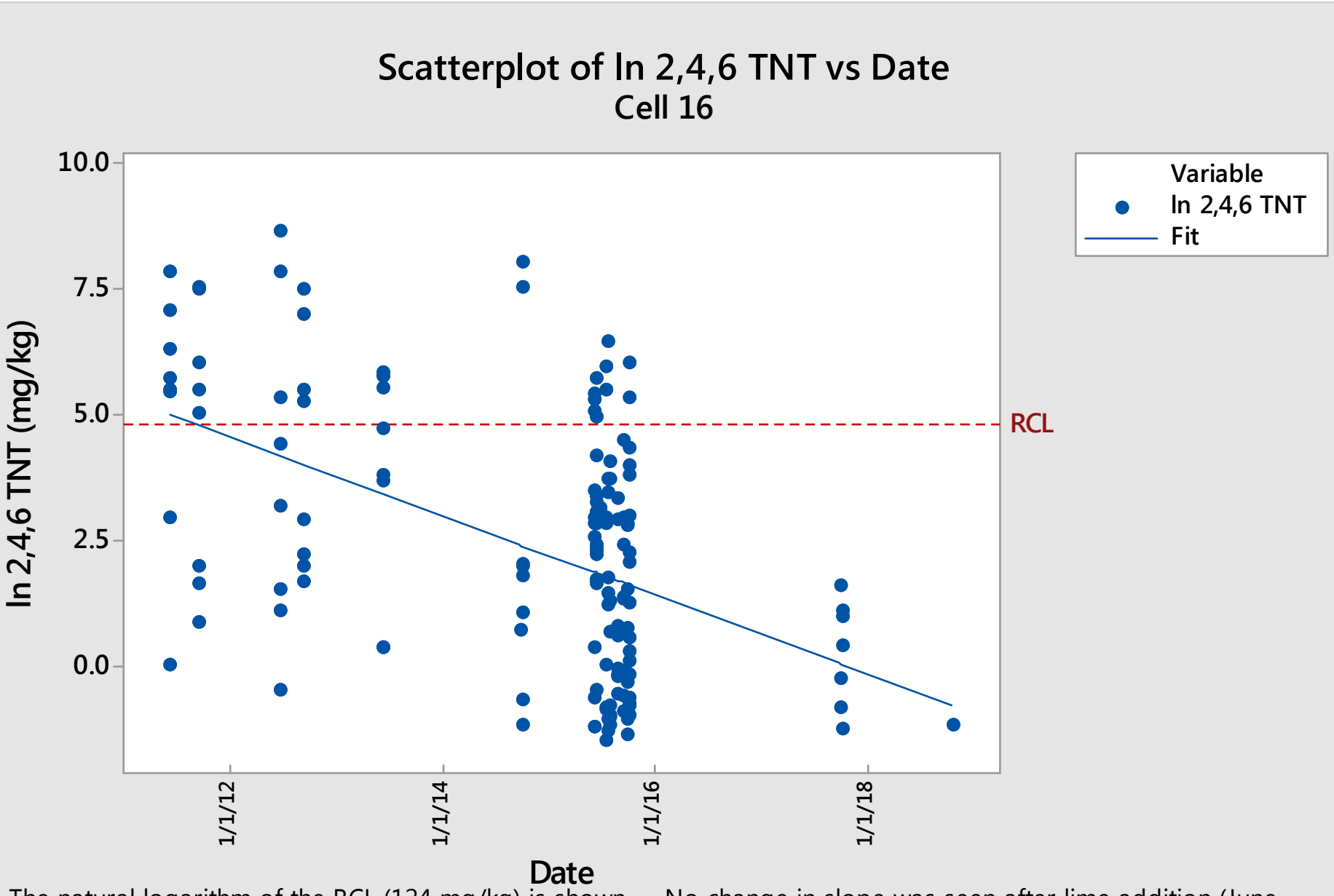
The natural logarithm of the RCL (124 mg/kg) is shown

** Indicates a significant reduction over time*



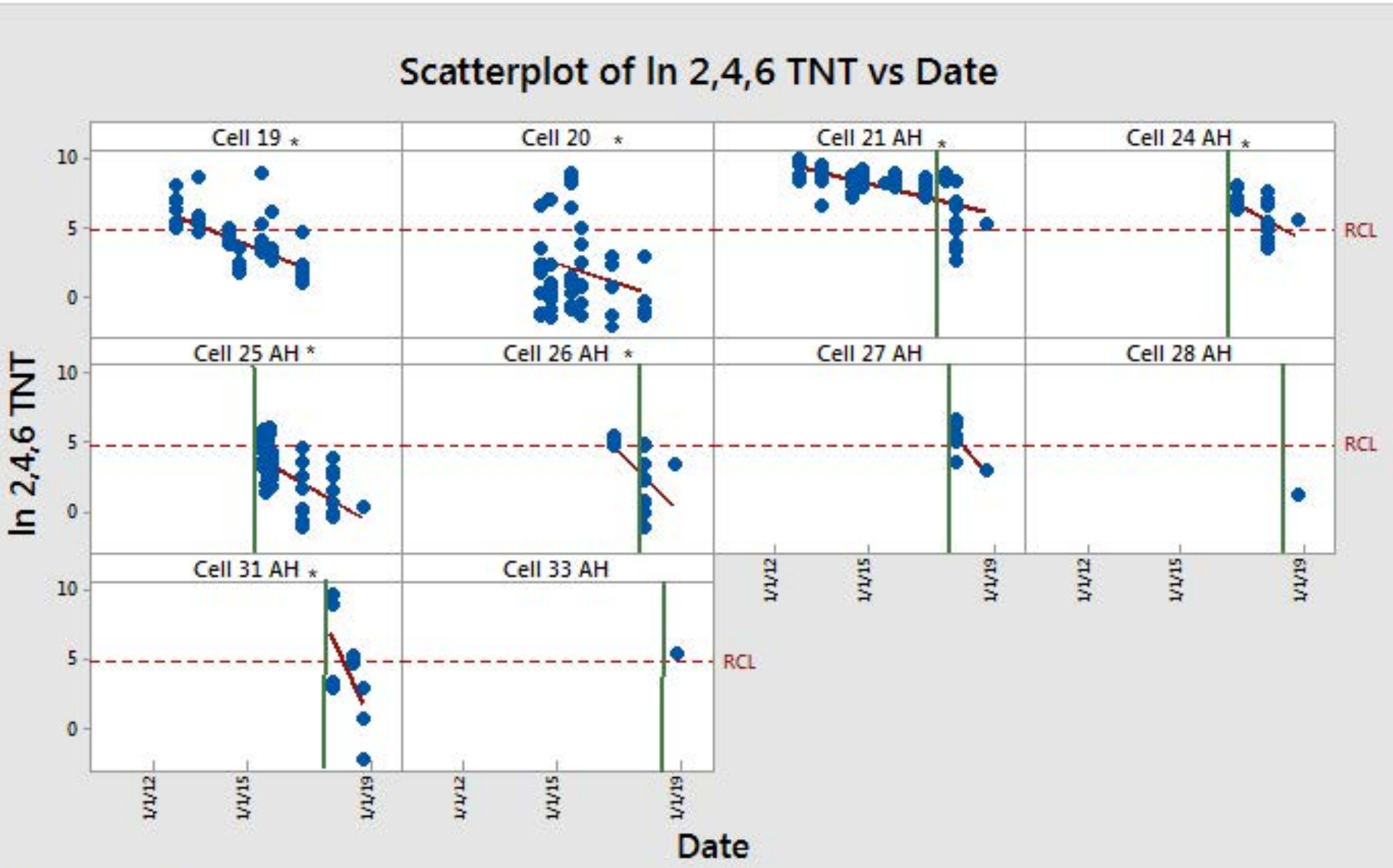
The natural logarithm of the RCL (124 mg/kg) is shown

The fitted line changes at the beginning of lime addition



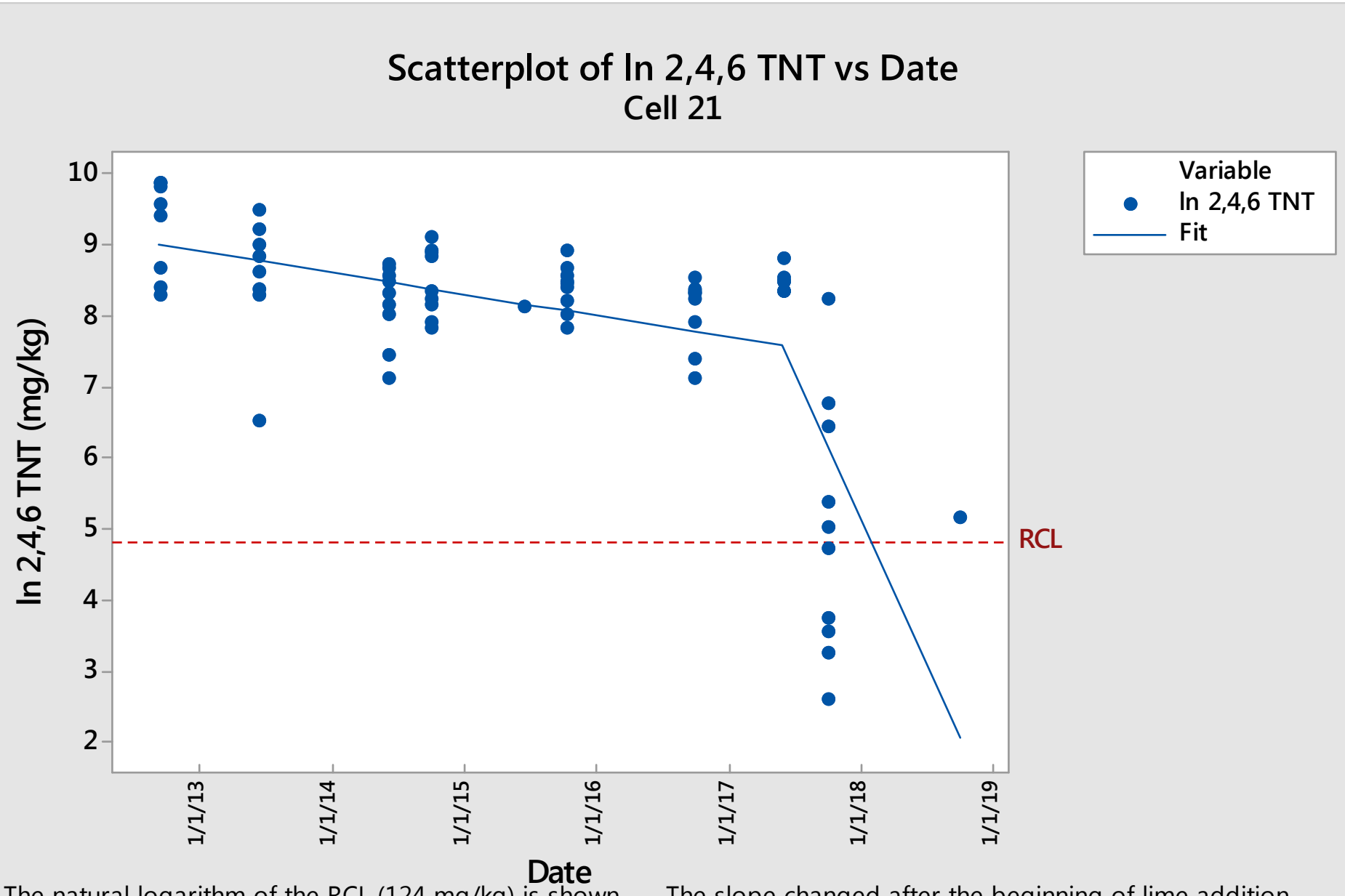
The natural logarithm of the RCL (124 mg/kg) is shown

No change in slope was seen after lime addition (June 2015)



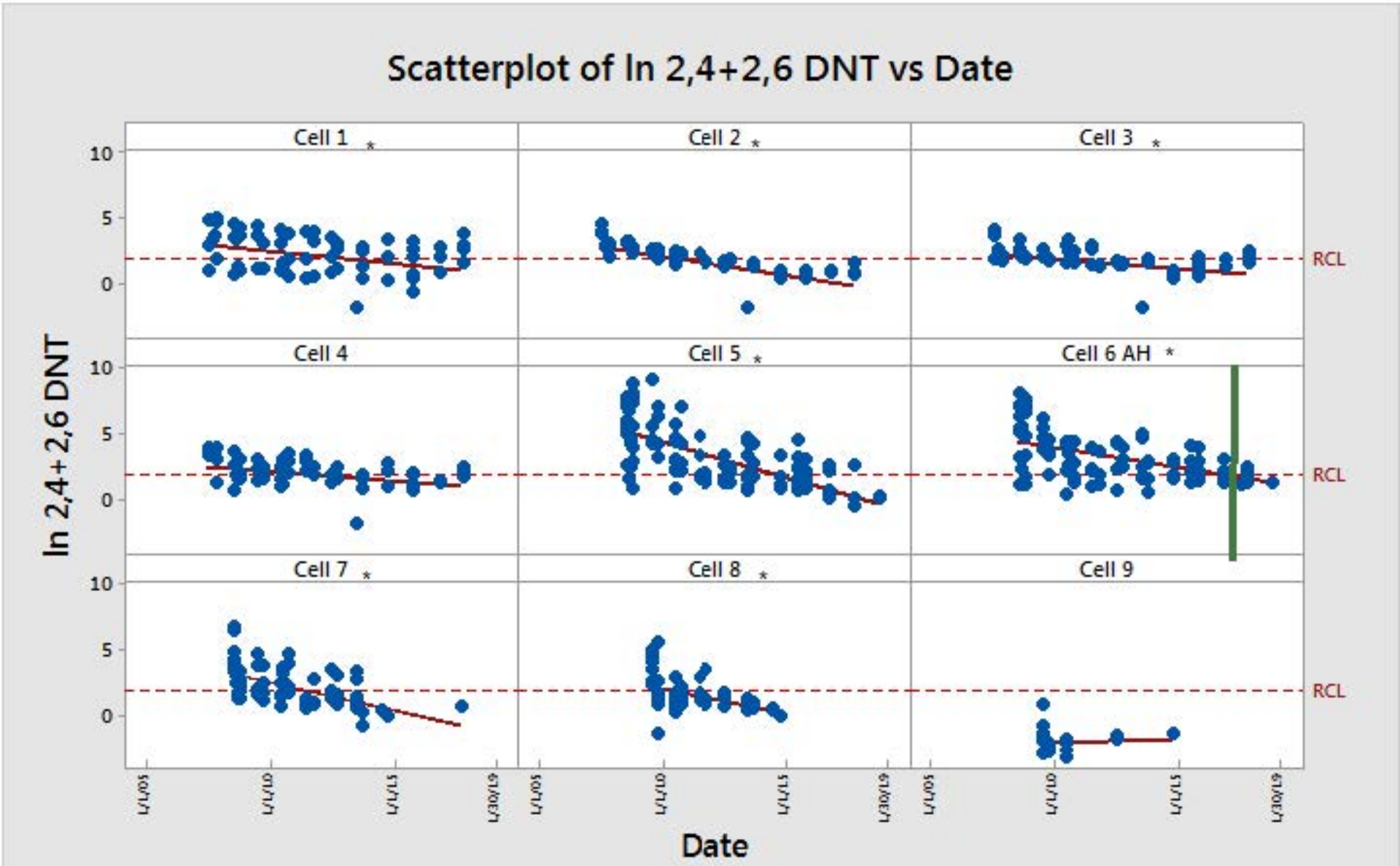
Vertical green line indicates the beginning of lime addition
The natural logarithm of the RCL (124 mg/kg) is shown

** Indicates a significant reduction over time*



The natural logarithm of the RCL (124 mg/kg) is shown

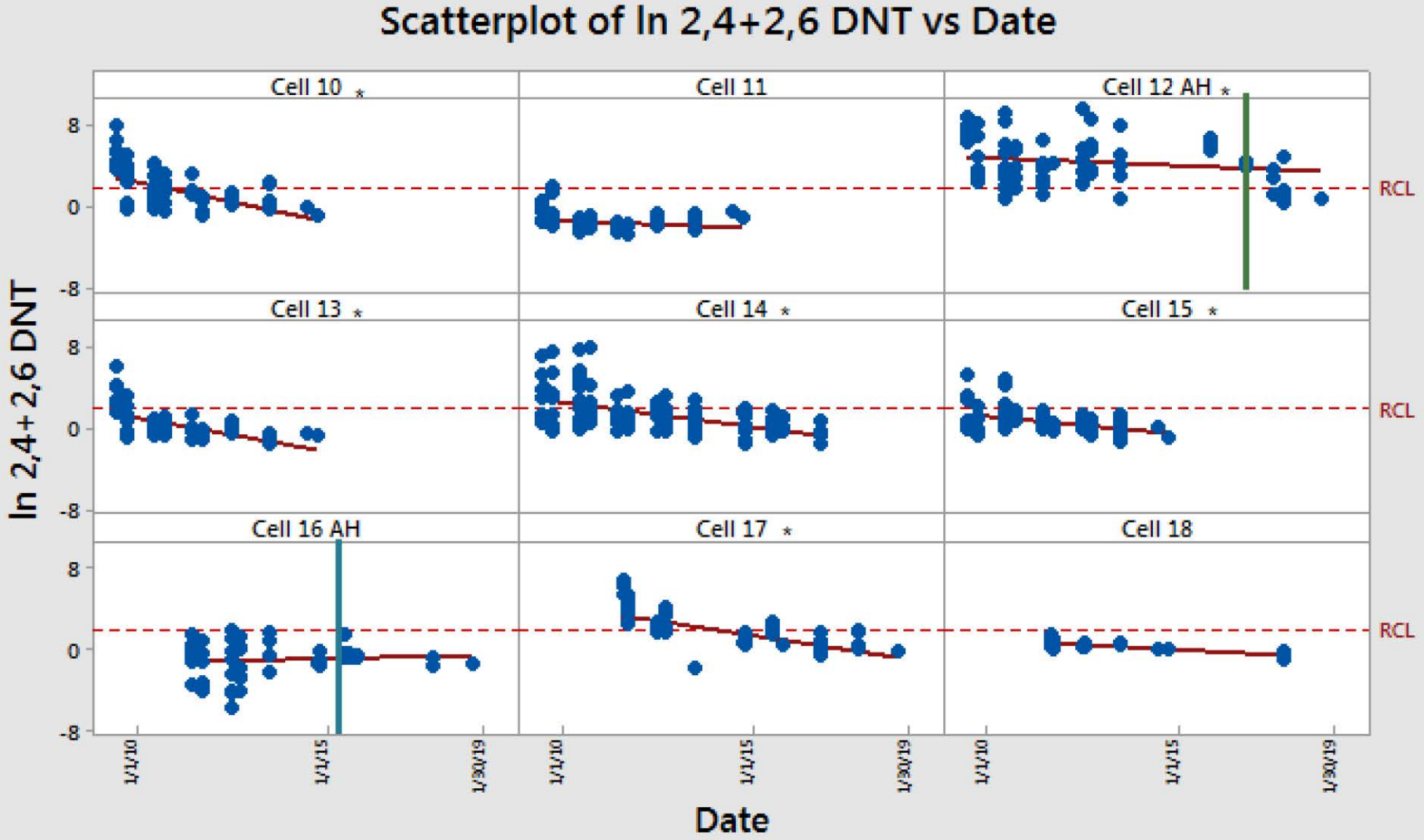
The slope changed after the beginning of lime addition



Vertical green line indicates the beggining of lime addition

The natural logarithm of the RCL (7.03 mg/kg) is shown

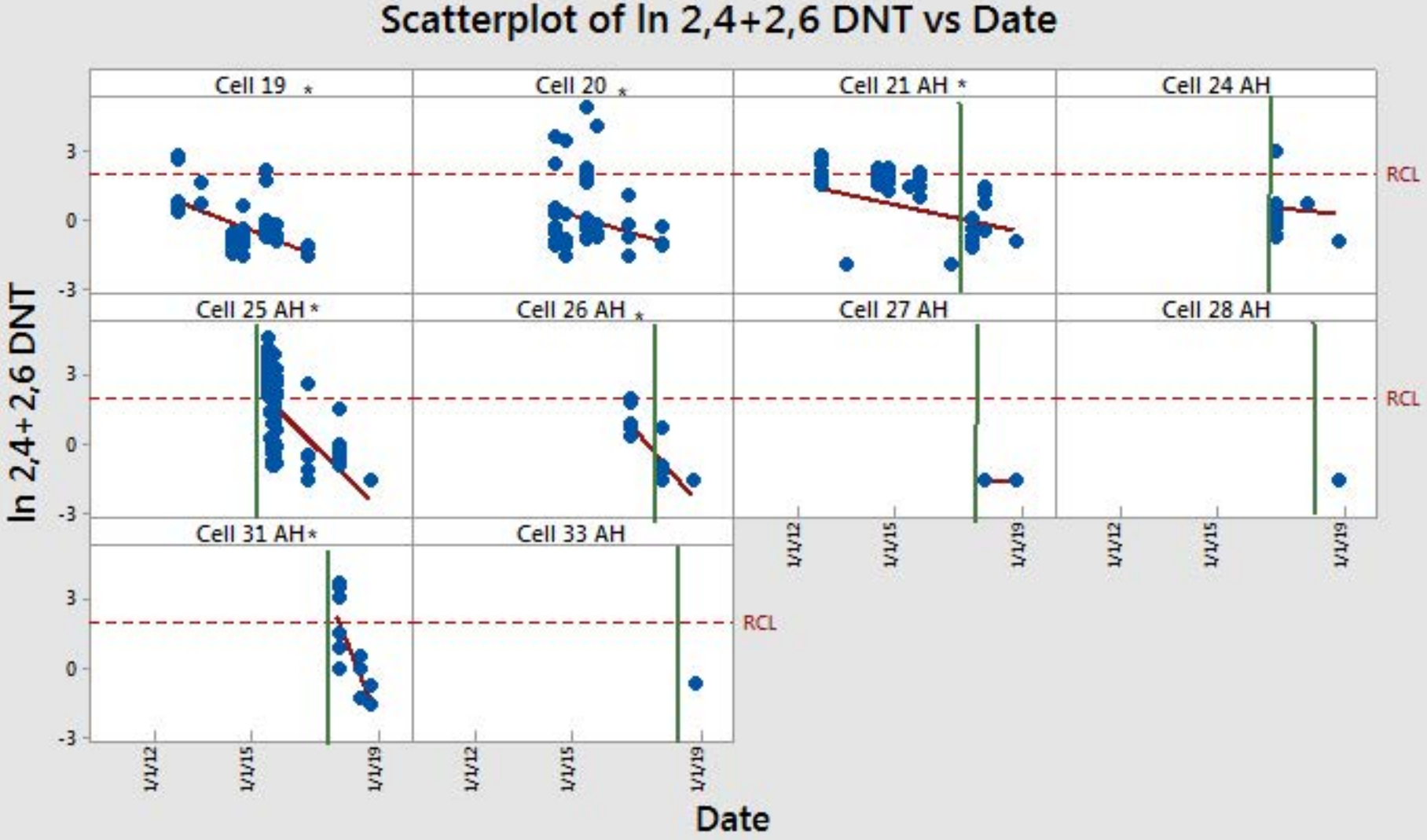
** Indicates a significant reduction over time*



Vertical green line indicates the beginning of lime addition

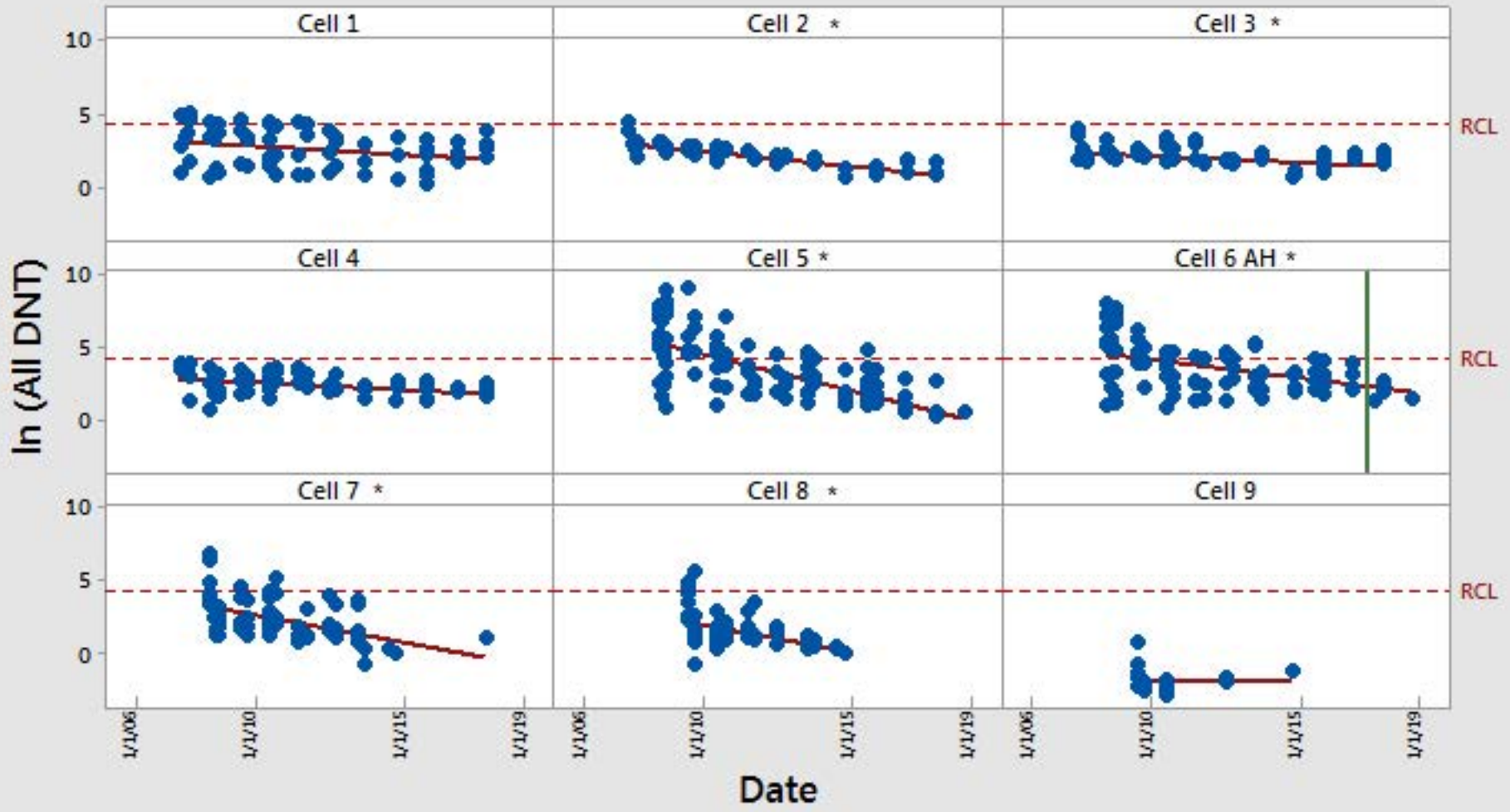
The natural logarithm of the RCL (7.03 mg/kg) is shown

** Indicates a significant reduction over time*

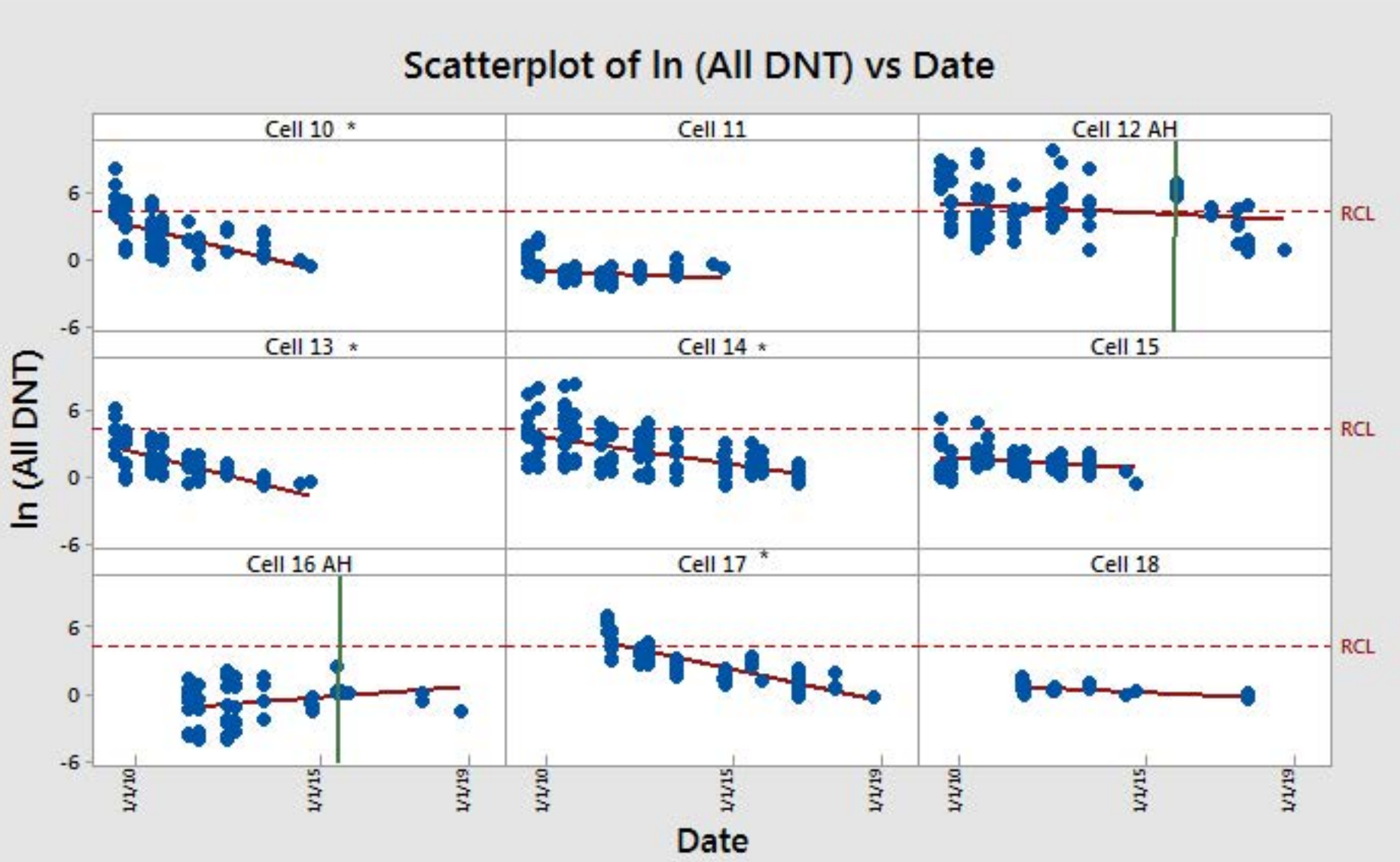


Vertical green line indicates the beginning of lime addition
The natural logarithm of the RCL (7.03 mg/kg) is shown

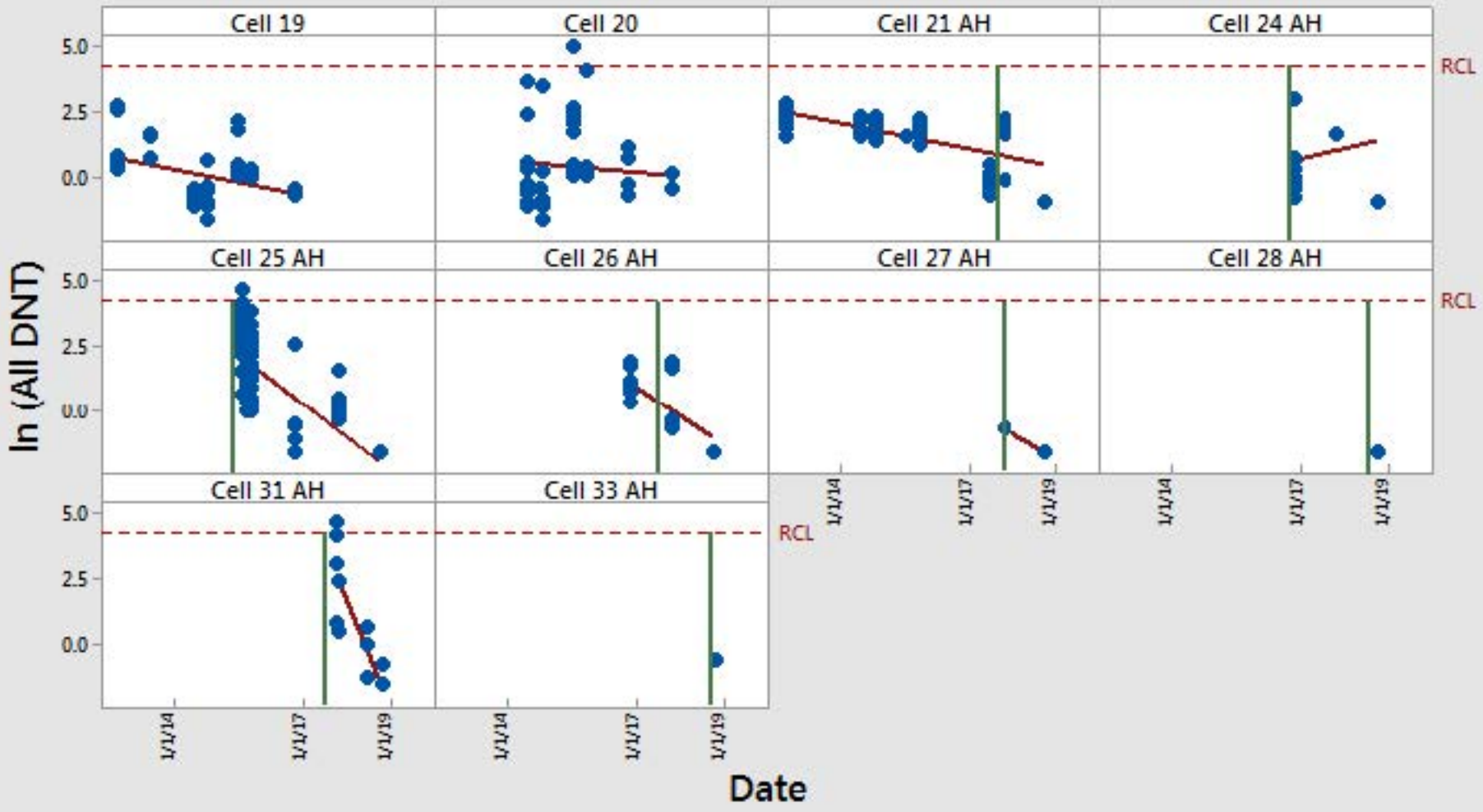
** Indicates a significant reduction over time*



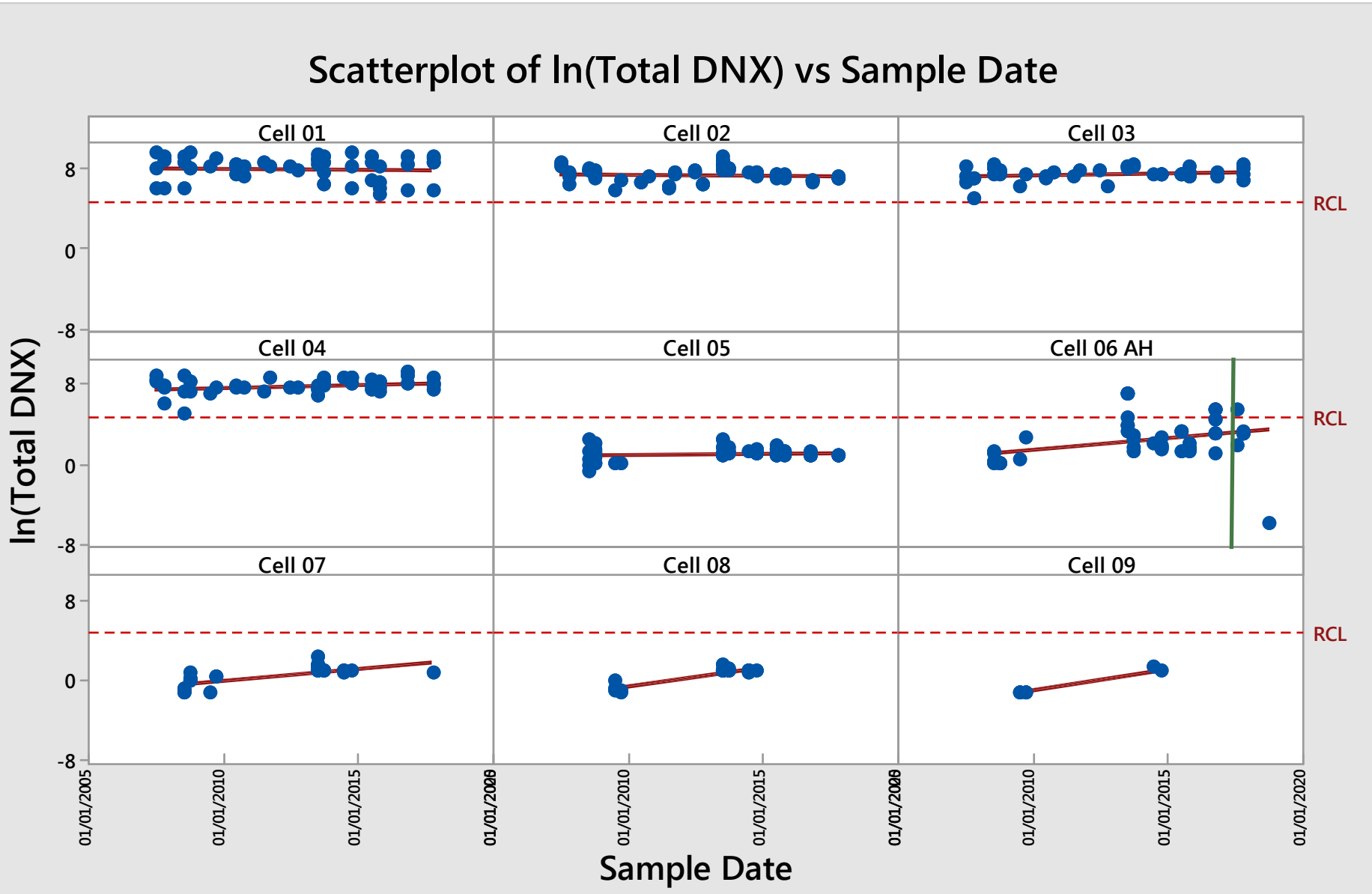
Green vertical line indicates the beginning of lime addition
The logarithm of the RCL (70.3 mg/kg) is shown * *indicates a significant reduction over time*



Vertical green line indicates the beginning of lime addition
The logarithm of the RCL (70.3 mg/kg) is shown * *inidcates significant reduction over time*

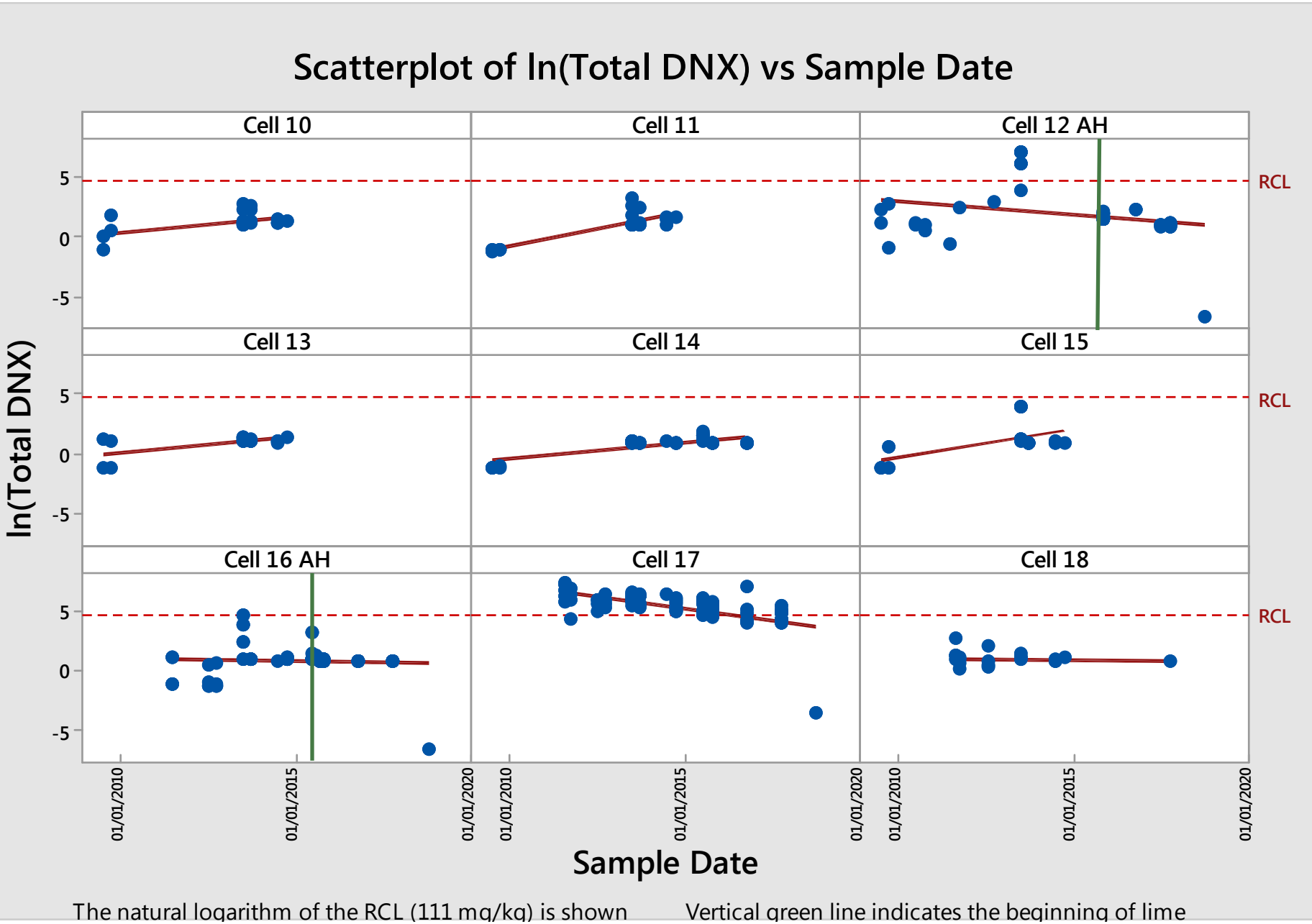


Vertical green lines indicate the beginning of lime addition
The natural logarithm of the RCL (70.3 mg/kg) is shown * *indicates a significant reduction over time*



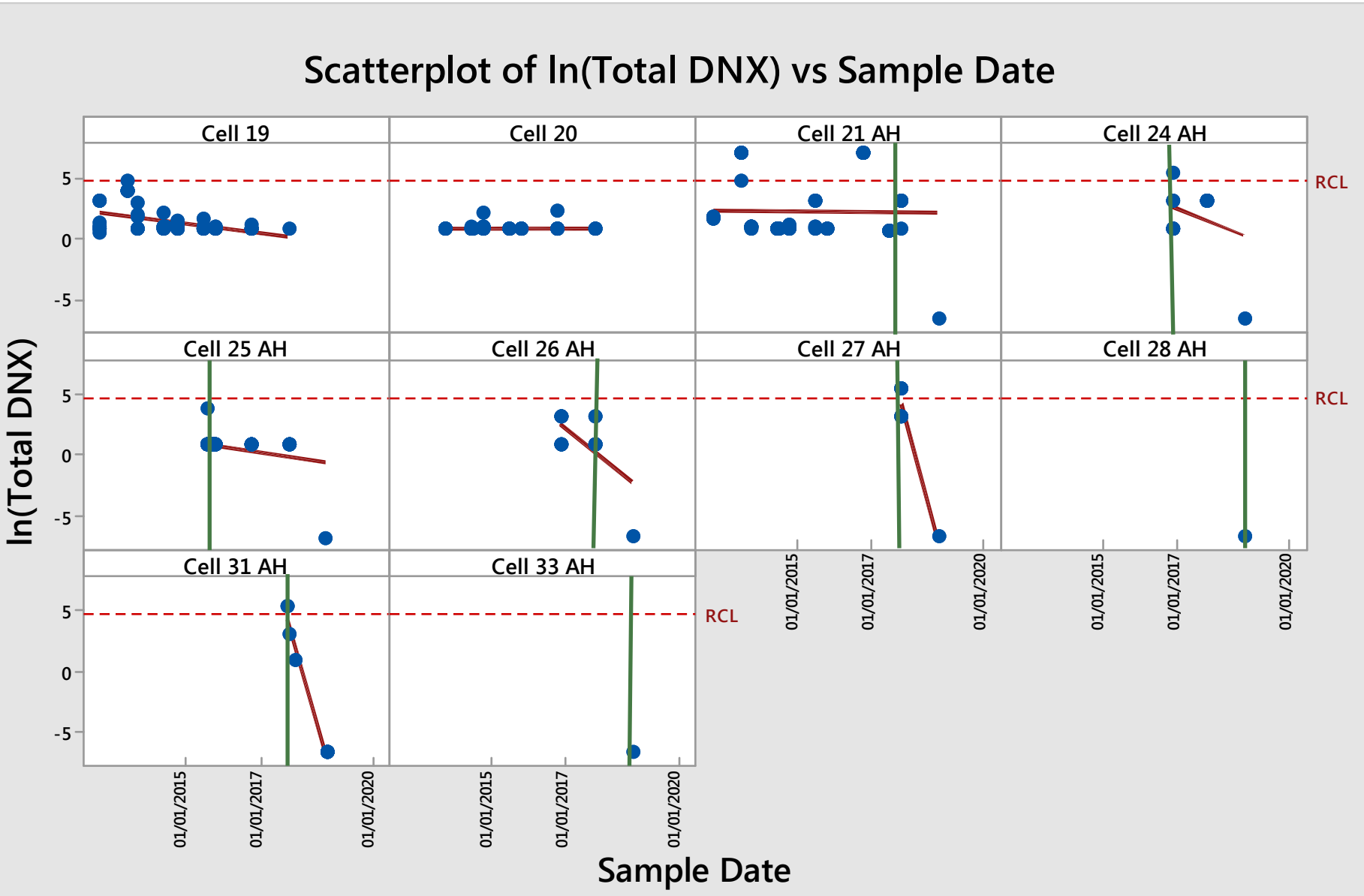
The natural logarithm of the RCL (111 mg/kg) is shown

Vertical green line indicates the beginning of lime addition



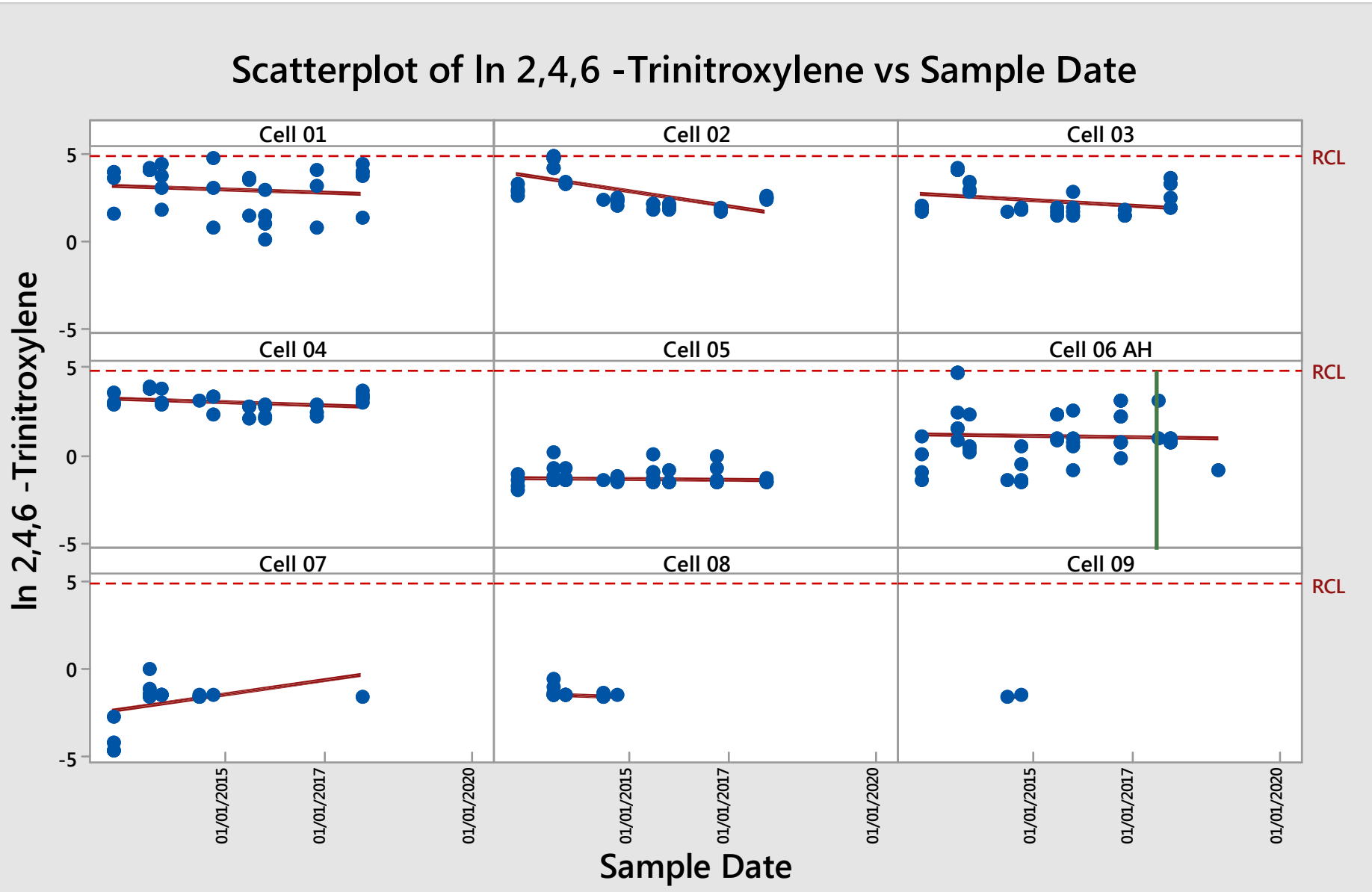
The natural logarithm of the RCL (111 mg/kg) is shown

Vertical green line indicates the beginning of lime



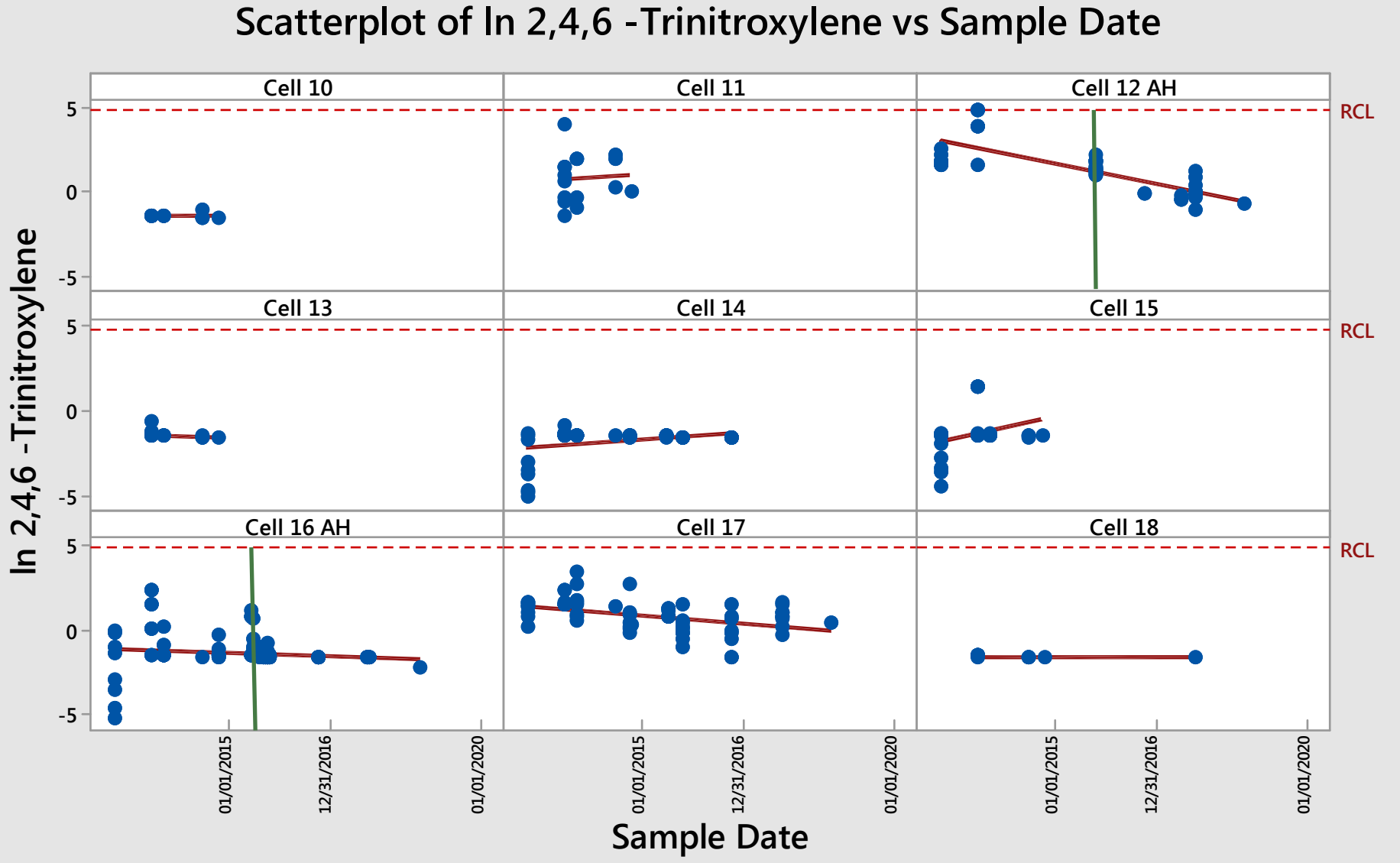
The natural logarithm of the RCL (111 mg/kg) is shown

Vertical green lines indicate the beginning of lime addition



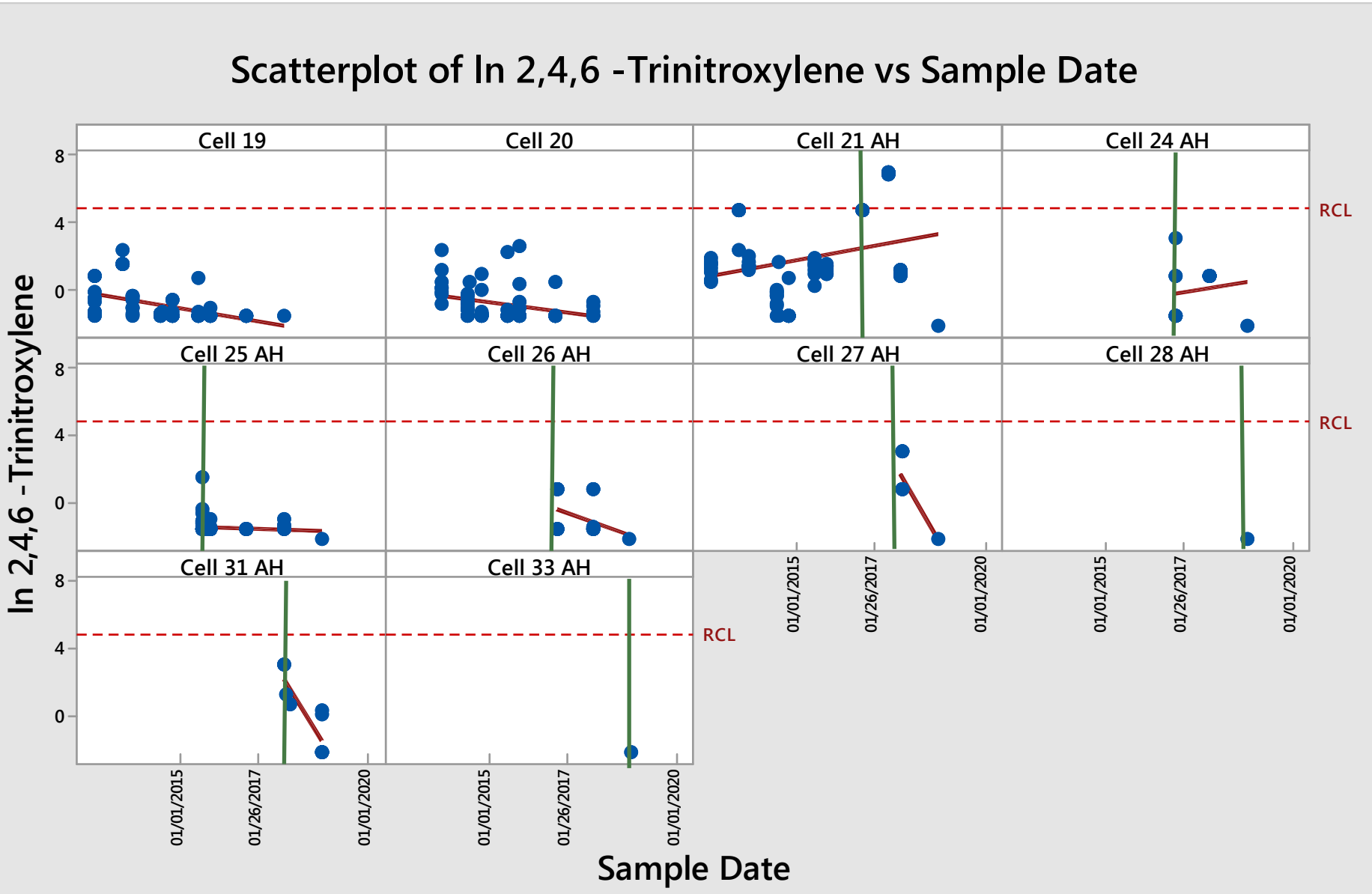
The natural logarithm of the RCL (124 mg/kg) is shown

Vertical green line indiates the beginning of lime addition



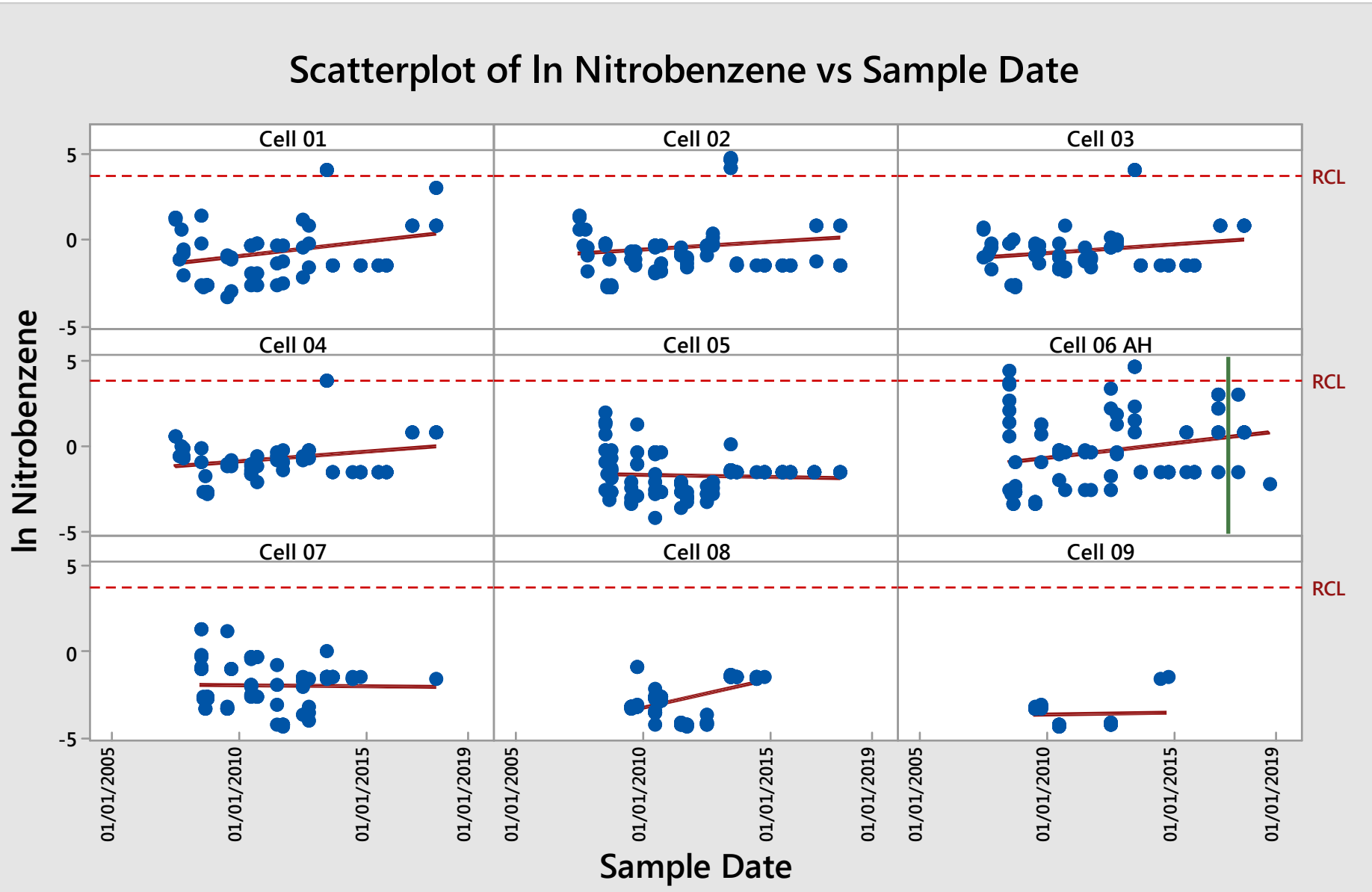
The natural logarithm of the RCL (124 mg/kg) is shown

Vertical green lines indicate the beginning of lime addition



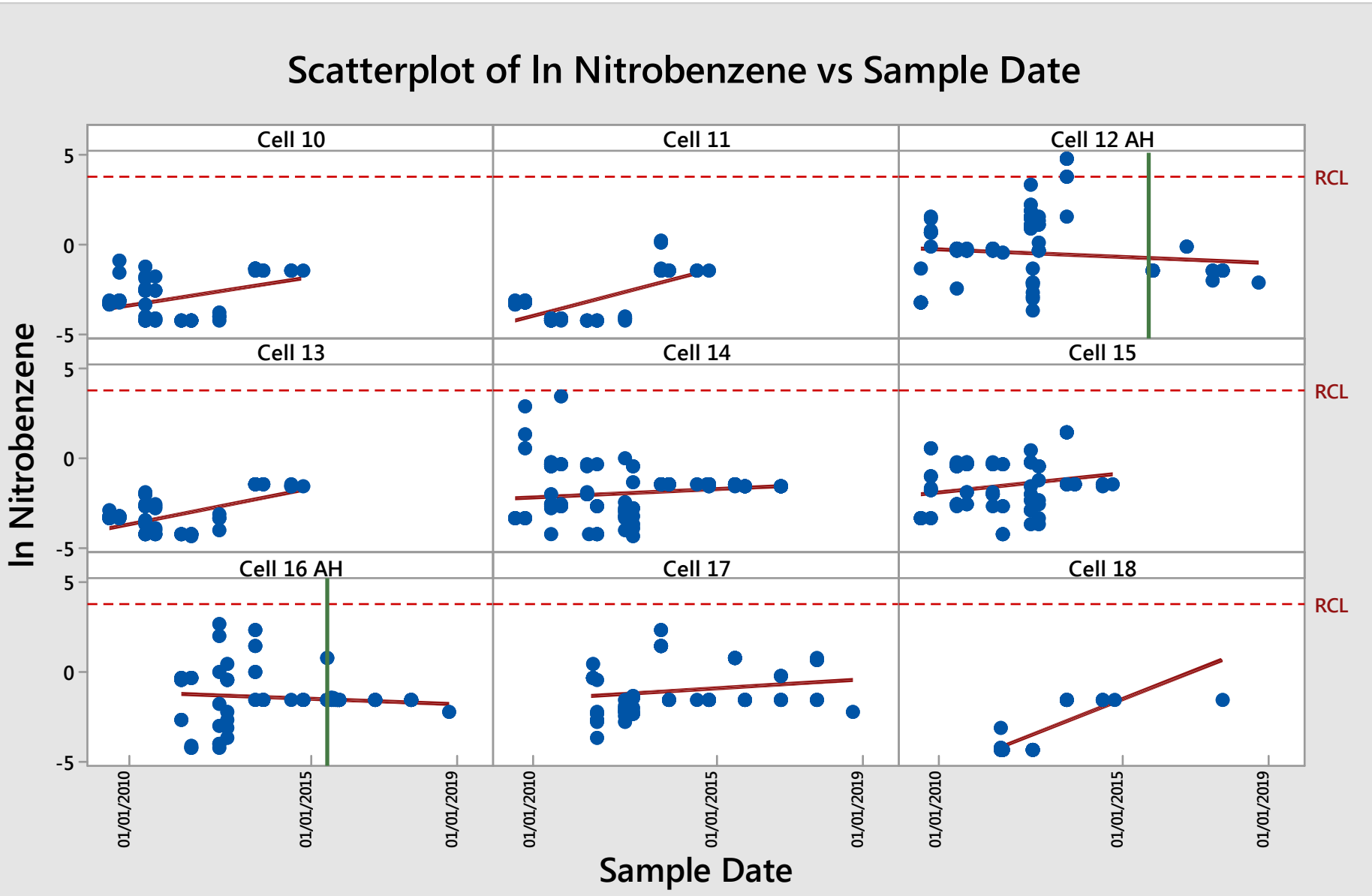
The natural logarithm of the RCL (124 mg/kg) is shown

Vertical green lines indicate the beginning of lime addition



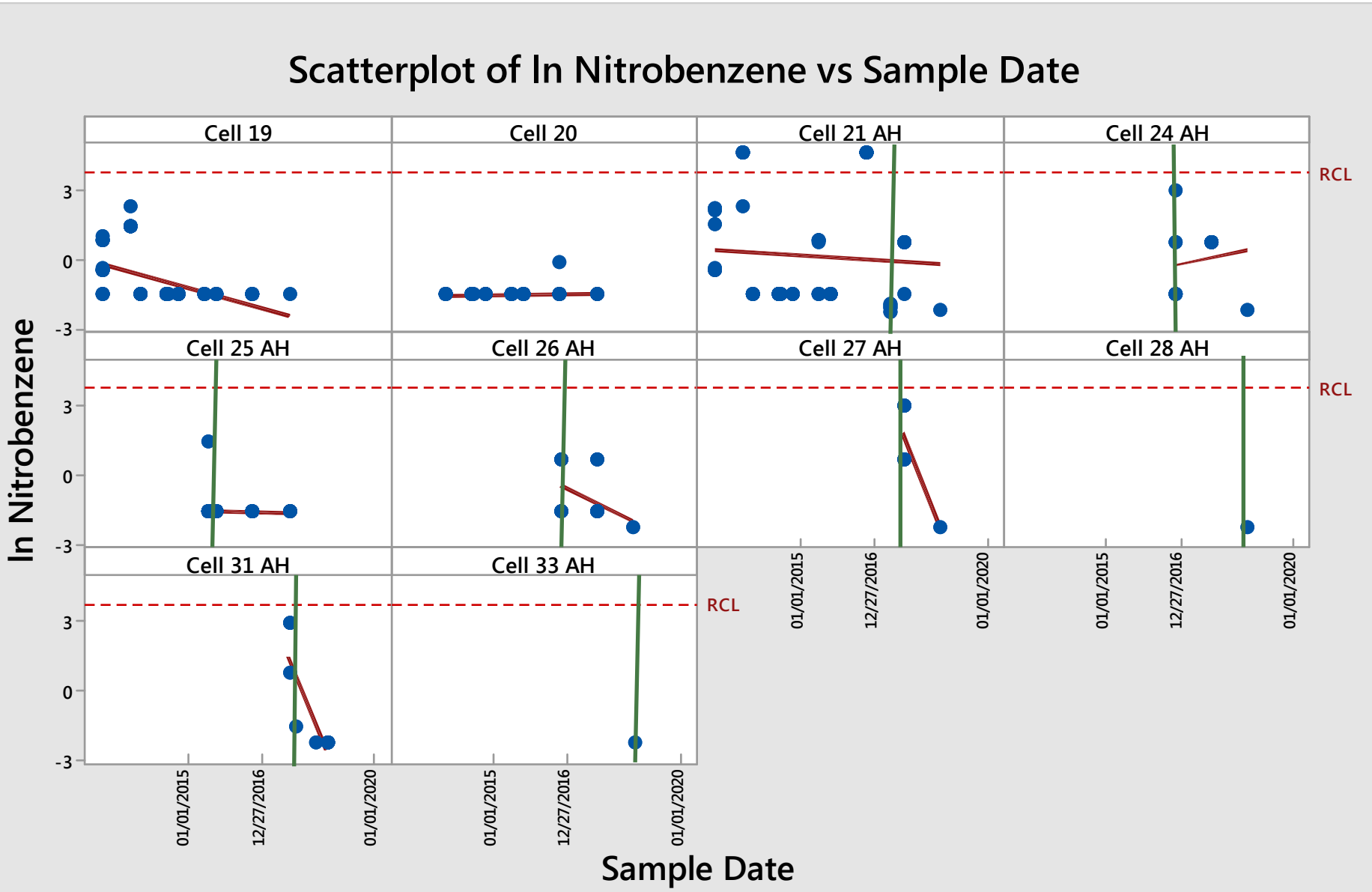
The logarithm of the RCL (43.2 mg/kg) is shown

Vertical green line indicates the beginnin of lime addition



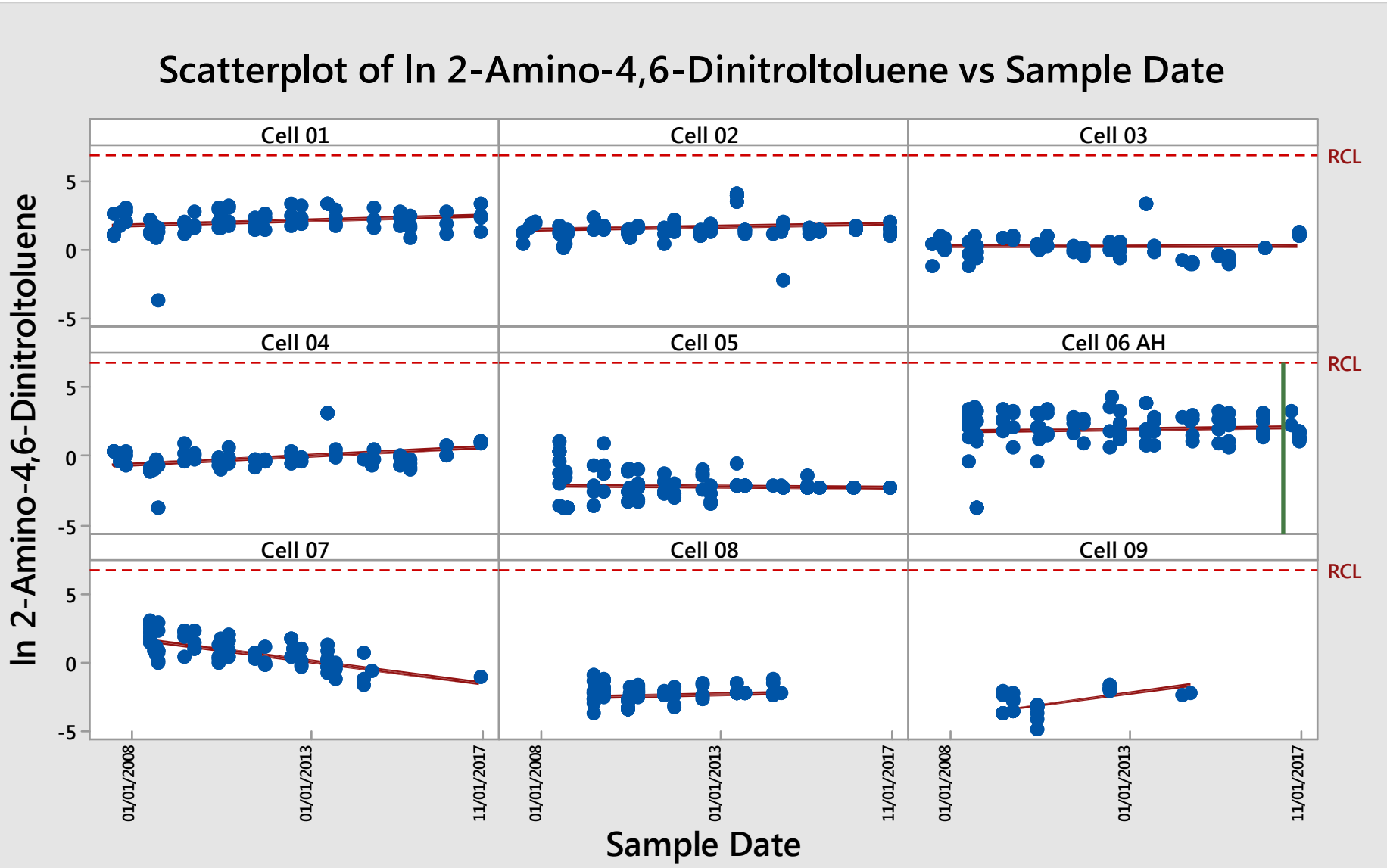
The natural logarithm of the RCL (43.2 mg/kg) is shown

Vertical green lines indicate the beginning of lime addition



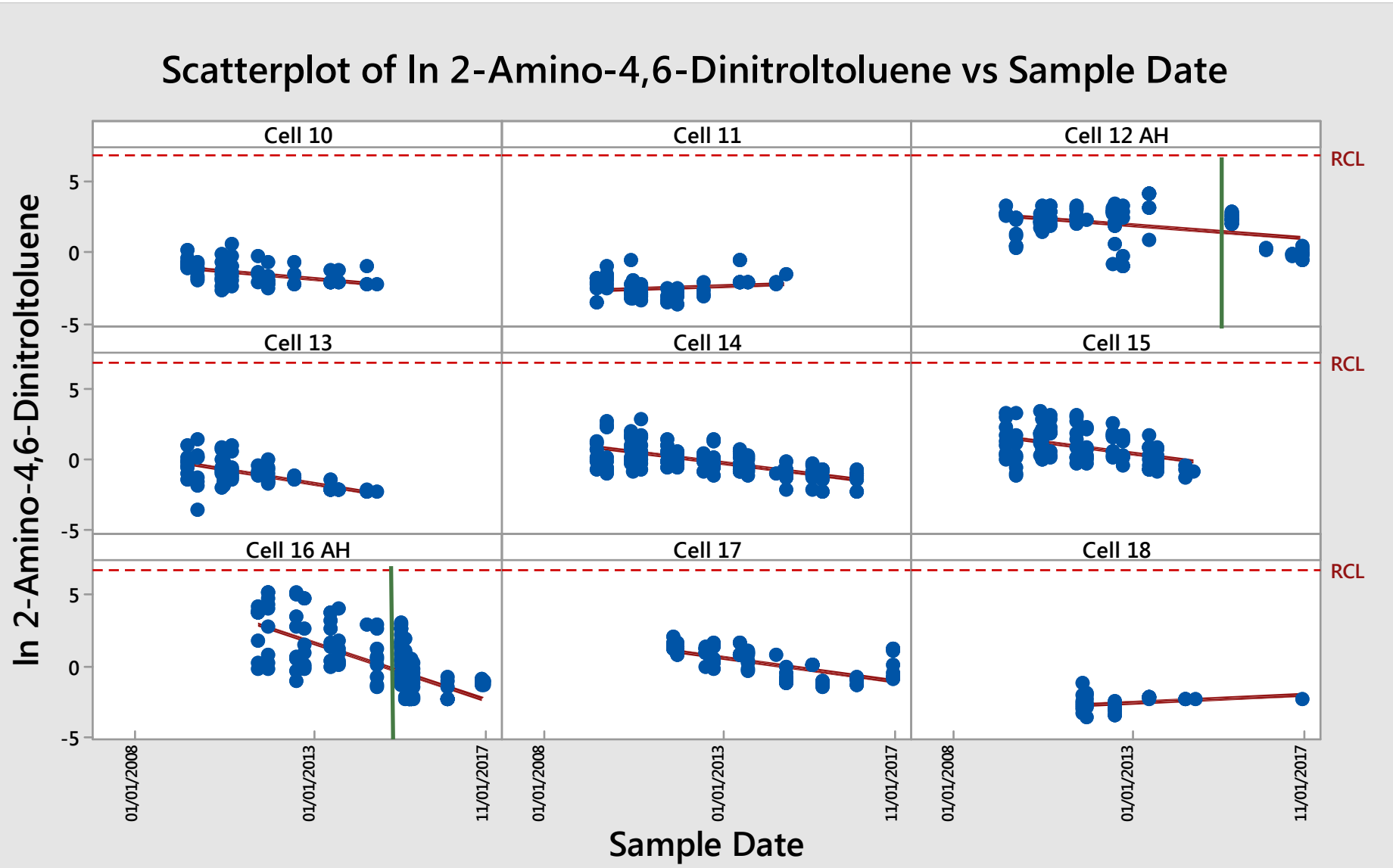
The natural logarithm of the RCL (43.2 mg/kg) is shown

Vertical green lines indicate the beginning of lime addition



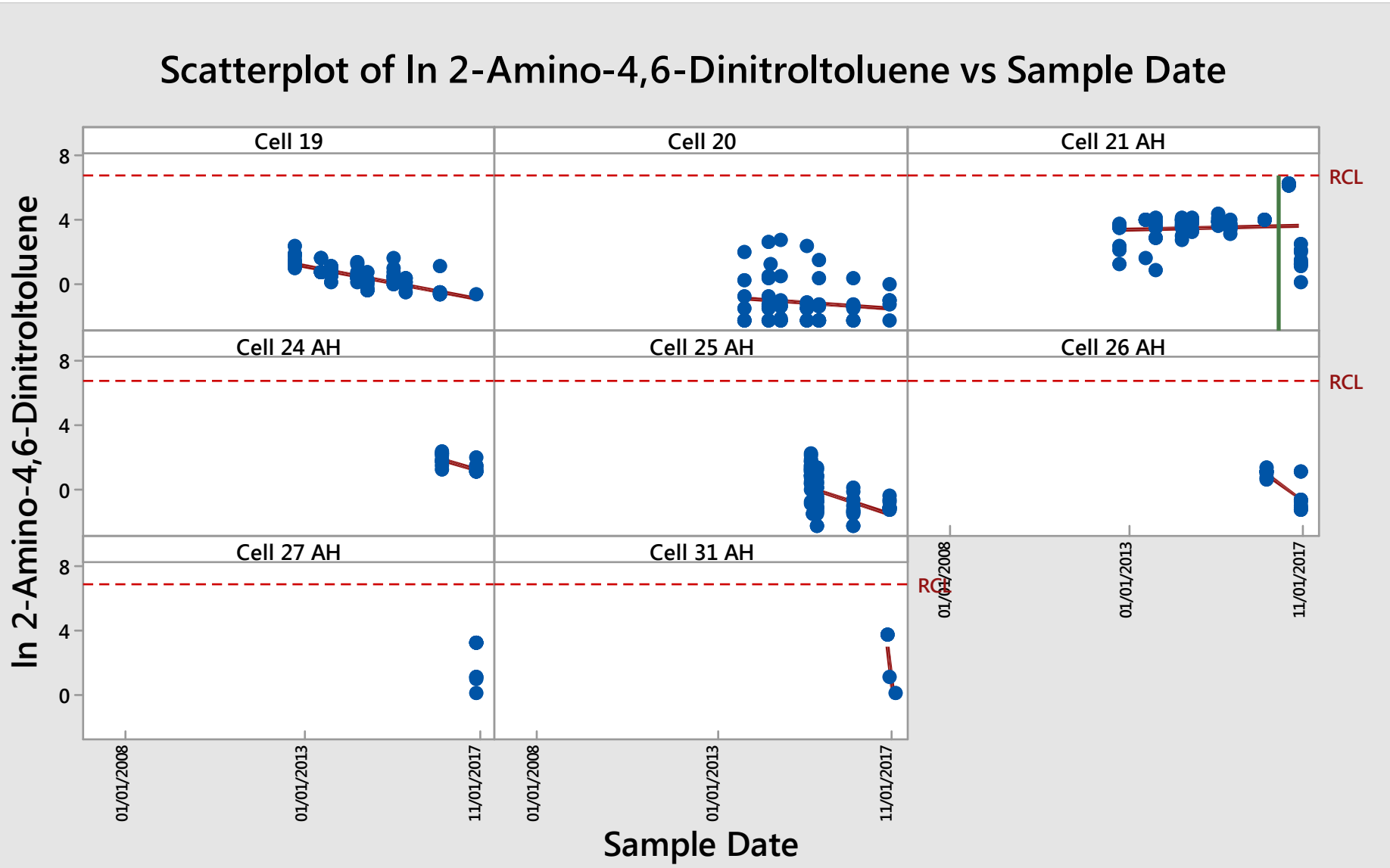
The natural logarithm of the RCL (900 mg/kg) is shown

Vertical green line indicates beginning of lime addition



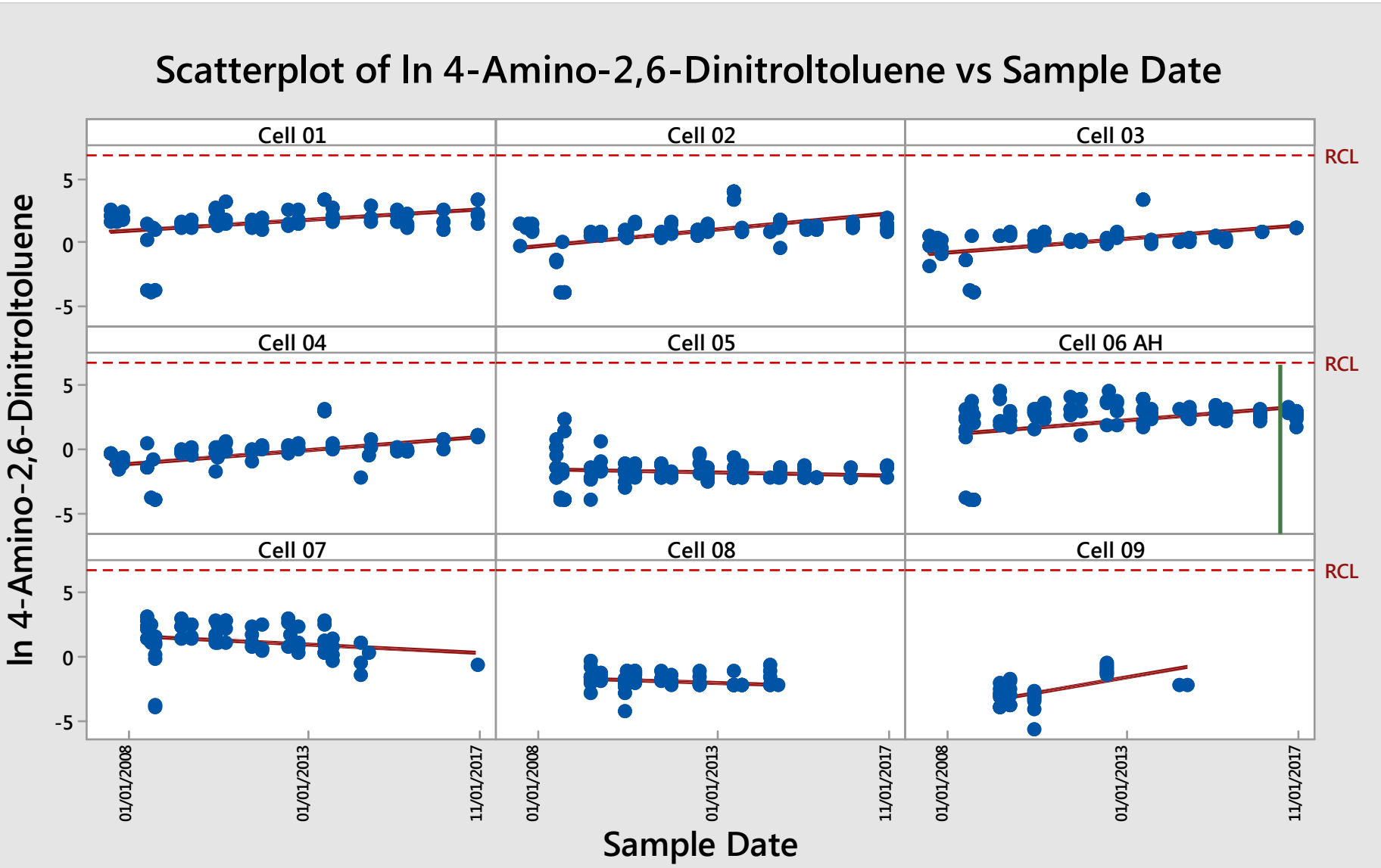
The natural logarithm of the RCL (900 mg/kg) is shown

Vertical green line indicates beginning of lime addition



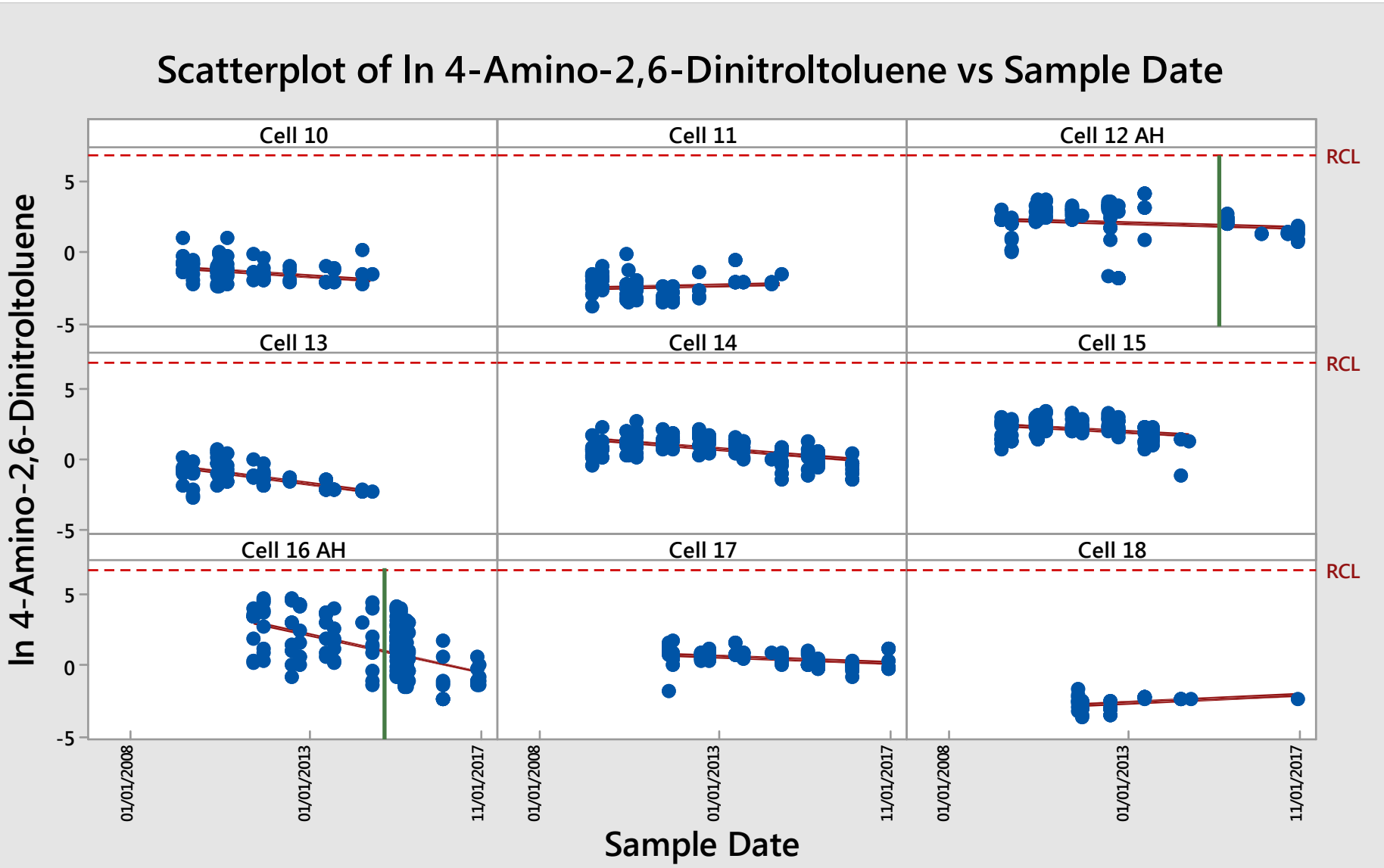
The natural logarithm of the RCL (900 mg/kg) is shown

Vertical green line indicates beginning of lime addition



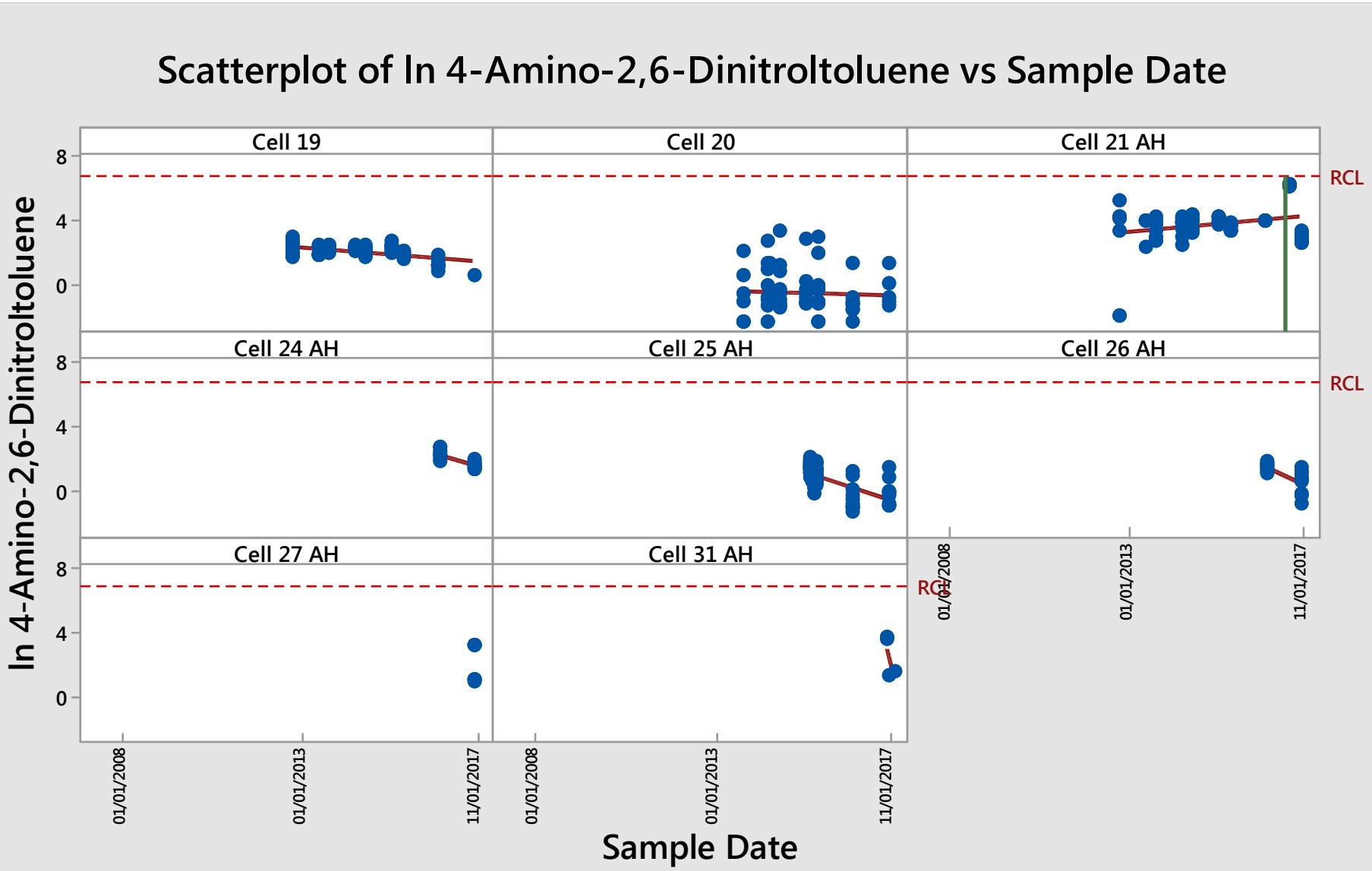
The natural logarithm of the RCL (897 mg/kg) is shown

Vertical green line indicates beginning of lime addition



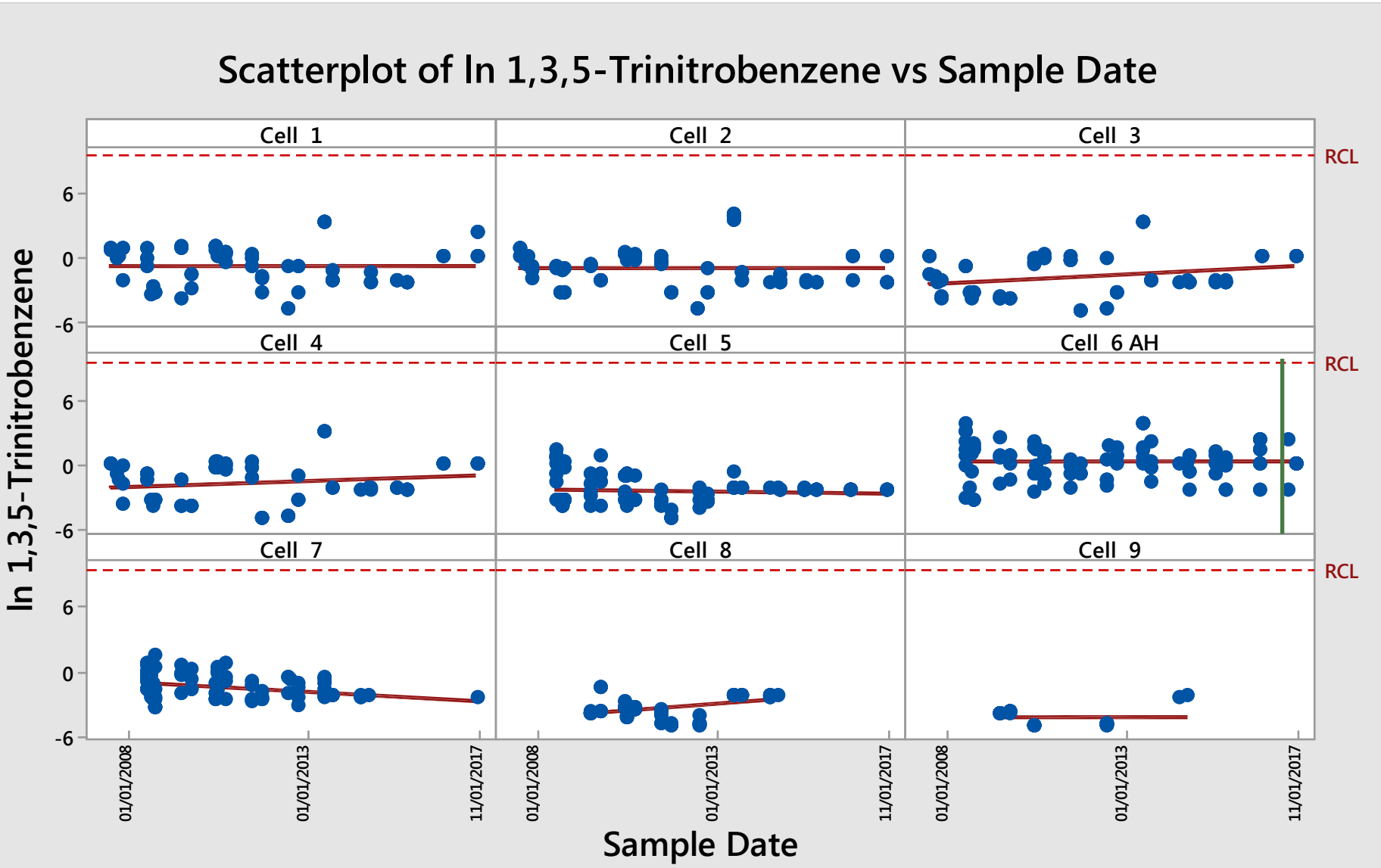
The natural logarithm of the RCL (897 mg/kg) is shown

Vertical green line indicates beginning of lime addition



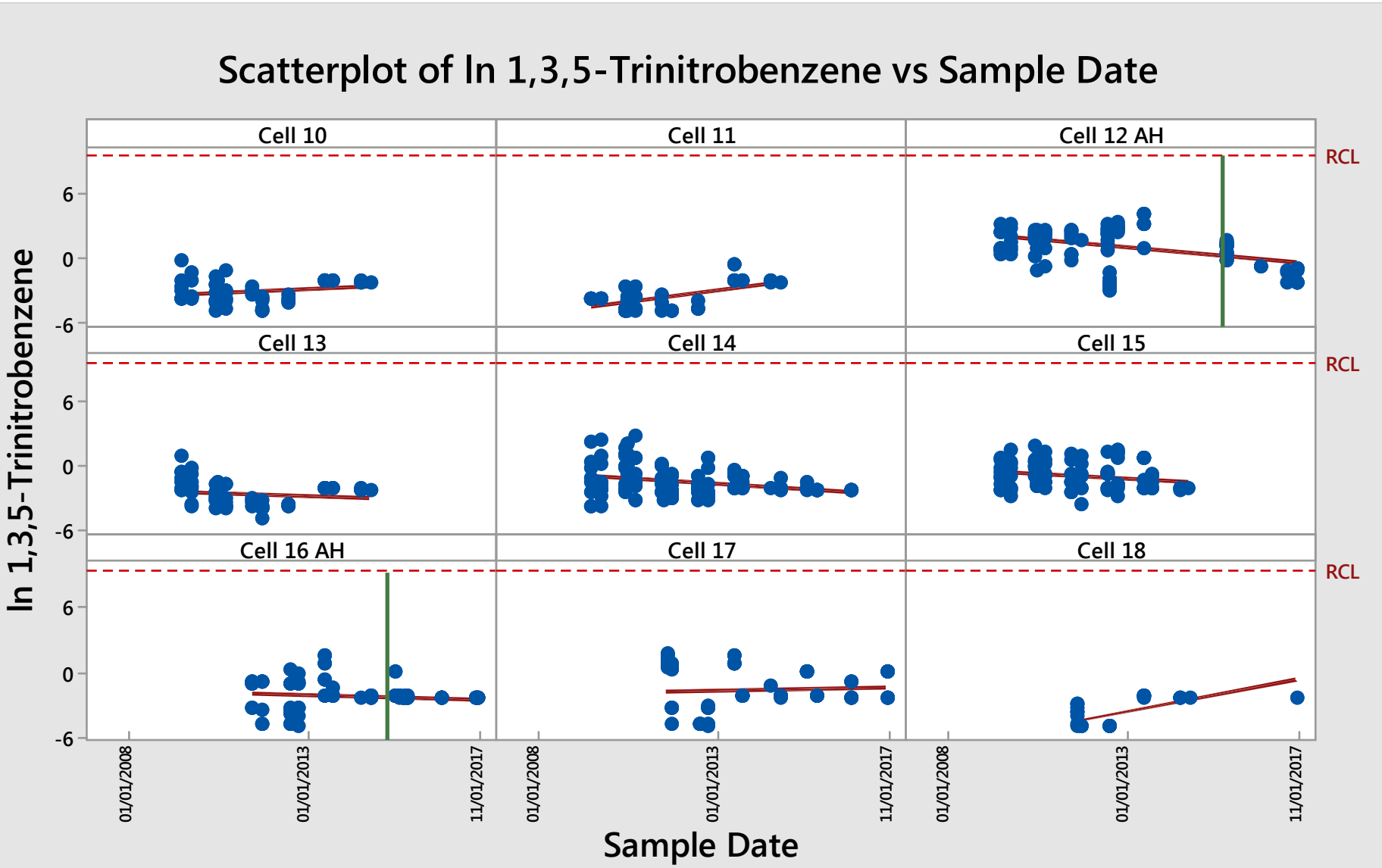
The natural logarithm of the RCL (897 mg/kg) is shown

Vertical green line indicates beginning of lime addition



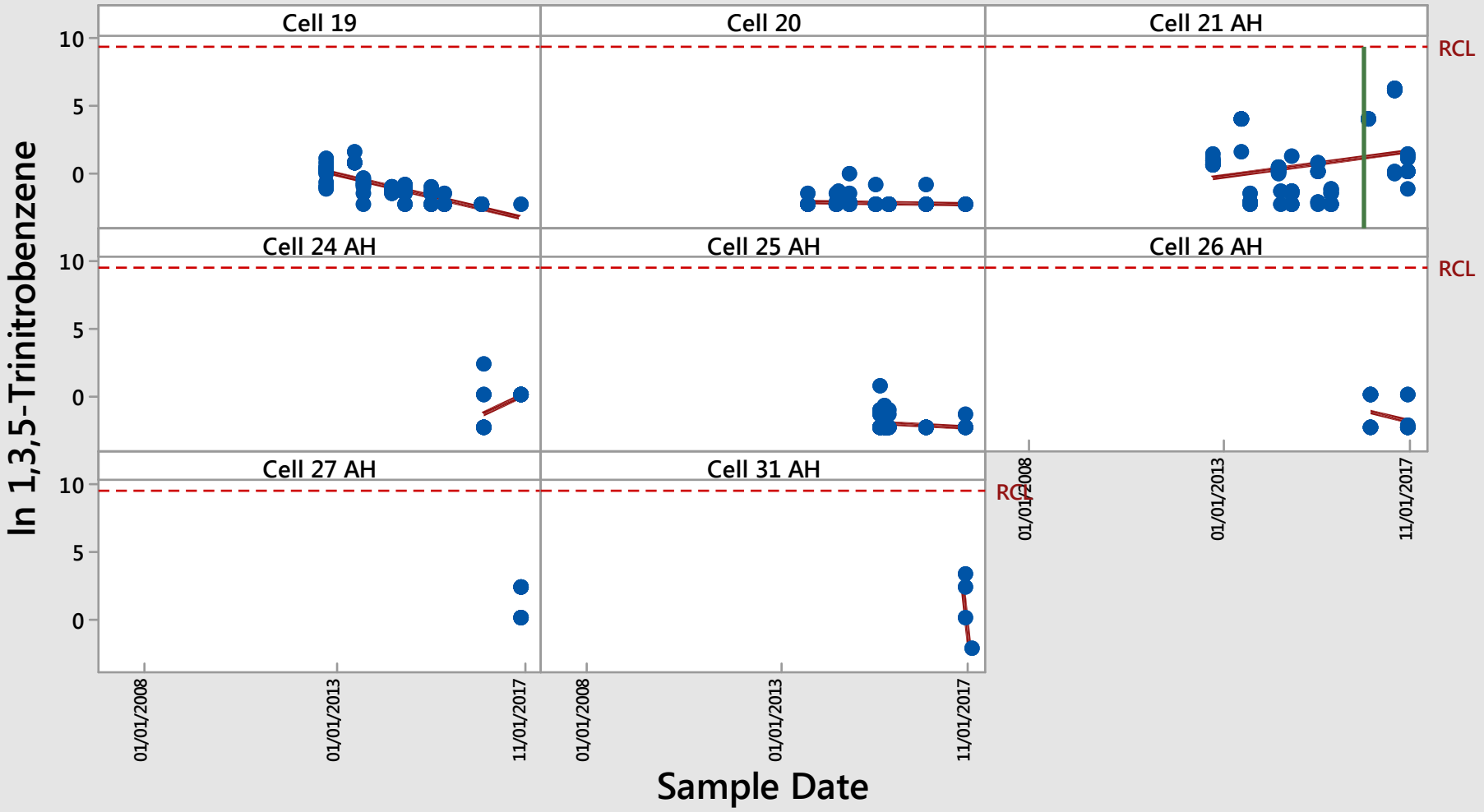
The natural logarithm of the RCL (13100 mg/kg) is shown

Vertical green line indicates beginning of lime addition



The natural logarithm of the RCL (13100 mg/kg) is shown

Vertical green line indicates beginning of lime addition



The natural logarithm of the RCL (13100 mg/kg) is shown

Vertical green line indicates beginning of lime addition

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Madison, WI 53718
608.221.8700 Phone
608.221.4889 Fax

June 12, 2018

Sharon Nordstrom
AECOM
4051 Ogletown Road
Newark, DE 19713

RE: Bio Pilot Lime Addition

Enclosed are the analytical results for the samples received by the laboratory on 06/08/2018.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. These results are in compliance with the 2009 NELAC Standards and the appropriate agencies listed below, unless otherwise noted in the case narrative. This analytical report should be reproduced in its entirety.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jessica Esser

Project Manager

Certification List			Expires
ADEQ	Arkansas Department of Environmental Quality	17-065-0	09/26/2018
DODELAP	DOD ELAP Accreditation (A2LA)	3269.01	03/31/2019
ILEPA	Illinois Secondary NELAP Accreditation	004366	04/30/2019
KDHE	Kansas Secondary NELAP Accreditation	E-10384	04/30/2019
LELAP	Louisiana Primary NELAP Accreditation	04165	06/30/2018
NCDEQ	North Carolina Dept. of Environmental Quality Accreditation	688	12/31/2018
NJDEP	New Jersey Secondary NELAP Accreditation	WI004	06/30/2018
ODEQ	Oklahoma Department of Environmental Quality Accreditation	2017-154	08/31/2018
TCEQ	Texas Secondary NELAP Accreditation	T104704504-16-7	11/30/2018
WDNR	Wisconsin Certification under NR 149	113289110	08/31/2018

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608.221.4889 Fax

AECOM
4051 Ogletown Road
Newark DE, 19713

Project: Bio Pilot Lime Addition
Project Number: 60525839
Project Manager: Sharon Nordstrom

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BPSB-180607-C06 AH	A182316-01	Soil	06/07/2018	06/08/2018
BPSB-180607-C12 AH	A182316-02	Soil	06/07/2018	06/08/2018
BPSB-180607-C16 AH	A182316-03	Soil	06/07/2018	06/08/2018
BPSB-180607-C21 AH	A182316-04	Soil	06/07/2018	06/08/2018
BPSB-180607-C24 AH	A182316-05	Soil	06/07/2018	06/08/2018
BPSB-180607-C25 AH	A182316-06	Soil	06/07/2018	06/08/2018
BPSB-180607-C26 AH	A182316-07	Soil	06/07/2018	06/08/2018
BPSB-180607-C27 AH	A182316-08	Soil	06/07/2018	06/08/2018
BPSB-180607-C31 AH	A182316-09	Soil	06/07/2018	06/08/2018

CASE NARRATIVE

Sample Receipt Information:
9 samples were received on 06/08/2018. Samples were received at 1.6 degrees Celsius. Samples were received in acceptable condition.

Please see the chain of custody (COC) document at the end of this report for additional information.

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AECOM	Project: Bio Pilot Lime Addition
4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

BPSB-180607-C06 AH

A182316-01 (Soil)

Date Sampled
06/07/2018 08:40

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Pace Analytical - Madison								
pH by EPA Method 9045					**Preparation Batch: A806172**			
pH	**8.58**		pH Units	1	06/12/2018	06/12/2018 13:29	EPA 9045D	
Classical Chemistry Parameters					**Preparation Batch: A806173**			
% Moisture	**35.8**	0.00	% by Weight	1	06/12/2018	06/12/2018 17:00	SM 2540B	

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AECOM	Project: Bio Pilot Lime Addition
4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

BPSB-180607-C12 AH

A182316-02 (Soil)

Date Sampled
06/07/2018 09:00

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Pace Analytical - Madison								
pH by EPA Method 9045					**Preparation Batch: A806172**			
pH	**11.7**		pH Units	1	06/12/2018	06/12/2018 13:29	EPA 9045D	
Classical Chemistry Parameters					**Preparation Batch: A806173**			
% Moisture	**26.5**	0.00	% by Weight	1	06/12/2018	06/12/2018 17:00	SM 2540B	

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AECOM	Project: Bio Pilot Lime Addition
4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

BPSB-180607-C16 AH

A182316-03 (Soil)

Date Sampled
06/07/2018 09:50

Pace Analytical - Madison

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
pH by EPA Method 9045						**Preparation Batch: A806172**		
pH	**8.42**		pH Units	1	06/12/2018	06/12/2018 13:29	EPA 9045D	
Classical Chemistry Parameters						**Preparation Batch: A806173**		
% Moisture	**34.0**	0.00	% by Weight	1	06/12/2018	06/12/2018 17:00	SM 2540B	

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AECOM	Project: Bio Pilot Lime Addition
4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

BPSB-180607-C21 AH

A182316-04 (Soil)

Date Sampled
06/07/2018 09:40

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Pace Analytical - Madison								
pH by EPA Method 9045						**Preparation Batch: A806172**		
pH	**13.1**		pH Units	1	06/12/2018	06/12/2018 13:29	EPA 9045D	
Classical Chemistry Parameters						**Preparation Batch: A806173**		
% Moisture	**15.3**	0.00	% by Weight	1	06/12/2018	06/12/2018 17:00	SM 2540B	

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AECOM	Project: Bio Pilot Lime Addition
4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

BPSB-180607-C24 AH

A182316-05 (Soil)

Date Sampled
06/07/2018 09:20

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Pace Analytical - Madison								
pH by EPA Method 9045					**Preparation Batch: A806172**			
pH	**13.1**		pH Units	1	06/12/2018	06/12/2018 13:29	EPA 9045D	
Classical Chemistry Parameters					**Preparation Batch: A806173**			
% Moisture	**24.3**	0.00	% by Weight	1	06/12/2018	06/12/2018 17:00	SM 2540B	

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Madison, WI 53718
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AECOM	Project: Bio Pilot Lime Addition
4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

BPSB-180607-C25 AH

A182316-06 (Soil)

Date Sampled
06/07/2018 09:25

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Pace Analytical - Madison								
pH by EPA Method 9045					**Preparation Batch: A806172**			
pH	**11.6**		pH Units	1	06/12/2018	06/12/2018 13:29	EPA 9045D	
Classical Chemistry Parameters					**Preparation Batch: A806173**			
% Moisture	**16.9**	0.00	% by Weight	1	06/12/2018	06/12/2018 17:00	SM 2540B	

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AECOM	Project: Bio Pilot Lime Addition
4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

BPSB-180607-C26 AH

A182316-07 (Soil)

Date Sampled
06/07/2018 09:30

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Pace Analytical - Madison								
pH by EPA Method 9045					**Preparation Batch: A806172**			
pH	**12.8**		pH Units	1	06/12/2018	06/12/2018 13:29	EPA 9045D	
Classical Chemistry Parameters					**Preparation Batch: A806173**			
% Moisture	**29.4**	0.00	% by Weight	1	06/12/2018	06/12/2018 17:00	SM 2540B	

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AECOM	Project: Bio Pilot Lime Addition
4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

BPSB-180607-C27 AH

A182316-08 (Soil)

Date Sampled
06/07/2018 09:35

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Pace Analytical - Madison								
pH by EPA Method 9045					**Preparation Batch: A806172**			
pH	**12.8**		pH Units	1	06/12/2018	06/12/2018 13:29	EPA 9045D	
Classical Chemistry Parameters					**Preparation Batch: A806173**			
% Moisture	**28.5**	0.00	% by Weight	1	06/12/2018	06/12/2018 17:00	SM 2540B	

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Newark DE, 19713	Project Manager: Sharon Nordstrom

BPSB-180607-C31 AH

A182316-09 (Soil)

Date Sampled
06/07/2018 10:05

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Pace Analytical - Madison								
pH by EPA Method 9045					**Preparation Batch: A806172**			
pH	**13.0**		pH Units	1	06/12/2018	06/12/2018 13:29	EPA 9045D	
Classical Chemistry Parameters					**Preparation Batch: A806173**			
% Moisture	**37.9**	0.00	% by Weight	1	06/12/2018	06/12/2018 17:00	SM 2540B	

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Newark DE, 19713	Project Manager: Sharon Nordstrom

pH by EPA Method 9045 - Quality Control

Pace Analytical - Madison

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch A806172 - Default Prep GenChem										
Duplicate (A806172-DUP1)		**Source: A182311-01**		Prepared: 06/12/2018 Analyzed: 06/12/2018 13:29						
pH	8.14		pH Units		8.11			0.369	20	

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4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

Classical Chemistry Parameters - Quality Control

Pace Analytical - Madison

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch A806173 - % Solids										
Duplicate (A806173-DUP1)		**Source: A182316-09**		Prepared: 06/12/2018 Analyzed: 06/12/2018 17:00						
% Moisture	35.5	0.00	% by Weight		37.9			6.40	20	

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4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. If the word 'dry' does not appear after the units, results are reported on an as-is basis.
RPD	Relative Percent Difference

Environmental Chemistry Consulting Services, Inc.
2525 Advance Road
Madison, WI 53718
608-221-8700 (phone)
608-221-4889 (fax)

CHAIN OF CUSTODY

Lab Work Order #: A182316

Project Number: 60525839 (AECom) / 507911 (Chemours)
Project Name: Bio Pilot Lime addition
Project Location: Barksdale, WI
Turn Around (circle one): (Normal) Rush
If Rush, Report Due Date:
Sampled By (Print): Nick Shockey, Wesley Leksell

Mail Report To: Sharon Nordstrom
Company: AECom
Address:
E-mail Address:
Invoice To:
Company:
Address:

Analyses Requested / Preservation Codes

Sample Description	Collection Date	Collection Time	Matrix	Total # of Containers	pH	% moist					Comments	Lab ID	Lab Receipt Time
BPSB-180607-C06 AH	6/7/18	0840	S	1	X	X						01	
BPSB-180607-C12 AH		0900	S	1	X	X						02	
BPSB-180607-C16 AH		0950	S	1	X	X						03	
BPSB-180607-C21 AH		0940	S	1	X	X						04	
BPSB-180607-C24 AH		0920	S	1	X	X						05	
BPSB-180607-C25 AH		0925	S	1	X	X						06	
BPSB-180607-C26 AH		0930	S	1	X	X						07	
BPSB-180607-C27 AH		0935	S	1	X	X						08	
BPSB-180607-C31 AH	↓	1005	S	1	X	X						09	

Preservation Codes
A=None B=HCL C=H_2SO_4
D=HNO_3 E=EnCore F=Methanol
G=NaOH O=Other (Indicate)

Relinquished By: [signature] Date: 6/7/18 Time: 12:00
Relinquished By: Date: Time:

Received By: [signature] Date: 06/08/18 Time: 11:20
Received By: Date: Time:

Matrix Codes
A=Air S=Soil W=Water O=Other

Custody Seal: (Present) Absent (Intact) Not Intact Seal #'s
Shipped Via: FED-EX

Receipt Temp: 1.6 °C SN: ~~160-10~~ 6.18 160142274
Temp Blank (Y) N EXP: 07/12/18

Download this form at www.eccsmobilelab.com.

WHITE - REPORT COPY YELLOW - LABORATORY COPY PINK - SAMPLER/SUBMITTER

Rev. 11/08

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June 12, 2018

Sharon Nordstrom
AECOM
4051 Ogletown Road
Newark, DE 19713

RE: Bio Pilot Lime Addition

Enclosed are the analytical results for the samples received by the laboratory on 06/08/2018.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. These results are in compliance with the 2009 NELAC Standards and the appropriate agencies listed below, unless otherwise noted in the case narrative. This analytical report should be reproduced in its entirety.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jessica Esser

Project Manager

Certification List			Expires
ADEQ	Arkansas Department of Environmental Quality	17-065-0	09/26/2018
DODELAP	DOD ELAP Accreditation (A2LA)	3269.01	03/31/2019
ILEPA	Illinois Secondary NELAP Accreditation	004366	04/30/2019
KDHE	Kansas Secondary NELAP Accreditation	E-10384	04/30/2019
LELAP	Louisiana Primary NELAP Accreditation	04165	06/30/2018
NCDEQ	North Carolina Dept. of Environmental Quality Accreditation	688	12/31/2018
NJDEP	New Jersey Secondary NELAP Accreditation	WI004	06/30/2018
ODEQ	Oklahoma Department of Environmental Quality Accreditation	2017-154	08/31/2018
TCEQ	Texas Secondary NELAP Accreditation	T104704504-16-7	11/30/2018
WDNR	Wisconsin Certification under NR 149	113289110	08/31/2018

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AECOM	Project: Bio Pilot Lime Addition
4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BPSB-180607-C31AH-A	A182317-01	Soil	06/07/2018	06/08/2018
BPSB-180607-C31AH-B	A182317-02	Soil	06/07/2018	06/08/2018

CASE NARRATIVE

Sample Receipt Information:
2 samples were received on 06/08/2018. Samples were received at 1.6 degrees Celsius. Samples were received in acceptable condition.

Please see the chain of custody (COC) document at the end of this report for additional information.

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4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

BPSB-180607-C31AH-A

A182317-01 (Soil)

Date Sampled
06/07/2018 10:45

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Pace Analytical - Madison								
Explosive Compounds by EPA Method 8270					**Preparation Batch: A806164**			
1,2-Dimethyl-3,4-Dinitrobenzene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:04	EPA 8270D	
1,2-Dimethyl-3,5-Dinitrobenzene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:04	EPA 8270D	
1,2-Dimethyl-3,6-Dinitrobenzene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:04	EPA 8270D	
1,2-Dimethyl-4,5-Dinitrobenzene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:04	EPA 8270D	
1,3,5-Trinitrobenzene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:04	EPA 8270D	
1,3-Dimethyl-2,4-Dinitrobenzene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:04	EPA 8270D	
1,3-Dimethyl-2,5-Dinitrobenzene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:04	EPA 8270D	
1,3-Dinitrobenzene	**450**	210	ug/kg dry	1	06/10/2018	06/10/2018 21:04	EPA 8270D	
1,4-Dimethyl-2,3-Dinitrobenzene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:04	EPA 8270D	
1,4-Dimethyl-2,5-Dinitrobenzene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:04	EPA 8270D	
1,4-Dimethyl-2,6-Dinitrobenzene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:04	EPA 8270D	
1,5-Dimethyl-2,3-Dinitrobenzene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:04	EPA 8270D	
1,5-Dimethyl-2,4-Dinitrobenzene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:04	EPA 8270D	
2,3-Dinitrotoluene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:04	EPA 8270D	
2,4,6-Trinitrotoluene	**170000**	4100	ug/kg dry	20	06/10/2018	06/12/2018 11:27	EPA 8270D	D
2,4-Dinitrotoluene	**1400**	210	ug/kg dry	1	06/10/2018	06/10/2018 21:04	EPA 8270D	
2,5-Dinitrotoluene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:04	EPA 8270D	
2,6-Dinitrotoluene	**220**	210	ug/kg dry	1	06/10/2018	06/10/2018 21:04	EPA 8270D	
2-Amino-4,6-dinitrotoluene	**570**	210	ug/kg dry	1	06/10/2018	06/10/2018 21:04	EPA 8270D	
2-Nitrotoluene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:04	EPA 8270D	
3,4-Dinitrotoluene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:04	EPA 8270D	
3,5-Dinitroaniline	**430**	210	ug/kg dry	1	06/10/2018	06/10/2018 21:04	EPA 8270D	
3,5-Dinitrotoluene	**230**	210	ug/kg dry	1	06/10/2018	06/10/2018 21:04	EPA 8270D	
3-Nitrotoluene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:04	EPA 8270D	
4-Amino-2,6-dinitrotoluene	**3100**	210	ug/kg dry	1	06/10/2018	06/10/2018 21:04	EPA 8270D	
4-Nitrotoluene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:04	EPA 8270D	
Nitrobenzene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:04	EPA 8270D	
1,3,5-Trinitro-2,4-dimethylbenzene	**2100**	210	ug/kg dry	1	06/10/2018	06/10/2018 21:04	EPA 8270D	
Surrogate: 2,2'-Dinitrobiphenyl		*100 %*		*20.1-133*	*06/10/2018*	*06/10/2018 21:04*	*EPA 8270D*	
Surrogate: Nitrobenzene-d5		*87.8 %*		*65.8-124*	*06/10/2018*	*06/10/2018 21:04*	*EPA 8270D*	
Classical Chemistry Parameters					**Preparation Batch: A806165**			
% Solids	**97.0**	0.00	% by Weight	1	06/10/2018	06/12/2018 08:31	SM 2540B	

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AECOM	Project: Bio Pilot Lime Addition
4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

BPSB-180607-C31AH-B

A182317-02 (Soil)

Date Sampled
06/07/2018 10:05

Pace Analytical - Madison

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Explosive Compounds by EPA Method 8270					**Preparation Batch: A806164**			
1,2-Dimethyl-3,4-Dinitrobenzene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:55	EPA 8270D	
1,2-Dimethyl-3,5-Dinitrobenzene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:55	EPA 8270D	
1,2-Dimethyl-3,6-Dinitrobenzene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:55	EPA 8270D	
1,2-Dimethyl-4,5-Dinitrobenzene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:55	EPA 8270D	
1,3,5-Trinitrobenzene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:55	EPA 8270D	M
1,3-Dimethyl-2,4-Dinitrobenzene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:55	EPA 8270D	
1,3-Dimethyl-2,5-Dinitrobenzene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:55	EPA 8270D	
1,3-Dinitrobenzene	**260**	210	ug/kg dry	1	06/10/2018	06/10/2018 21:55	EPA 8270D	
1,4-Dimethyl-2,3-Dinitrobenzene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:55	EPA 8270D	
1,4-Dimethyl-2,5-Dinitrobenzene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:55	EPA 8270D	
1,4-Dimethyl-2,6-Dinitrobenzene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:55	EPA 8270D	
1,5-Dimethyl-2,3-Dinitrobenzene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:55	EPA 8270D	
1,5-Dimethyl-2,4-Dinitrobenzene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:55	EPA 8270D	
2,3-Dinitrotoluene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:55	EPA 8270D	
2,4,6-Trinitrotoluene	**98000**	4100	ug/kg dry	20	06/10/2018	06/10/2018 22:21	EPA 8270D	M1, D
2,4-Dinitrotoluene	**270**	210	ug/kg dry	1	06/10/2018	06/10/2018 21:55	EPA 8270D	
2,5-Dinitrotoluene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:55	EPA 8270D	
2,6-Dinitrotoluene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:55	EPA 8270D	
2-Amino-4,6-dinitrotoluene	**330**	210	ug/kg dry	1	06/10/2018	06/10/2018 21:55	EPA 8270D	
2-Nitrotoluene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:55	EPA 8270D	
3,4-Dinitrotoluene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:55	EPA 8270D	
3,5-Dinitroaniline	**290**	210	ug/kg dry	1	06/10/2018	06/10/2018 21:55	EPA 8270D	
3,5-Dinitrotoluene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:55	EPA 8270D	
3-Nitrotoluene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:55	EPA 8270D	
4-Amino-2,6-dinitrotoluene	**1300**	210	ug/kg dry	1	06/10/2018	06/10/2018 21:55	EPA 8270D	
4-Nitrotoluene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:55	EPA 8270D	
Nitrobenzene	ND	210	ug/kg dry	1	06/10/2018	06/10/2018 21:55	EPA 8270D	
1,3,5-Trinitro-2,4-dimethylbenzene	**570**	210	ug/kg dry	1	06/10/2018	06/10/2018 21:55	EPA 8270D	
Surrogate: 2,2'-Dinitrobiphenyl		*87.5 %*		*20.1-133*	*06/10/2018*	*06/10/2018 21:55*	*EPA 8270D*	
Surrogate: Nitrobenzene-d5		*91.8 %*		*65.8-124*	*06/10/2018*	*06/10/2018 21:55*	*EPA 8270D*	
Classical Chemistry Parameters					**Preparation Batch: A806165**			
% Solids	**97.0**	0.00	% by Weight	1	06/10/2018	06/12/2018 08:31	SM 2540B	

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AECOM
4051 Ogletown Road
Newark DE, 19713

Project: Bio Pilot Lime Addition
Project Number: 60525839
Project Manager: Sharon Nordstrom

Explosive Compounds by EPA Method 8270 - Quality Control

Pace Analytical - Madison

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch A806164 - EPA 3570										
Blank (A806164-BLK1)				Prepared: 06/10/2018 Analyzed: 06/10/2018 20:38						
1,2-Dimethyl-3,4-Dinitrobenzene	ND	200	ug/kg wet							
1,2-Dimethyl-3,5-Dinitrobenzene	ND	200	ug/kg wet							
1,2-Dimethyl-3,6-Dinitrobenzene	ND	200	ug/kg wet							
1,2-Dimethyl-4,5-Dinitrobenzene	ND	200	ug/kg wet							
1,3,5-Trinitrobenzene	ND	200	ug/kg wet							
1,3-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg wet							
1,3-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg wet							
1,3-Dinitrobenzene	ND	200	ug/kg wet							
1,4-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg wet							
1,4-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg wet							
1,4-Dimethyl-2,6-Dinitrobenzene	ND	200	ug/kg wet							
1,5-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg wet							
1,5-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg wet							
2,3-Dinitrotoluene	ND	200	ug/kg wet							
2,4,6-Trinitrotoluene	ND	200	ug/kg wet							
2,4-Dinitrotoluene	ND	200	ug/kg wet							
2,5-Dinitrotoluene	ND	200	ug/kg wet							
2,6-Dinitrotoluene	ND	200	ug/kg wet							
2-Amino-4,6-dinitrotoluene	ND	200	ug/kg wet							
2-Nitrotoluene	ND	200	ug/kg wet							
3,4-Dinitrotoluene	ND	200	ug/kg wet							
3,5-Dinitroaniline	ND	200	ug/kg wet							
3,5-Dinitrotoluene	ND	200	ug/kg wet							
3-Nitrotoluene	ND	200	ug/kg wet							
4-Amino-2,6-dinitrotoluene	ND	200	ug/kg wet							
4-Nitrotoluene	ND	200	ug/kg wet							
Nitrobenzene	ND	200	ug/kg wet							
1,3,5-Trinitro-2,4-dimethylbenzene	ND	200	ug/kg wet							
Surrogate: 2,2'-Dinitrobiphenyl	*918*		*ug/kg wet*	*2000*		*45.9*	*20.1-133*			
Surrogate: Nitrobenzene-d5	*1760*		*ug/kg wet*	*2000*		*87.9*	*65.8-124*			
LCS (A806164-BS1)				Prepared: 06/10/2018 Analyzed: 06/10/2018 18:55						
1,2-Dimethyl-3,4-Dinitrobenzene	1810	200	ug/kg wet	2038		88.6	67.7-122			
1,2-Dimethyl-3,5-Dinitrobenzene	1740	200	ug/kg wet	2000		86.9	63.6-123			
1,2-Dimethyl-3,6-Dinitrobenzene	1860	200	ug/kg wet	2000		93.0	73.6-119			
1,2-Dimethyl-4,5-Dinitrobenzene	1770	200	ug/kg wet	2002		88.6	54.5-133			
1,3,5-Trinitrobenzene	1460	200	ug/kg wet	2000		73.0	42.9-131			
1,3-Dimethyl-2,4-Dinitrobenzene	1630	200	ug/kg wet	2000		81.4	67.6-118			
1,3-Dimethyl-2,5-Dinitrobenzene	1770	200	ug/kg wet	2000		88.4	73.6-118			
1,3-Dinitrobenzene	1520	200	ug/kg wet	2000		76.2	51.5-130			
1,4-Dimethyl-2,3-Dinitrobenzene	1830	200	ug/kg wet	2082		87.7	70-117			
1,4-Dimethyl-2,5-Dinitrobenzene	1750	200	ug/kg wet	2096		83.3	68.9-116			
1,4-Dimethyl-2,6-Dinitrobenzene	1660	200	ug/kg wet	2065		80.6	66.5-119			
1,5-Dimethyl-2,3-Dinitrobenzene	1800	200	ug/kg wet	2000		89.8	66.2-121			
1,5-Dimethyl-2,4-Dinitrobenzene	1770	200	ug/kg wet	2058		86.1	68-120			
2,4,6-Trinitrotoluene	1810	200	ug/kg wet	2000		90.5	41-153			

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AECOM
4051 Ogletown Road
Newark DE, 19713

Project: Bio Pilot Lime Addition
Project Number: 60525839
Project Manager: Sharon Nordstrom

Explosive Compounds by EPA Method 8270 - Quality Control

Pace Analytical - Madison

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch A806164 - EPA 3570										
LCS (A806164-BS1)				Prepared: 06/10/2018 Analyzed: 06/10/2018 18:55						
2,4-Dinitrotoluene	1720	200	ug/kg wet	2000		86.1	63-129			
2,6-Dinitrotoluene	1780	200	ug/kg wet	2000		89.1	72-118			
2-Amino-4,6-dinitrotoluene	1700	200	ug/kg wet	2000		84.9	59.5-121			
2-Nitrotoluene	1830	200	ug/kg wet	2000		91.4	70.7-121			
3,4-Dinitrotoluene	1690	200	ug/kg wet	2000		84.3	64.6-121			
3,5-Dinitroaniline	1630	200	ug/kg wet	2000		81.5	56.3-125			
3-Nitrotoluene	1800	200	ug/kg wet	2000		89.8	75-117			
4-Amino-2,6-dinitrotoluene	1500	200	ug/kg wet	2000		74.9	51.8-121			
4-Nitrotoluene	1810	200	ug/kg wet	2000		90.5	72.8-118			
Nitrobenzene	1830	200	ug/kg wet	2000		91.4	73.4-121			
Surrogate: 2,2´-Dinitrobiphenyl	*1680*		*ug/kg wet*	*2000*		*83.9*	*20.1-133*			
Surrogate: Nitrobenzene-d5	*1770*		*ug/kg wet*	*2000*		*88.5*	*65.8-124*			
Matrix Spike (A806164-MS1)	**Source: A182317-02**			Prepared: 06/10/2018 Analyzed: 06/10/2018 23:38						
1,2-Dimethyl-3,4-Dinitrobenzene	1620	210	ug/kg dry	2101	ND	76.9	59-128			
1,2-Dimethyl-3,5-Dinitrobenzene	1760	210	ug/kg dry	2061	ND	85.3	59.2-126			
1,2-Dimethyl-3,6-Dinitrobenzene	1880	210	ug/kg dry	2061	ND	91.4	70.5-121			
1,2-Dimethyl-4,5-Dinitrobenzene	1960	210	ug/kg dry	2063	ND	94.9	59.3-127			
1,3,5-Trinitrobenzene	318	210	ug/kg dry	2061	ND	15.4	18.3-151			M
1,3-Dimethyl-2,4-Dinitrobenzene	1710	210	ug/kg dry	2061	ND	82.7	62.5-124			
1,3-Dimethyl-2,5-Dinitrobenzene	1820	210	ug/kg dry	2061	ND	88.2	67.3-126			
1,3-Dinitrobenzene	1840	210	ug/kg dry	2061	263	76.6	40.1-137			
1,4-Dimethyl-2,3-Dinitrobenzene	1800	210	ug/kg dry	2146	ND	83.7	64.7-120			
1,4-Dimethyl-2,5-Dinitrobenzene	1800	210	ug/kg dry	2160	ND	83.4	65-122			
1,4-Dimethyl-2,6-Dinitrobenzene	1720	210	ug/kg dry	2128	ND	81.0	62.1-126			
1,5-Dimethyl-2,3-Dinitrobenzene	1720	210	ug/kg dry	2061	ND	83.2	63.9-117			
1,5-Dimethyl-2,4-Dinitrobenzene	1810	210	ug/kg dry	2121	ND	85.5	60.6-129			
2,4,6-Trinitrotoluene	201000	4100	ug/kg dry	2061	98200	NR	27.6-165			M1, D
2,4-Dinitrotoluene	2250	210	ug/kg dry	2061	266	96.1	54.4-131			
2,6-Dinitrotoluene	2000	210	ug/kg dry	2061	202	87.1	59.7-130			
2-Amino-4,6-dinitrotoluene	1970	210	ug/kg dry	2061	328	79.5	35.9-138			
2-Nitrotoluene	1950	210	ug/kg dry	2061	ND	94.7	79.6-112			
3,4-Dinitrotoluene	1760	210	ug/kg dry	2061	ND	85.5	56.5-130			
3,5-Dinitroaniline	1830	210	ug/kg dry	2061	293	74.5	37.1-141			
3-Nitrotoluene	1940	210	ug/kg dry	2061	ND	93.9	79.6-111			
4-Amino-2,6-dinitrotoluene	3240	210	ug/kg dry	2061	1300	94.2	30.9-140			
4-Nitrotoluene	1930	210	ug/kg dry	2061	ND	93.7	75.8-114			
Nitrobenzene	1940	210	ug/kg dry	2061	ND	94.1	77.3-115			
Surrogate: 2,2´-Dinitrobiphenyl	*1900*		*ug/kg dry*	*2061*		*92.3*	*20.1-133*			
Surrogate: Nitrobenzene-d5	*1900*		*ug/kg dry*	*2061*		*92.2*	*65.8-124*			
Matrix Spike Dup (A806164-MSD1)	**Source: A182317-02**			Prepared: 06/10/2018 Analyzed: 06/11/2018 00:29						
1,2-Dimethyl-3,4-Dinitrobenzene	1650	210	ug/kg dry	2101	ND	78.6	59-128	2.22	20	
1,2-Dimethyl-3,5-Dinitrobenzene	1800	210	ug/kg dry	2061	ND	87.5	59.2-126	2.62	20	
1,2-Dimethyl-3,6-Dinitrobenzene	1890	210	ug/kg dry	2061	ND	91.7	70.5-121	0.327	20	
1,2-Dimethyl-4,5-Dinitrobenzene	2010	210	ug/kg dry	2063	ND	97.5	59.3-127	2.76	20	

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AECOM	Project: Bio Pilot Lime Addition
4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

Explosive Compounds by EPA Method 8270 - Quality Control

Pace Analytical - Madison

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch A806164 - EPA 3570										
Matrix Spike Dup (A806164-MSD1)	**Source: A182317-02**			Prepared: 06/10/2018 Analyzed: 06/11/2018 00:29						
1,3,5-Trinitrobenzene	303	210	ug/kg dry	2061	ND	14.7	18.3-151	4.72	20	M
1,3-Dimethyl-2,4-Dinitrobenzene	1720	210	ug/kg dry	2061	ND	83.6	62.5-124	0.978	20	
1,3-Dimethyl-2,5-Dinitrobenzene	1830	210	ug/kg dry	2061	ND	89.0	67.3-126	0.832	20	
1,3-Dinitrobenzene	1780	210	ug/kg dry	2061	263	73.4	40.1-137	3.58	20	
1,4-Dimethyl-2,3-Dinitrobenzene	1820	210	ug/kg dry	2146	ND	84.8	64.7-120	1.25	20	
1,4-Dimethyl-2,5-Dinitrobenzene	1810	210	ug/kg dry	2160	ND	83.8	65-122	0.451	20	
1,4-Dimethyl-2,6-Dinitrobenzene	1750	210	ug/kg dry	2128	ND	82.0	62.1-126	1.19	20	
1,5-Dimethyl-2,3-Dinitrobenzene	1760	210	ug/kg dry	2061	ND	85.5	63.9-117	2.62	20	
1,5-Dimethyl-2,4-Dinitrobenzene	1820	210	ug/kg dry	2121	ND	85.7	60.6-129	0.225	20	
2,4,6-Trinitrotoluene	161000	4100	ug/kg dry	2061	98200	NR	27.6-165	22.4	20	M1, D
2,4-Dinitrotoluene	2160	210	ug/kg dry	2061	266	91.6	54.4-131	4.19	20	
2,6-Dinitrotoluene	1950	210	ug/kg dry	2061	202	84.9	59.7-130	2.30	20	
2-Amino-4,6-dinitrotoluene	2080	210	ug/kg dry	2061	328	85.0	35.9-138	5.59	20	
2-Nitrotoluene	1920	210	ug/kg dry	2061	ND	93.2	79.6-112	1.63	20	
3,4-Dinitrotoluene	1720	210	ug/kg dry	2061	ND	83.7	56.5-130	2.21	20	
3,5-Dinitroaniline	1930	210	ug/kg dry	2061	293	79.3	37.1-141	5.22	20	
3-Nitrotoluene	1910	210	ug/kg dry	2061	ND	92.6	79.6-111	1.37	20	
4-Amino-2,6-dinitrotoluene	3340	210	ug/kg dry	2061	1300	98.8	30.9-140	2.93	20	
4-Nitrotoluene	1920	210	ug/kg dry	2061	ND	92.9	75.8-114	0.851	20	
Nitrobenzene	1910	210	ug/kg dry	2061	ND	92.6	77.3-115	1.60	20	
Surrogate: 2,2'-Dinitrobiphenyl	*1950*		*ug/kg dry*	*2061*		*94.4*	*20.1-133*			
Surrogate: Nitrobenzene-d5	*1880*		*ug/kg dry*	*2061*		*91.1*	*65.8-124*			

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4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

Classical Chemistry Parameters - Quality Control

Pace Analytical - Madison

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch A806165 - % Solids										
Duplicate (A806165-DUP1)		**Source: A182317-01**		Prepared: 06/10/2018 Analyzed: 06/12/2018 08:31						
% Solids	96.9	0.00	% by Weight		97.0			0.112	20	

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4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

Notes and Definitions

M1	Spike recoveries were not evaluated because of elevated levels of the spiked analyte in the parent sample.
M	The matrix spike and/or matrix spike duplicate recovery was outside of the laboratory control limits.
D	Data reported from a dilution
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. If the word 'dry' does not appear after the units, results are reported on an as-is basis.
RPD	Relative Percent Difference

Environmental Chemistry Consulting Services, Inc.
2525 Advance Road
Madison, WI 53718
608-221-8700 (phone)
608-221-4889 (fax)

CHAIN OF CUSTODY

Lab Work Order #: A182317

Project Number: 60525839 (AECOM)
Project Name: Bio Pilot Line Addition
Project Location: Barksdale, WI
Turn Around (circle one): (Normal) Rush
If Rush, Report Due Date:
Sampled By (Print): Nick Sherkey, Wesley Leksell

Analyses Requested
Preservation Codes

Mail Report To: Sharon Nordstrom
Company: AECOM
Address:
(302) 781-5936
E-mail Address:
Invoice To:
Company:
Address:

Sample Description	Collection Date	Collection Time	Matrix	Total # of Containers	MNOCs						Comments	Lab ID	Lab Receipt Time
BPSB-180607-C31-AH-A	6/7/2018	1045	S	1	X						+DUP/MS/MSD	01	
BPSB-180607-C31-AH-B	6/7/2018	1005	S	1	X						+DUP/MS/MSD	02	

Preservation Codes
A=None B=HCL C=H_2SO_4
D=HNO_3 E=EnCore F=Methanol
G=NaOH O=Other (Indicate)

Relinquished By: [signature] Date: 6/7/18 Time: 12:00
Relinquished By: Date: Time:

Received By: [signature] Date: 06/08/18 Time: 11:20
Received By: Date: Time:

Matrix Codes
A=Air S=Soil W=Water O=Other

Custody Seal: (Present)/Absent (Intact)/Not Intact Seal #'s
Shipped Via: FED-EX

Receipt Temp: 1.6°C SN: 160142274
Temp Blank (Y) N EXP: 07/12/18

Download this form at www.eccsmobilelab.com.

WHITE - REPORT COPY YELLOW - LABORATORY COPY PINK - SAMPLER/SUBMITTER

Rev. 11/08

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November 13, 2018

Sharon Nordstrom
AECOM
4051 Ogletown Road
Newark, DE 19713

RE: Bio Pilot Lime Addition

Enclosed are the analytical results for the samples received by the laboratory on 10/23/2018.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. These results are in compliance with the 2009 NELAC Standards and the appropriate agencies listed below, unless otherwise noted in the case narrative. This analytical report should be reproduced in its entirety.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jessica Esser

Project Manager

Certification List			Expires
DODELAP	DOD ELAP Accreditation (A2LA)	3269.01	03/31/2019
ILEPA	Illinois Secondary NELAP Accreditation	004366	04/30/2019
KDHE	Kansas Secondary NELAP Accreditation	E-10384	04/30/2019
LELAP	Louisiana Primary NELAP Accreditation	04165	06/30/2019
NCDEQ	North Carolina Dept. of Environmental Quality Accreditation	688	12/31/2018
NJDEP	New Jersey Secondary NELAP Accreditation	WI004	06/30/2019
ODEQ	Oklahoma Department of Environmental Quality Accreditation	2018-087	08/31/2019
TCEQ	Texas Secondary NELAP Accreditation	T104704504-16-7	11/30/2018
WDNR	Wisconsin Certification under NR 149	113289110	08/31/2019

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AECOM	Project: Bio Pilot Lime Addition
4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BPSB-181002-C28 AH	A184307-01	Soil	10/02/2018	10/23/2018
BPSB-181002-C21 AH	A184307-02	Soil	10/02/2018	10/23/2018
BPSB-181002-C27 AH	A184307-03	Soil	10/02/2018	10/23/2018
BPSB-181002-C25 AH	A184307-04	Soil	10/02/2018	10/23/2018
BPSB-181002-C24 AH	A184307-05	Soil	10/02/2018	10/23/2018
BPSB-181002-C26 AH	A184307-06	Soil	10/02/2018	10/23/2018
BPSB-181002-C17 AH	A184307-07	Soil	10/02/2018	10/23/2018
BPSB-181002-C06 AH	A184307-08	Soil	10/02/2018	10/23/2018
BPSB-181002-C12 AH	A184307-09	Soil	10/02/2018	10/23/2018
BPSB-181009-C31 AH North West	A184307-10	Soil	10/09/2018	10/23/2018
BPSB-181009-C31 AH South West	A184307-11	Soil	10/09/2018	10/23/2018
BPSB-181009-C31 AH North East	A184307-12	Soil	10/09/2018	10/23/2018
BPSB-181009-C31 AH South East	A184307-13	Soil	10/09/2018	10/23/2018
BPSB-181018-C33	A184307-16	Soil	10/18/2018	10/23/2018
BPSB-181018-C16 AH	A184307-17	Soil	10/18/2018	10/23/2018

CASE NARRATIVE

Sample Receipt Information:
17 samples were received on 10/23/2018. Samples were received at 2.4 degrees Celsius. Samples were received in acceptable condition.

Please see the chain of custody (COC) document at the end of this report for additional information.

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4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

BPSB-181002-C28 AH

A184307-01 (Soil)

Date Sampled
10/02/2018 11:25

Pace Analytical - Madison

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Explosive Compounds by EPA Method 8270					**Preparation Batch: A811228**			
1,2-Dimethyl-3,4-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 00:34	EPA 8270D	
1,2-Dimethyl-3,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 00:34	EPA 8270D	
1,2-Dimethyl-3,6-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 00:34	EPA 8270D	
1,2-Dimethyl-4,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 00:34	EPA 8270D	
1,3,5-Trinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 00:34	EPA 8270D	
1,3-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 00:34	EPA 8270D	
1,3-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 00:34	EPA 8270D	
1,3-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 00:34	EPA 8270D	
1,4-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 00:34	EPA 8270D	
1,4-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 00:34	EPA 8270D	
1,4-Dimethyl-2,6-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 00:34	EPA 8270D	
1,5-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 00:34	EPA 8270D	
1,5-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 00:34	EPA 8270D	
2,3-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 00:34	EPA 8270D	
2,4,6-Trinitrotoluene	**2900**	200	ug/kg dry	1	11/05/2018	11/06/2018 00:34	EPA 8270D	
2,4-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 00:34	EPA 8270D	
2,5-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 00:34	EPA 8270D	
2,6-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 00:34	EPA 8270D	
2-Amino-4,6-dinitrotoluene	**270**	200	ug/kg dry	1	11/05/2018	11/06/2018 00:34	EPA 8270D	
2-Nitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 00:34	EPA 8270D	
3,4-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 00:34	EPA 8270D	
3,5-Dinitroaniline	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 00:34	EPA 8270D	
3,5-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 00:34	EPA 8270D	
3-Nitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 00:34	EPA 8270D	
4-Amino-2,6-dinitrotoluene	**1000**	200	ug/kg dry	1	11/05/2018	11/06/2018 00:34	EPA 8270D	
4-Nitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 00:34	EPA 8270D	
Nitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 00:34	EPA 8270D	
1,3,5-Trinitro-2,4-dimethylbenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 00:34	EPA 8270D	
Surrogate: 2,2´-Dinitrobiphenyl		*79.2 %*		*20.1-133*	*11/05/2018*	*11/06/2018 00:34*	*EPA 8270D*	
Surrogate: Nitrobenzene-d5		*94.4 %*		*65.8-124*	*11/05/2018*	*11/06/2018 00:34*	*EPA 8270D*	
Classical Chemistry Parameters					**Preparation Batch: A810287**			
% Moisture	**25.3**	0.00	% by Weight	1	10/31/2018	11/01/2018 09:20	SM 2540B	
% Solids	**98.6**	0.00	% by Weight	1	11/02/2018	11/05/2018 10:04	SM 2540B	

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Newark DE, 19713	Project Manager: Sharon Nordstrom

BPSB-181002-C21 AH

A184307-02 (Soil)

Date Sampled
10/02/2018 11:35

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Pace Analytical - Madison								
Explosive Compounds by EPA Method 8270					**Preparation Batch: A811228**			
1,2-Dimethyl-3,4-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:00	EPA 8270D	
1,2-Dimethyl-3,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:00	EPA 8270D	
1,2-Dimethyl-3,6-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:00	EPA 8270D	
1,2-Dimethyl-4,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:00	EPA 8270D	
1,3,5-Trinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:00	EPA 8270D	
1,3-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:00	EPA 8270D	
1,3-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:00	EPA 8270D	
1,3-Dinitrobenzene	**200**	200	ug/kg dry	1	11/05/2018	11/06/2018 01:00	EPA 8270D	
1,4-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:00	EPA 8270D	
1,4-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:00	EPA 8270D	
1,4-Dimethyl-2,6-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:00	EPA 8270D	
1,5-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:00	EPA 8270D	
1,5-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:00	EPA 8270D	
2,3-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:00	EPA 8270D	
2,4,6-Trinitrotoluene	**170000**	2000	ug/kg dry	10	11/05/2018	11/06/2018 09:01	EPA 8270D	D
2,4-Dinitrotoluene	**270**	200	ug/kg dry	1	11/05/2018	11/06/2018 01:00	EPA 8270D	
2,5-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:00	EPA 8270D	
2,6-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:00	EPA 8270D	
2-Amino-4,6-dinitrotoluene	**2500**	200	ug/kg dry	1	11/05/2018	11/06/2018 01:00	EPA 8270D	
2-Nitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:00	EPA 8270D	
3,4-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:00	EPA 8270D	
3,5-Dinitroaniline	**320**	200	ug/kg dry	1	11/05/2018	11/06/2018 01:00	EPA 8270D	
3,5-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:00	EPA 8270D	
3-Nitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:00	EPA 8270D	
4-Amino-2,6-dinitrotoluene	**15000**	200	ug/kg dry	1	11/05/2018	11/06/2018 01:00	EPA 8270D	
4-Nitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:00	EPA 8270D	
Nitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:00	EPA 8270D	
1,3,5-Trinitro-2,4-dimethylbenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:00	EPA 8270D	
Surrogate: 2,2´-Dinitrobiphenyl		*101 %*		*20.1-133*	*11/05/2018*	*11/06/2018 01:00*	*EPA 8270D*	
Surrogate: Nitrobenzene-d5		*93.6 %*		*65.8-124*	*11/05/2018*	*11/06/2018 01:00*	*EPA 8270D*	
Classical Chemistry Parameters					**Preparation Batch: A810287**			
% Moisture	**16.9**	0.00	% by Weight	1	10/31/2018	11/01/2018 09:20	SM 2540B	
% Solids	**98.5**	0.00	% by Weight	1	11/02/2018	11/05/2018 10:04	SM 2540B	

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AECOM	Project: Bio Pilot Lime Addition
4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

BPSB-181002-C27 AH

A184307-03 (Soil)

Date Sampled
10/02/2018 11:45

Pace Analytical - Madison

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Explosive Compounds by EPA Method 8270					**Preparation Batch: A811228**			
1,2-Dimethyl-3,4-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:26	EPA 8270D	
1,2-Dimethyl-3,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:26	EPA 8270D	
1,2-Dimethyl-3,6-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:26	EPA 8270D	
1,2-Dimethyl-4,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:26	EPA 8270D	
1,3,5-Trinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:26	EPA 8270D	
1,3-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:26	EPA 8270D	
1,3-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:26	EPA 8270D	
1,3-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:26	EPA 8270D	
1,4-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:26	EPA 8270D	
1,4-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:26	EPA 8270D	
1,4-Dimethyl-2,6-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:26	EPA 8270D	
1,5-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:26	EPA 8270D	
1,5-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:26	EPA 8270D	
2,3-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:26	EPA 8270D	
2,4,6-Trinitrotoluene	**17000**	200	ug/kg dry	1	11/05/2018	11/06/2018 01:26	EPA 8270D	
2,4-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:26	EPA 8270D	
2,5-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:26	EPA 8270D	
2,6-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:26	EPA 8270D	
2-Amino-4,6-dinitrotoluene	**300**	200	ug/kg dry	1	11/05/2018	11/06/2018 01:26	EPA 8270D	
2-Nitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:26	EPA 8270D	
3,4-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:26	EPA 8270D	
3,5-Dinitroaniline	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:26	EPA 8270D	
3,5-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:26	EPA 8270D	
3-Nitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:26	EPA 8270D	
4-Amino-2,6-dinitrotoluene	**910**	200	ug/kg dry	1	11/05/2018	11/06/2018 01:26	EPA 8270D	
4-Nitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:26	EPA 8270D	
Nitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:26	EPA 8270D	
1,3,5-Trinitro-2,4-dimethylbenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 01:26	EPA 8270D	
Surrogate: 2,2'-Dinitrobiphenyl		*90.2 %*		*20.1-133*	*11/05/2018*	*11/06/2018 01:26*	*EPA 8270D*	
Surrogate: Nitrobenzene-d5		*93.1 %*		*65.8-124*	*11/05/2018*	*11/06/2018 01:26*	*EPA 8270D*	
Classical Chemistry Parameters					**Preparation Batch: A810287**			
% Moisture	**14.7**	0.00	% by Weight	1	10/31/2018	11/01/2018 09:20	SM 2540B	
% Solids	**99.1**	0.00	% by Weight	1	11/02/2018	11/05/2018 10:04	SM 2540B	

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Newark DE, 19713	Project Manager: Sharon Nordstrom

BPSB-181002-C25 AH

A184307-04 (Soil)

Date Sampled
10/02/2018 11:50

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Pace Analytical - Madison								
Explosive Compounds by EPA Method 8270					**Preparation Batch: A811228**			
1,2-Dimethyl-3,4-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:27	EPA 8270D	
1,2-Dimethyl-3,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:27	EPA 8270D	
1,2-Dimethyl-3,6-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:27	EPA 8270D	
1,2-Dimethyl-4,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:27	EPA 8270D	
1,3,5-Trinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:27	EPA 8270D	
1,3-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:27	EPA 8270D	
1,3-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:27	EPA 8270D	
1,3-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:27	EPA 8270D	
1,4-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:27	EPA 8270D	
1,4-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:27	EPA 8270D	
1,4-Dimethyl-2,6-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:27	EPA 8270D	
1,5-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:27	EPA 8270D	
1,5-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:27	EPA 8270D	
2,3-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:27	EPA 8270D	
2,4,6-Trinitrotoluene	**1200**	200	ug/kg dry	1	11/05/2018	11/06/2018 09:27	EPA 8270D	
2,4-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:27	EPA 8270D	
2,5-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:27	EPA 8270D	
2,6-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:27	EPA 8270D	
2-Amino-4,6-dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:27	EPA 8270D	
2-Nitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:27	EPA 8270D	
3,4-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:27	EPA 8270D	
3,5-Dinitroaniline	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:27	EPA 8270D	
3,5-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:27	EPA 8270D	
3-Nitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:27	EPA 8270D	
4-Amino-2,6-dinitrotoluene	**380**	200	ug/kg dry	1	11/05/2018	11/06/2018 09:27	EPA 8270D	
4-Nitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:27	EPA 8270D	
Nitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:27	EPA 8270D	
1,3,5-Trinitro-2,4-dimethylbenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:27	EPA 8270D	
Surrogate: 2,2'-Dinitrobiphenyl		*78.0 %*		*20.1-133*	*11/05/2018*	*11/06/2018 09:27*	*EPA 8270D*	
Surrogate: Nitrobenzene-d5		*78.3 %*		*65.8-124*	*11/05/2018*	*11/06/2018 09:27*	*EPA 8270D*	
Classical Chemistry Parameters					**Preparation Batch: A810287**			
% Moisture	**17.8**	0.00	% by Weight	1	10/31/2018	11/01/2018 09:20	SM 2540B	
% Solids	**98.8**	0.00	% by Weight	1	11/02/2018	11/05/2018 10:04	SM 2540B	

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Newark DE, 19713	Project Manager: Sharon Nordstrom

BPSB-181002-C24 AH

A184307-05 (Soil)

Date Sampled
10/02/2018 11:55

Pace Analytical - Madison

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Explosive Compounds by EPA Method 8270					**Preparation Batch: A811228**			
1,2-Dimethyl-3,4-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:53	EPA 8270D	
1,2-Dimethyl-3,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:53	EPA 8270D	
1,2-Dimethyl-3,6-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:53	EPA 8270D	
1,2-Dimethyl-4,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:53	EPA 8270D	
1,3,5-Trinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:53	EPA 8270D	
1,3-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:53	EPA 8270D	
1,3-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:53	EPA 8270D	
1,3-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:53	EPA 8270D	
1,4-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:53	EPA 8270D	
1,4-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:53	EPA 8270D	
1,4-Dimethyl-2,6-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:53	EPA 8270D	
1,5-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:53	EPA 8270D	
1,5-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:53	EPA 8270D	
2,3-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:53	EPA 8270D	
2,4,6-Trinitrotoluene	**250000**	20000	ug/kg dry	100	11/05/2018	11/07/2018 09:29	EPA 8270D	D
2,4-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:53	EPA 8270D	
2,5-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:53	EPA 8270D	
2,6-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:53	EPA 8270D	
2-Amino-4,6-dinitrotoluene	**1200**	200	ug/kg dry	1	11/05/2018	11/06/2018 09:53	EPA 8270D	
2-Nitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:53	EPA 8270D	
3,4-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:53	EPA 8270D	
3,5-Dinitroaniline	**430**	200	ug/kg dry	1	11/05/2018	11/06/2018 09:53	EPA 8270D	
3,5-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:53	EPA 8270D	
3-Nitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:53	EPA 8270D	
4-Amino-2,6-dinitrotoluene	**4700**	200	ug/kg dry	1	11/05/2018	11/06/2018 09:53	EPA 8270D	
4-Nitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:53	EPA 8270D	
Nitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:53	EPA 8270D	
1,3,5-Trinitro-2,4-dimethylbenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 09:53	EPA 8270D	
Surrogate: 2,2´-Dinitrobiphenyl		*86.8 %*		*20.1-133*	*11/05/2018*	*11/06/2018 09:53*	*EPA 8270D*	
Surrogate: Nitrobenzene-d5		*78.9 %*		*65.8-124*	*11/05/2018*	*11/06/2018 09:53*	*EPA 8270D*	
Classical Chemistry Parameters					**Preparation Batch: A810287**			
% Moisture	**18.7**	0.00	% by Weight	1	10/31/2018	11/01/2018 09:20	SM 2540B	
% Solids	**98.2**	0.00	% by Weight	1	11/02/2018	11/05/2018 10:04	SM 2540B	

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4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

BPSB-181002-C26 AH

A184307-06 (Soil)

Date Sampled
10/02/2018 12:00

Pace Analytical - Madison

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Explosive Compounds by EPA Method 8270					**Preparation Batch: A811228**			
1,2-Dimethyl-3,4-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:18	EPA 8270D	
1,2-Dimethyl-3,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:18	EPA 8270D	
1,2-Dimethyl-3,6-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:18	EPA 8270D	
1,2-Dimethyl-4,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:18	EPA 8270D	
1,3,5-Trinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:18	EPA 8270D	
1,3-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:18	EPA 8270D	
1,3-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:18	EPA 8270D	
1,3-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:18	EPA 8270D	
1,4-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:18	EPA 8270D	
1,4-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:18	EPA 8270D	
1,4-Dimethyl-2,6-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:18	EPA 8270D	
1,5-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:18	EPA 8270D	
1,5-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:18	EPA 8270D	
2,3-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:18	EPA 8270D	
2,4,6-Trinitrotoluene	**29000**	2000	ug/kg dry	10	11/05/2018	11/06/2018 17:12	EPA 8270D	D
2,4-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:18	EPA 8270D	
2,5-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:18	EPA 8270D	
2,6-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:18	EPA 8270D	
2-Amino-4,6-dinitrotoluene	**330**	200	ug/kg dry	1	11/05/2018	11/06/2018 10:18	EPA 8270D	
2-Nitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:18	EPA 8270D	
3,4-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:18	EPA 8270D	
3,5-Dinitroaniline	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:18	EPA 8270D	
3,5-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:18	EPA 8270D	
3-Nitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:18	EPA 8270D	
4-Amino-2,6-dinitrotoluene	**1400**	200	ug/kg dry	1	11/05/2018	11/06/2018 10:18	EPA 8270D	
4-Nitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:18	EPA 8270D	
Nitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:18	EPA 8270D	
1,3,5-Trinitro-2,4-dimethylbenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:18	EPA 8270D	
Surrogate: 2,2'-Dinitrobiphenyl		*77.6 %*		*20.1-133*	*11/05/2018*	*11/06/2018 10:18*	*EPA 8270D*	
Surrogate: Nitrobenzene-d5		*81.1 %*		*65.8-124*	*11/05/2018*	*11/06/2018 10:18*	*EPA 8270D*	
Classical Chemistry Parameters					**Preparation Batch: A810287**			
% Moisture	**18.4**	0.00	% by Weight	1	10/31/2018	11/01/2018 09:20	SM 2540B	
% Solids	**98.9**	0.00	% by Weight	1	11/02/2018	11/05/2018 10:04	SM 2540B	

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4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

BPSB-181002-C17 AH

A184307-07 (Soil)

Date Sampled
10/02/2018 12:15

Pace Analytical - Madison

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
pH by EPA Method 9045					**Preparation Batch: A811250**			
pH	**11.8**		pH Units	1	11/09/2018	11/09/2018 16:08	EPA 9045D	
Explosive Compounds by EPA Method 8270					**Preparation Batch: A811228**			
1,2-Dimethyl-3,4-Dinitrobenzene	**1000**	200	ug/kg dry	1	11/05/2018	11/06/2018 10:44	EPA 8270D	
1,2-Dimethyl-3,5-Dinitrobenzene	**520**	200	ug/kg dry	1	11/05/2018	11/06/2018 10:44	EPA 8270D	
1,2-Dimethyl-3,6-Dinitrobenzene	**250**	200	ug/kg dry	1	11/05/2018	11/06/2018 10:44	EPA 8270D	
1,2-Dimethyl-4,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:44	EPA 8270D	
1,3,5-Trinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:44	EPA 8270D	
1,3-Dimethyl-2,4-Dinitrobenzene	**5900**	200	ug/kg dry	1	11/05/2018	11/06/2018 10:44	EPA 8270D	
1,3-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:44	EPA 8270D	
1,3-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:44	EPA 8270D	
1,4-Dimethyl-2,3-Dinitrobenzene	**7200**	200	ug/kg dry	1	11/05/2018	11/06/2018 10:44	EPA 8270D	
1,4-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:44	EPA 8270D	
1,4-Dimethyl-2,6-Dinitrobenzene	**1900**	200	ug/kg dry	1	11/05/2018	11/06/2018 10:44	EPA 8270D	
1,5-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:44	EPA 8270D	
1,5-Dimethyl-2,4-Dinitrobenzene	**7700**	200	ug/kg dry	1	11/05/2018	11/06/2018 10:44	EPA 8270D	
2,3-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:44	EPA 8270D	
2,4,6-Trinitrotoluene	**290**	200	ug/kg dry	1	11/05/2018	11/06/2018 10:44	EPA 8270D	
2,4-Dinitrotoluene	**490**	200	ug/kg dry	1	11/05/2018	11/06/2018 10:44	EPA 8270D	
2,5-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:44	EPA 8270D	
2,6-Dinitrotoluene	**270**	200	ug/kg dry	1	11/05/2018	11/06/2018 10:44	EPA 8270D	
2-Amino-4,6-dinitrotoluene	**210**	200	ug/kg dry	1	11/05/2018	11/06/2018 10:44	EPA 8270D	
2-Nitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:44	EPA 8270D	
3,4-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:44	EPA 8270D	
3,5-Dinitroaniline	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:44	EPA 8270D	
3,5-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:44	EPA 8270D	
3-Nitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:44	EPA 8270D	
4-Amino-2,6-dinitrotoluene	**830**	200	ug/kg dry	1	11/05/2018	11/06/2018 10:44	EPA 8270D	
4-Nitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:44	EPA 8270D	
Nitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 10:44	EPA 8270D	
1,3,5-Trinitro-2,4-dimethylbenzene	**1500**	200	ug/kg dry	1	11/05/2018	11/06/2018 10:44	EPA 8270D	
Surrogate: 2,2'-Dinitrobiphenyl		*85.9 %*		*20.1-133*	*11/05/2018*	*11/06/2018 10:44*	*EPA 8270D*	
Surrogate: Nitrobenzene-d5		*79.0 %*		*65.8-124*	*11/05/2018*	*11/06/2018 10:44*	*EPA 8270D*	
Classical Chemistry Parameters					**Preparation Batch: A810287**			
% Moisture	**25.4**	0.00	% by Weight	1	10/31/2018	11/01/2018 09:20	SM 2540B	
% Solids	**98.0**	0.00	% by Weight	1	11/02/2018	11/05/2018 10:04	SM 2540B	

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4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

BPSB-181002-C06 AH

A184307-08 (Soil)

Date Sampled
10/02/2018 12:25

Pace Analytical - Madison

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Explosive Compounds by EPA Method 8270					**Preparation Batch: A811228**			
1,2-Dimethyl-3,4-Dinitrobenzene	**240**	200	ug/kg dry	1	11/05/2018	11/06/2018 11:10	EPA 8270D	
1,2-Dimethyl-3,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:10	EPA 8270D	
1,2-Dimethyl-3,6-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:10	EPA 8270D	
1,2-Dimethyl-4,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:10	EPA 8270D	
1,3,5-Trinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:10	EPA 8270D	
1,3-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:10	EPA 8270D	
1,3-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:10	EPA 8270D	
1,3-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:10	EPA 8270D	
1,4-Dimethyl-2,3-Dinitrobenzene	**300**	200	ug/kg dry	1	11/05/2018	11/06/2018 11:10	EPA 8270D	
1,4-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:10	EPA 8270D	
1,4-Dimethyl-2,6-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:10	EPA 8270D	
1,5-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:10	EPA 8270D	
1,5-Dimethyl-2,4-Dinitrobenzene	**740**	200	ug/kg dry	1	11/05/2018	11/06/2018 11:10	EPA 8270D	
2,3-Dinitrotoluene	**380**	200	ug/kg dry	1	11/05/2018	11/06/2018 11:10	EPA 8270D	
2,4,6-Trinitrotoluene	**33000**	2000	ug/kg dry	10	11/05/2018	11/06/2018 17:38	EPA 8270D	D
2,4-Dinitrotoluene	**2400**	200	ug/kg dry	1	11/05/2018	11/06/2018 11:10	EPA 8270D	
2,5-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:10	EPA 8270D	
2,6-Dinitrotoluene	**960**	200	ug/kg dry	1	11/05/2018	11/06/2018 11:10	EPA 8270D	
2-Amino-4,6-dinitrotoluene	**1200**	200	ug/kg dry	1	11/05/2018	11/06/2018 11:10	EPA 8270D	
2-Nitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:10	EPA 8270D	
3,4-Dinitrotoluene	**500**	200	ug/kg dry	1	11/05/2018	11/06/2018 11:10	EPA 8270D	
3,5-Dinitroaniline	**220**	200	ug/kg dry	1	11/05/2018	11/06/2018 11:10	EPA 8270D	
3,5-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:10	EPA 8270D	
3-Nitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:10	EPA 8270D	
4-Amino-2,6-dinitrotoluene	**11000**	200	ug/kg dry	1	11/05/2018	11/06/2018 11:10	EPA 8270D	
4-Nitrotoluene	**220**	200	ug/kg dry	1	11/05/2018	11/06/2018 11:10	EPA 8270D	
Nitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:10	EPA 8270D	
1,3,5-Trinitro-2,4-dimethylbenzene	**390**	200	ug/kg dry	1	11/05/2018	11/06/2018 11:10	EPA 8270D	
Surrogate: 2,2'-Dinitrobiphenyl		*88.3 %*		*20.1-133*	*11/05/2018*	*11/06/2018 11:10*	*EPA 8270D*	
Surrogate: Nitrobenzene-d5		*80.4 %*		*65.8-124*	*11/05/2018*	*11/06/2018 11:10*	*EPA 8270D*	
Classical Chemistry Parameters					**Preparation Batch: A810287**			
% Moisture	**25.0**	0.00	% by Weight	1	10/31/2018	11/01/2018 09:20	SM 2540B	
% Solids	**97.7**	0.00	% by Weight	1	11/02/2018	11/05/2018 10:04	SM 2540B	

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Newark DE, 19713	Project Manager: Sharon Nordstrom

BPSB-181002-C12 AH

A184307-09 (Soil)

Date Sampled
10/02/2018 12:35

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Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
pH by EPA Method 9045						**Preparation Batch: A811250**		
pH	**9.37**		pH Units	1	11/09/2018	11/09/2018 16:11	EPA 9045D	
Explosive Compounds by EPA Method 8270						**Preparation Batch: A811228**		
1,2-Dimethyl-3,4-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:36	EPA 8270D	
1,2-Dimethyl-3,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:36	EPA 8270D	
1,2-Dimethyl-3,6-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:36	EPA 8270D	
1,2-Dimethyl-4,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:36	EPA 8270D	
1,3,5-Trinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:36	EPA 8270D	
1,3-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:36	EPA 8270D	
1,3-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:36	EPA 8270D	
1,3-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:36	EPA 8270D	
1,4-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:36	EPA 8270D	
1,4-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:36	EPA 8270D	
1,4-Dimethyl-2,6-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:36	EPA 8270D	
1,5-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:36	EPA 8270D	
1,5-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:36	EPA 8270D	
2,3-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:36	EPA 8270D	
2,4,6-Trinitrotoluene	**32000**	2000	ug/kg dry	10	11/05/2018	11/06/2018 18:03	EPA 8270D	D
2,4-Dinitrotoluene	**1500**	200	ug/kg dry	1	11/05/2018	11/06/2018 11:36	EPA 8270D	
2,5-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:36	EPA 8270D	
2,6-Dinitrotoluene	**570**	200	ug/kg dry	1	11/05/2018	11/06/2018 11:36	EPA 8270D	
2-Amino-4,6-dinitrotoluene	**500**	200	ug/kg dry	1	11/05/2018	11/06/2018 11:36	EPA 8270D	
2-Nitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:36	EPA 8270D	
3,4-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:36	EPA 8270D	
3,5-Dinitroaniline	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:36	EPA 8270D	
3,5-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:36	EPA 8270D	
3-Nitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:36	EPA 8270D	
4-Amino-2,6-dinitrotoluene	**2200**	200	ug/kg dry	1	11/05/2018	11/06/2018 11:36	EPA 8270D	
4-Nitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:36	EPA 8270D	
Nitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 11:36	EPA 8270D	
1,3,5-Trinitro-2,4-dimethylbenzene	**420**	200	ug/kg dry	1	11/05/2018	11/06/2018 11:36	EPA 8270D	
Surrogate: 2,2'-Dinitrobiphenyl		*83.4 %*		*20.1-133*	*11/05/2018*	*11/06/2018 11:36*	*EPA 8270D*	
Surrogate: Nitrobenzene-d5		*80.9 %*		*65.8-124*	*11/05/2018*	*11/06/2018 11:36*	*EPA 8270D*	
Classical Chemistry Parameters						**Preparation Batch: A810287**		
% Moisture	**27.5**	0.00	% by Weight	1	10/31/2018	11/01/2018 09:20	SM 2540B	
% Solids	**97.9**	0.00	% by Weight	1	11/02/2018	11/05/2018 10:20	SM 2540B	

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Newark DE, 19713	Project Manager: Sharon Nordstrom

BPSB-181009-C31 AH North West

A184307-10 (Soil)

Date Sampled
10/09/2018 11:20

Pace Analytical - Madison

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
pH by EPA Method 9045						**Preparation Batch: A811250**		
pH	**12.4**		pH Units	1	11/09/2018	11/09/2018 17:37	EPA 9045D	
Explosive Compounds by EPA Method 8270						**Preparation Batch: A811228**		
1,2-Dimethyl-3,4-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 12:02	EPA 8270D	
1,2-Dimethyl-3,5-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 12:02	EPA 8270D	
1,2-Dimethyl-3,6-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 12:02	EPA 8270D	
1,2-Dimethyl-4,5-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 12:02	EPA 8270D	
1,3,5-Trinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 12:02	EPA 8270D	
1,3-Dimethyl-2,4-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 12:02	EPA 8270D	
1,3-Dimethyl-2,5-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 12:02	EPA 8270D	
1,3-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 12:02	EPA 8270D	
1,4-Dimethyl-2,3-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 12:02	EPA 8270D	
1,4-Dimethyl-2,5-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 12:02	EPA 8270D	
1,4-Dimethyl-2,6-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 12:02	EPA 8270D	
1,5-Dimethyl-2,3-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 12:02	EPA 8270D	
1,5-Dimethyl-2,4-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 12:02	EPA 8270D	
2,3-Dinitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 12:02	EPA 8270D	
2,4,6-Trinitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 12:02	EPA 8270D	
2,4-Dinitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 12:02	EPA 8270D	
2,5-Dinitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 12:02	EPA 8270D	
2,6-Dinitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 12:02	EPA 8270D	
2-Amino-4,6-dinitrotoluene	**360**	210	ug/kg dry	1	11/05/2018	11/06/2018 12:02	EPA 8270D	
2-Nitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 12:02	EPA 8270D	
3,4-Dinitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 12:02	EPA 8270D	
3,5-Dinitroaniline	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 12:02	EPA 8270D	
3,5-Dinitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 12:02	EPA 8270D	
3-Nitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 12:02	EPA 8270D	
4-Amino-2,6-dinitrotoluene	**310**	210	ug/kg dry	1	11/05/2018	11/06/2018 12:02	EPA 8270D	
4-Nitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 12:02	EPA 8270D	
Nitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 12:02	EPA 8270D	
1,3,5-Trinitro-2,4-dimethylbenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 12:02	EPA 8270D	
Surrogate: 2,2'-Dinitrobiphenyl		*54.6 %*		*20.1-133*	*11/05/2018*	*11/06/2018 12:02*	*EPA 8270D*	
Surrogate: Nitrobenzene-d5		*79.5 %*		*65.8-124*	*11/05/2018*	*11/06/2018 12:02*	*EPA 8270D*	
Classical Chemistry Parameters						**Preparation Batch: A810287**		
% Moisture	**44.9**	0.00	% by Weight	1	10/31/2018	11/01/2018 09:20	SM 2540B	
% Solids	**93.3**	0.00	% by Weight	1	11/02/2018	11/05/2018 10:20	SM 2540B	

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Newark DE, 19713	Project Manager: Sharon Nordstrom

BPSB-181009-C31 AH South West

A184307-11 (Soil)

Date Sampled
10/09/2018 11:25

Pace Analytical - Madison

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
pH by EPA Method 9045						**Preparation Batch: A811250**		
pH	**12.2**		pH Units	1	11/09/2018	11/09/2018 16:21	EPA 9045D	
Explosive Compounds by EPA Method 8270						**Preparation Batch: A811228**		
1,2-Dimethyl-3,4-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/07/2018 12:07	EPA 8270D	
1,2-Dimethyl-3,5-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/07/2018 12:07	EPA 8270D	
1,2-Dimethyl-3,6-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/07/2018 12:07	EPA 8270D	
1,2-Dimethyl-4,5-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/07/2018 12:07	EPA 8270D	
1,3,5-Trinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/07/2018 12:07	EPA 8270D	
1,3-Dimethyl-2,4-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/07/2018 12:07	EPA 8270D	
1,3-Dimethyl-2,5-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/07/2018 12:07	EPA 8270D	
1,3-Dinitrobenzene	**290**	210	ug/kg dry	1	11/05/2018	11/07/2018 12:07	EPA 8270D	
1,4-Dimethyl-2,3-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/07/2018 12:07	EPA 8270D	
1,4-Dimethyl-2,5-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/07/2018 12:07	EPA 8270D	
1,4-Dimethyl-2,6-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/07/2018 12:07	EPA 8270D	
1,5-Dimethyl-2,3-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/07/2018 12:07	EPA 8270D	
1,5-Dimethyl-2,4-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/07/2018 12:07	EPA 8270D	
2,3-Dinitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/07/2018 12:07	EPA 8270D	
2,4,6-Trinitrotoluene	**16000**	210	ug/kg dry	1	11/05/2018	11/07/2018 12:07	EPA 8270D	
2,4-Dinitrotoluene	**350**	210	ug/kg dry	1	11/05/2018	11/07/2018 12:07	EPA 8270D	
2,5-Dinitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/07/2018 12:07	EPA 8270D	
2,6-Dinitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/07/2018 12:07	EPA 8270D	
2-Amino-4,6-dinitrotoluene	**410**	210	ug/kg dry	1	11/05/2018	11/07/2018 12:07	EPA 8270D	
2-Nitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/07/2018 12:07	EPA 8270D	
3,4-Dinitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/07/2018 12:07	EPA 8270D	
3,5-Dinitroaniline	**250**	210	ug/kg dry	1	11/05/2018	11/07/2018 12:07	EPA 8270D	
3,5-Dinitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/07/2018 12:07	EPA 8270D	
3-Nitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/07/2018 12:07	EPA 8270D	
4-Amino-2,6-dinitrotoluene	**1400**	210	ug/kg dry	1	11/05/2018	11/07/2018 12:07	EPA 8270D	
4-Nitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/07/2018 12:07	EPA 8270D	
Nitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/07/2018 12:07	EPA 8270D	
1,3,5-Trinitro-2,4-dimethylbenzene	**1000**	210	ug/kg dry	1	11/05/2018	11/07/2018 12:07	EPA 8270D	
Surrogate: 2,2'-Dinitrobiphenyl		*68.2 %*		*20.1-133*	*11/05/2018*	*11/07/2018 12:07*	*EPA 8270D*	
Surrogate: Nitrobenzene-d5		*80.4 %*		*65.8-124*	*11/05/2018*	*11/07/2018 12:07*	*EPA 8270D*	
Classical Chemistry Parameters						**Preparation Batch: A810287**		
% Moisture	**27.1**	0.00	% by Weight	1	10/31/2018	11/01/2018 09:20	SM 2540B	
% Solids	**96.0**	0.00	% by Weight	1	11/02/2018	11/05/2018 10:20	SM 2540B	

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Project: Bio Pilot Lime Addition
Project Number: 60525839
Project Manager: Sharon Nordstrom

BPSB-181009-C31 AH North East

A184307-12 (Soil)

Date Sampled
10/09/2018 11:30

Pace Analytical - Madison

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
pH by EPA Method 9045						**Preparation Batch: A811250**		
pH	**12.2**		pH Units	1	11/09/2018	11/09/2018 16:23	EPA 9045D	
Explosive Compounds by EPA Method 8270						**Preparation Batch: A811228**		
1,2-Dimethyl-3,4-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:03	EPA 8270D	
1,2-Dimethyl-3,5-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:03	EPA 8270D	
1,2-Dimethyl-3,6-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:03	EPA 8270D	
1,2-Dimethyl-4,5-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:03	EPA 8270D	
1,3,5-Trinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:03	EPA 8270D	
1,3-Dimethyl-2,4-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:03	EPA 8270D	
1,3-Dimethyl-2,5-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:03	EPA 8270D	
1,3-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:03	EPA 8270D	
1,4-Dimethyl-2,3-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:03	EPA 8270D	
1,4-Dimethyl-2,5-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:03	EPA 8270D	
1,4-Dimethyl-2,6-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:03	EPA 8270D	
1,5-Dimethyl-2,3-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:03	EPA 8270D	
1,5-Dimethyl-2,4-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:03	EPA 8270D	
2,3-Dinitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:03	EPA 8270D	
2,4,6-Trinitrotoluene	**1900**	210	ug/kg dry	1	11/05/2018	11/06/2018 15:03	EPA 8270D	
2,4-Dinitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:03	EPA 8270D	
2,5-Dinitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:03	EPA 8270D	
2,6-Dinitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:03	EPA 8270D	
2-Amino-4,6-dinitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:03	EPA 8270D	
2-Nitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:03	EPA 8270D	
3,4-Dinitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:03	EPA 8270D	
3,5-Dinitroaniline	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:03	EPA 8270D	
3,5-Dinitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:03	EPA 8270D	
3-Nitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:03	EPA 8270D	
4-Amino-2,6-dinitrotoluene	**310**	210	ug/kg dry	1	11/05/2018	11/06/2018 15:03	EPA 8270D	
4-Nitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:03	EPA 8270D	
Nitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:03	EPA 8270D	
1,3,5-Trinitro-2,4-dimethylbenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:03	EPA 8270D	
Surrogate: 2,2'-Dinitrobiphenyl		*70.0 %*		*20.1-133*	*11/05/2018*	*11/06/2018 15:03*	*EPA 8270D*	
Surrogate: Nitrobenzene-d5		*80.2 %*		*65.8-124*	*11/05/2018*	*11/06/2018 15:03*	*EPA 8270D*	
Classical Chemistry Parameters						**Preparation Batch: A810287**		
% Moisture	**39.4**	0.00	% by Weight	1	10/31/2018	11/01/2018 09:20	SM 2540B	
% Solids	**97.5**	0.00	% by Weight	1	11/02/2018	11/05/2018 10:20	SM 2540B	

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Project: Bio Pilot Lime Addition
Project Number: 60525839
Project Manager: Sharon Nordstrom

BPSB-181009-C31 AH South East

A184307-13 (Soil)

Date Sampled
10/09/2018 11:35

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Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
pH by EPA Method 9045						**Preparation Batch: A811250**		
pH	**12.2**		pH Units	1	11/09/2018	11/09/2018 16:25	EPA 9045D	
Explosive Compounds by EPA Method 8270						**Preparation Batch: A811228**		
1,2-Dimethyl-3,4-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:29	EPA 8270D	
1,2-Dimethyl-3,5-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:29	EPA 8270D	
1,2-Dimethyl-3,6-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:29	EPA 8270D	
1,2-Dimethyl-4,5-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:29	EPA 8270D	
1,3,5-Trinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:29	EPA 8270D	
1,3-Dimethyl-2,4-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:29	EPA 8270D	
1,3-Dimethyl-2,5-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:29	EPA 8270D	
1,3-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:29	EPA 8270D	
1,4-Dimethyl-2,3-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:29	EPA 8270D	
1,4-Dimethyl-2,5-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:29	EPA 8270D	
1,4-Dimethyl-2,6-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:29	EPA 8270D	
1,5-Dimethyl-2,3-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:29	EPA 8270D	
1,5-Dimethyl-2,4-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:29	EPA 8270D	
2,3-Dinitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:29	EPA 8270D	
2,4,6-Trinitrotoluene	**18000**	210	ug/kg dry	1	11/05/2018	11/06/2018 15:29	EPA 8270D	
2,4-Dinitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:29	EPA 8270D	
2,5-Dinitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:29	EPA 8270D	
2,6-Dinitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:29	EPA 8270D	
2-Amino-4,6-dinitrotoluene	**260**	210	ug/kg dry	1	11/05/2018	11/06/2018 15:29	EPA 8270D	
2-Nitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:29	EPA 8270D	
3,4-Dinitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:29	EPA 8270D	
3,5-Dinitroaniline	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:29	EPA 8270D	
3,5-Dinitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:29	EPA 8270D	
3-Nitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:29	EPA 8270D	
4-Amino-2,6-dinitrotoluene	**430**	210	ug/kg dry	1	11/05/2018	11/06/2018 15:29	EPA 8270D	
4-Nitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:29	EPA 8270D	
Nitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 15:29	EPA 8270D	
1,3,5-Trinitro-2,4-dimethylbenzene	**1000**	210	ug/kg dry	1	11/05/2018	11/06/2018 15:29	EPA 8270D	
Surrogate: 2,2'-Dinitrobiphenyl		*73.2 %*		*20.1-133*	*11/05/2018*	*11/06/2018 15:29*	*EPA 8270D*	
Surrogate: Nitrobenzene-d5		*79.2 %*		*65.8-124*	*11/05/2018*	*11/06/2018 15:29*	*EPA 8270D*	
Classical Chemistry Parameters						**Preparation Batch: A810287**		
% Moisture	**42.2**	0.00	% by Weight	1	10/31/2018	11/01/2018 09:20	SM 2540B	
% Solids	**97.4**	0.00	% by Weight	1	11/02/2018	11/05/2018 10:20	SM 2540B	

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Newark DE, 19713	Project Manager: Sharon Nordstrom

BPSB-181018-C33

A184307-16 (Soil)

Date Sampled
10/18/2018 15:25

Pace Analytical - Madison

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Explosive Compounds by EPA Method 8270					**Preparation Batch: A811228**			
1,2-Dimethyl-3,4-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 15:55	EPA 8270D	
1,2-Dimethyl-3,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 15:55	EPA 8270D	
1,2-Dimethyl-3,6-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 15:55	EPA 8270D	
1,2-Dimethyl-4,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 15:55	EPA 8270D	
1,3,5-Trinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 15:55	EPA 8270D	
1,3-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 15:55	EPA 8270D	
1,3-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 15:55	EPA 8270D	
1,3-Dinitrobenzene	**250**	200	ug/kg dry	1	11/05/2018	11/06/2018 15:55	EPA 8270D	
1,4-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 15:55	EPA 8270D	
1,4-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 15:55	EPA 8270D	
1,4-Dimethyl-2,6-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 15:55	EPA 8270D	
1,5-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 15:55	EPA 8270D	
1,5-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 15:55	EPA 8270D	
2,3-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 15:55	EPA 8270D	
2,4,6-Trinitrotoluene	**200000**	2000	ug/kg dry	10	11/05/2018	11/07/2018 12:33	EPA 8270D	D
2,4-Dinitrotoluene	**420**	200	ug/kg dry	1	11/05/2018	11/06/2018 15:55	EPA 8270D	
2,5-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 15:55	EPA 8270D	
2,6-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 15:55	EPA 8270D	
2-Amino-4,6-dinitrotoluene	**690**	200	ug/kg dry	1	11/05/2018	11/06/2018 15:55	EPA 8270D	
2-Nitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 15:55	EPA 8270D	
3,4-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 15:55	EPA 8270D	
3,5-Dinitroaniline	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 15:55	EPA 8270D	
3,5-Dinitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 15:55	EPA 8270D	
3-Nitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 15:55	EPA 8270D	
4-Amino-2,6-dinitrotoluene	**1000**	200	ug/kg dry	1	11/05/2018	11/06/2018 15:55	EPA 8270D	
4-Nitrotoluene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 15:55	EPA 8270D	
Nitrobenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 15:55	EPA 8270D	
1,3,5-Trinitro-2,4-dimethylbenzene	ND	200	ug/kg dry	1	11/05/2018	11/06/2018 15:55	EPA 8270D	
Surrogate: 2,2´-Dinitrobiphenyl		*74.8 %*		*20.1-133*	*11/05/2018*	*11/06/2018 15:55*	*EPA 8270D*	
Surrogate: Nitrobenzene-d5		*82.0 %*		*65.8-124*	*11/05/2018*	*11/06/2018 15:55*	*EPA 8270D*	
Classical Chemistry Parameters					**Preparation Batch: A810287**			
% Moisture	**19.8**	0.00	% by Weight	1	10/31/2018	11/01/2018 09:20	SM 2540B	
% Solids	**98.1**	0.00	% by Weight	1	11/02/2018	11/05/2018 10:20	SM 2540B	

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Newark DE, 19713	Project Manager: Sharon Nordstrom

BPSB-181018-C16 AH

A184307-17 (Soil)

Date Sampled
10/18/2018 15:10

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Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
pH by EPA Method 9045						**Preparation Batch: A811250**		
pH	**7.20**		pH Units	1	11/09/2018	11/09/2018 16:29	EPA 9045D	
Explosive Compounds by EPA Method 8270						**Preparation Batch: A811228**		
1,2-Dimethyl-3,4-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 16:20	EPA 8270D	
1,2-Dimethyl-3,5-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 16:20	EPA 8270D	
1,2-Dimethyl-3,6-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 16:20	EPA 8270D	
1,2-Dimethyl-4,5-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 16:20	EPA 8270D	
1,3,5-Trinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 16:20	EPA 8270D	
1,3-Dimethyl-2,4-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 16:20	EPA 8270D	
1,3-Dimethyl-2,5-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 16:20	EPA 8270D	
1,3-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 16:20	EPA 8270D	
1,4-Dimethyl-2,3-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 16:20	EPA 8270D	
1,4-Dimethyl-2,5-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 16:20	EPA 8270D	
1,4-Dimethyl-2,6-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 16:20	EPA 8270D	
1,5-Dimethyl-2,3-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 16:20	EPA 8270D	
1,5-Dimethyl-2,4-Dinitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 16:20	EPA 8270D	
2,3-Dinitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 16:20	EPA 8270D	
2,4,6-Trinitrotoluene	**300**	210	ug/kg dry	1	11/05/2018	11/06/2018 16:20	EPA 8270D	
2,4-Dinitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 16:20	EPA 8270D	
2,5-Dinitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 16:20	EPA 8270D	
2,6-Dinitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 16:20	EPA 8270D	
2-Amino-4,6-dinitrotoluene	**220**	210	ug/kg dry	1	11/05/2018	11/06/2018 16:20	EPA 8270D	
2-Nitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 16:20	EPA 8270D	
3,4-Dinitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 16:20	EPA 8270D	
3,5-Dinitroaniline	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 16:20	EPA 8270D	
3,5-Dinitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 16:20	EPA 8270D	
3-Nitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 16:20	EPA 8270D	
4-Amino-2,6-dinitrotoluene	**340**	210	ug/kg dry	1	11/05/2018	11/06/2018 16:20	EPA 8270D	
4-Nitrotoluene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 16:20	EPA 8270D	
Nitrobenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 16:20	EPA 8270D	
1,3,5-Trinitro-2,4-dimethylbenzene	ND	210	ug/kg dry	1	11/05/2018	11/06/2018 16:20	EPA 8270D	
Surrogate: 2,2'-Dinitrobiphenyl		*69.5 %*		*20.1-133*	*11/05/2018*	*11/06/2018 16:20*	*EPA 8270D*	
Surrogate: Nitrobenzene-d5		*78.6 %*		*65.8-124*	*11/05/2018*	*11/06/2018 16:20*	*EPA 8270D*	
Classical Chemistry Parameters						**Preparation Batch: A810287**		
% Moisture	**37.1**	0.00	% by Weight	1	10/31/2018	11/01/2018 09:20	SM 2540B	
% Solids	**96.2**	0.00	% by Weight	1	11/02/2018	11/05/2018 10:20	SM 2540B	

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Newark DE, 19713	Project Manager: Sharon Nordstrom

pH by EPA Method 9045 - Quality Control

Pace Analytical - Madison

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch A811250 - Default Prep GenChem										
Duplicate (A811250-DUP1)		**Source: A184307-17**		Prepared: 11/09/2018 Analyzed: 11/09/2018 16:38						
pH	7.52		pH Units		7.20			4.27	20	
Duplicate (A811250-DUP2)		**Source: A184411-01**		Prepared: 11/09/2018 Analyzed: 11/09/2018 17:41						
pH	12.1		pH Units		12.2			0.910	20	
Duplicate (A811250-DUP3)		**Source: A184004-08**		Prepared: 11/09/2018 Analyzed: 11/09/2018 17:43						
pH	5.87		pH Units		5.86			0.0682	20	

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Newark DE, 19713	Project Manager: Sharon Nordstrom

Explosive Compounds by EPA Method 8270 - Quality Control

Pace Analytical - Madison

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch A811228 - EPA 3570										
Blank (A811228-BLK1)				Prepared: 11/05/2018 Analyzed: 11/06/2018 00:08						
1,2-Dimethyl-3,4-Dinitrobenzene	ND	200	ug/kg wet							
1,2-Dimethyl-3,5-Dinitrobenzene	ND	200	ug/kg wet							
1,2-Dimethyl-3,6-Dinitrobenzene	ND	200	ug/kg wet							
1,2-Dimethyl-4,5-Dinitrobenzene	ND	200	ug/kg wet							
1,3,5-Trinitrobenzene	ND	200	ug/kg wet							
1,3-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg wet							
1,3-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg wet							
1,3-Dinitrobenzene	ND	200	ug/kg wet							
1,4-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg wet							
1,4-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg wet							
1,4-Dimethyl-2,6-Dinitrobenzene	ND	200	ug/kg wet							
1,5-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg wet							
1,5-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg wet							
2,3-Dinitrotoluene	ND	200	ug/kg wet							
2,4,6-Trinitrotoluene	ND	200	ug/kg wet							
2,4-Dinitrotoluene	ND	200	ug/kg wet							
2,5-Dinitrotoluene	ND	200	ug/kg wet							
2,6-Dinitrotoluene	ND	200	ug/kg wet							
2-Amino-4,6-dinitrotoluene	ND	200	ug/kg wet							
2-Nitrotoluene	ND	200	ug/kg wet							
3,4-Dinitrotoluene	ND	200	ug/kg wet							
3,5-Dinitroaniline	ND	200	ug/kg wet							
3,5-Dinitrotoluene	ND	200	ug/kg wet							
3-Nitrotoluene	ND	200	ug/kg wet							
4-Amino-2,6-dinitrotoluene	ND	200	ug/kg wet							
4-Nitrotoluene	ND	200	ug/kg wet							
Nitrobenzene	ND	200	ug/kg wet							
1,3,5-Trinitro-2,4-dimethylbenzene	ND	200	ug/kg wet							
Surrogate: 2,2'-Dinitrobiphenyl	*1210*		*ug/kg wet*	*2000*		*60.5*	*20.1-133*			
Surrogate: Nitrobenzene-d5	*1880*		*ug/kg wet*	*2000*		*93.9*	*65.8-124*			
LCS (A811228-BS1)				Prepared: 11/05/2018 Analyzed: 11/06/2018 12:54						
1,2-Dimethyl-3,4-Dinitrobenzene	1700	200	ug/kg wet	2038		83.2	67.7-122			
1,2-Dimethyl-3,5-Dinitrobenzene	1720	200	ug/kg wet	2000		85.8	63.6-123			
1,2-Dimethyl-3,6-Dinitrobenzene	1700	200	ug/kg wet	2000		84.8	73.6-119			
1,2-Dimethyl-4,5-Dinitrobenzene	1740	200	ug/kg wet	2002		86.7	54.5-133			
1,3,5-Trinitrobenzene	1530	200	ug/kg wet	2000		76.6	42.9-131			
1,3-Dimethyl-2,4-Dinitrobenzene	1770	200	ug/kg wet	2000		88.5	67.6-118			
1,3-Dimethyl-2,5-Dinitrobenzene	1710	200	ug/kg wet	2000		85.3	73.6-118			
1,3-Dinitrobenzene	1780	200	ug/kg wet	2000		89.2	51.5-130			
1,4-Dimethyl-2,3-Dinitrobenzene	1700	200	ug/kg wet	2082		81.5	70-117			
1,4-Dimethyl-2,5-Dinitrobenzene	1720	200	ug/kg wet	2096		82.1	68.9-116			
1,4-Dimethyl-2,6-Dinitrobenzene	1730	200	ug/kg wet	2066		83.8	66.5-119			
1,5-Dimethyl-2,3-Dinitrobenzene	1700	200	ug/kg wet	2000		84.8	66.2-121			
1,5-Dimethyl-2,4-Dinitrobenzene	1730	200	ug/kg wet	2058		84.1	68-120			
2,3-Dinitrotoluene	1810	200	ug/kg wet	2000		90.7	64.2-125			

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4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

Explosive Compounds by EPA Method 8270 - Quality Control

Pace Analytical - Madison

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch A811228 - EPA 3570										
LCS (A811228-BS1)				Prepared: 11/05/2018 Analyzed: 11/06/2018 12:54						
2,4,6-Trinitrotoluene	1830	200	ug/kg wet	2000		91.4	41-153			
2,4-Dinitrotoluene	1650	200	ug/kg wet	2000		82.6	63-129			
2,5-Dinitrotoluene	1730	200	ug/kg wet	2000		86.3	62-124			
2,6-Dinitrotoluene	1760	200	ug/kg wet	2000		88.1	72-118			
2-Amino-4,6-dinitrotoluene	1710	200	ug/kg wet	2000		85.6	59.5-121			
2-Nitrotoluene	1760	200	ug/kg wet	2000		87.9	70.7-121			
3,4-Dinitrotoluene	1710	200	ug/kg wet	2026		84.5	64.6-121			
3,5-Dinitroaniline	1680	200	ug/kg wet	2000		83.9	56.3-125			
3,5-Dinitrotoluene	1760	200	ug/kg wet	2000		87.8	70.5-120			
3-Nitrotoluene	1750	200	ug/kg wet	2000		87.7	75-117			
4-Amino-2,6-dinitrotoluene	1850	200	ug/kg wet	2000		92.5	51.8-121			
4-Nitrotoluene	1680	200	ug/kg wet	2000		84.2	72.8-118			
Nitrobenzene	1730	200	ug/kg wet	2000		86.4	73.4-121			
Surrogate: 2,2´-Dinitrobiphenyl	*1710*		*ug/kg wet*	*2000*		*85.7*	*20.1-133*			
Surrogate: Nitrobenzene-d5	*1660*		*ug/kg wet*	*2000*		*83.2*	*65.8-124*			
Matrix Spike (A811228-MS1)		**Source: A184404-01**		Prepared: 11/05/2018 Analyzed: 11/06/2018 04:01						
1,2-Dimethyl-3,4-Dinitrobenzene	1890	200	ug/kg dry	2042	ND	92.7	59-128			
1,2-Dimethyl-3,5-Dinitrobenzene	1910	200	ug/kg dry	2004	ND	95.2	59.2-126			
1,2-Dimethyl-3,6-Dinitrobenzene	1920	200	ug/kg dry	2004	ND	95.6	70.5-121			
1,2-Dimethyl-4,5-Dinitrobenzene	1890	200	ug/kg dry	2006	ND	94.3	59.3-127			
1,3,5-Trinitrobenzene	1720	200	ug/kg dry	2004	ND	86.0	18.3-151			
1,3-Dimethyl-2,4-Dinitrobenzene	1970	200	ug/kg dry	2004	ND	98.3	62.5-124			
1,3-Dimethyl-2,5-Dinitrobenzene	1970	200	ug/kg dry	2004	ND	98.2	67.3-126			
1,3-Dinitrobenzene	1870	200	ug/kg dry	2004	ND	93.4	40.1-137			
1,4-Dimethyl-2,3-Dinitrobenzene	1970	200	ug/kg dry	2086	ND	94.6	64.7-120			
1,4-Dimethyl-2,5-Dinitrobenzene	1990	200	ug/kg dry	2100	ND	94.6	65-122			
1,4-Dimethyl-2,6-Dinitrobenzene	1940	200	ug/kg dry	2070	ND	93.8	62.1-126			
1,5-Dimethyl-2,3-Dinitrobenzene	1900	200	ug/kg dry	2004	ND	94.9	63.9-117			
1,5-Dimethyl-2,4-Dinitrobenzene	1960	200	ug/kg dry	2062	ND	95.1	60.6-129			
2,3-Dinitrotoluene	2050	200	ug/kg dry	2004	ND	102	61.1-127			
2,4,6-Trinitrotoluene	2090	200	ug/kg dry	2004	ND	104	27.6-165			
2,4-Dinitrotoluene	1850	200	ug/kg dry	2004	ND	92.2	54.4-131			
2,5-Dinitrotoluene	1880	200	ug/kg dry	2004	ND	93.6	58.3-132			
2,6-Dinitrotoluene	1960	200	ug/kg dry	2004	ND	97.8	59.7-130			
2-Amino-4,6-dinitrotoluene	1870	200	ug/kg dry	2004	ND	93.4	35.9-138			
2-Nitrotoluene	1990	200	ug/kg dry	2004	ND	99.5	79.6-112			
3,4-Dinitrotoluene	1950	200	ug/kg dry	2030	ND	95.9	56.5-130			
3,5-Dinitroaniline	1790	200	ug/kg dry	2004	ND	89.2	37.1-141			
3,5-Dinitrotoluene	1960	200	ug/kg dry	2004	ND	97.8	59.3-135			
3-Nitrotoluene	2000	200	ug/kg dry	2004	ND	99.5	79.6-111			
4-Amino-2,6-dinitrotoluene	1930	200	ug/kg dry	2004	ND	96.5	30.9-140			
4-Nitrotoluene	1880	200	ug/kg dry	2004	ND	94.0	75.8-114			
Nitrobenzene	1910	200	ug/kg dry	2004	ND	95.1	77.3-115			
Surrogate: 2,2´-Dinitrobiphenyl	*1970*		*ug/kg dry*	*2004*		*98.5*	*20.1-133*			
Surrogate: Nitrobenzene-d5	*1840*		*ug/kg dry*	*2004*		*92.0*	*65.8-124*			

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4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

Explosive Compounds by EPA Method 8270 - Quality Control

Pace Analytical - Madison

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch A811228 - EPA 3570										
Matrix Spike Dup (A811228-MSD1)	**Source: A184404-01**			Prepared: 11/05/2018 Analyzed: 11/06/2018 04:27						
1,2-Dimethyl-3,4-Dinitrobenzene	1860	200	ug/kg dry	2042	ND	91.0	59-128	1.81	20	
1,2-Dimethyl-3,5-Dinitrobenzene	1870	200	ug/kg dry	2004	ND	93.4	59.2-126	1.92	20	
1,2-Dimethyl-3,6-Dinitrobenzene	1880	200	ug/kg dry	2004	ND	93.6	70.5-121	2.18	20	
1,2-Dimethyl-4,5-Dinitrobenzene	1890	200	ug/kg dry	2006	ND	94.0	59.3-127	0.395	20	
1,3,5-Trinitrobenzene	1720	200	ug/kg dry	2004	ND	85.7	18.3-151	0.367	20	
1,3-Dimethyl-2,4-Dinitrobenzene	1940	200	ug/kg dry	2004	ND	96.9	62.5-124	1.44	20	
1,3-Dimethyl-2,5-Dinitrobenzene	1910	200	ug/kg dry	2004	ND	95.4	67.3-126	2.86	20	
1,3-Dinitrobenzene	1820	200	ug/kg dry	2004	ND	91.0	40.1-137	2.62	20	
1,4-Dimethyl-2,3-Dinitrobenzene	1880	200	ug/kg dry	2086	ND	90.0	64.7-120	5.02	20	
1,4-Dimethyl-2,5-Dinitrobenzene	1920	200	ug/kg dry	2100	ND	91.3	65-122	3.51	20	
1,4-Dimethyl-2,6-Dinitrobenzene	1920	200	ug/kg dry	2070	ND	92.6	62.1-126	1.31	20	
1,5-Dimethyl-2,3-Dinitrobenzene	1860	200	ug/kg dry	2004	ND	92.6	63.9-117	2.44	20	
1,5-Dimethyl-2,4-Dinitrobenzene	1890	200	ug/kg dry	2062	ND	91.6	60.6-129	3.71	20	
2,3-Dinitrotoluene	2000	200	ug/kg dry	2004	ND	99.8	61.1-127	2.62	20	
2,4,6-Trinitrotoluene	2030	200	ug/kg dry	2004	ND	101	27.6-165	2.63	20	
2,4-Dinitrotoluene	1800	200	ug/kg dry	2004	ND	89.6	54.4-131	2.81	20	
2,5-Dinitrotoluene	1840	200	ug/kg dry	2004	ND	91.7	58.3-132	2.08	20	
2,6-Dinitrotoluene	1910	200	ug/kg dry	2004	ND	95.1	59.7-130	2.83	20	
2-Amino-4,6-dinitrotoluene	1860	200	ug/kg dry	2004	ND	92.9	35.9-138	0.570	20	
2-Nitrotoluene	1930	200	ug/kg dry	2004	ND	96.1	79.6-112	3.46	20	
3,4-Dinitrotoluene	1900	200	ug/kg dry	2030	ND	93.7	56.5-130	2.37	20	
3,5-Dinitroaniline	1790	200	ug/kg dry	2004	ND	89.3	37.1-141	0.0571	20	
3,5-Dinitrotoluene	1920	200	ug/kg dry	2004	ND	96.0	59.3-135	1.82	20	
3-Nitrotoluene	1930	200	ug/kg dry	2004	ND	96.3	79.6-111	3.27	20	
4-Amino-2,6-dinitrotoluene	1940	200	ug/kg dry	2004	ND	97.0	30.9-140	0.562	20	
4-Nitrotoluene	1840	200	ug/kg dry	2004	ND	91.9	75.8-114	2.27	20	
Nitrobenzene	1850	200	ug/kg dry	2004	ND	92.2	77.3-115	3.06	20	
Surrogate: 2,2'-Dinitrobiphenyl	*1940*		*ug/kg dry*	*2004*		*96.7*	*20.1-133*			
Surrogate: Nitrobenzene-d5	*1770*		*ug/kg dry*	*2004*		*88.5*	*65.8-124*			

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AECOM	Project: Bio Pilot Lime Addition
4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

Classical Chemistry Parameters - Quality Control

Pace Analytical - Madison

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch A810287 - % Solids										
Duplicate (A810287-DUP1)		**Source: A184307-17**		Prepared: 10/31/2018 Analyzed: 11/01/2018 09:20						
% Moisture	31.6	0.00	% by Weight		37.1			15.9	20	
Batch A811220 - % Solids										
Duplicate (A811220-DUP1)		**Source: A184307-08**		Prepared: 11/02/2018 Analyzed: 11/05/2018 10:04						
% Solids	97.8	0.00	% by Weight		97.7			0.0301	20	
Batch A811221 - % Solids										
Duplicate (A811221-DUP1)		**Source: A184307-17**		Prepared: 11/02/2018 Analyzed: 11/05/2018 10:20						
% Solids	96.4	0.00	% by Weight		96.2			0.209	20	

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4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

Notes and Definitions

D	Data reported from a dilution
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. If the word 'dry' does not appear after the units, results are reported on an as-is basis.
RPD	Relative Percent Difference

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CHAIN OF CUSTODY

No. 09490

Page: 1 of: 2

Lab Work Order #: A184307

Report To: Sharon Nordstrom
Company: AECOM / Chemours
Address 1:
Address 2:
E-mail Address:

Project Number: PO Number:
Project Name: Bio Pilot Lime addition
Project Location (City, State): Barksdale, WI
Turn Around (check one): ☒ Normal ☐ Rush
If Rush, Report Due Date:
Sampled By (Print): Nick Sharkey

Preservation Codes
Analyses Requested

Invoice To:
Company:
Address 1:
Address 2:

Sample Description	Collection Date	Collection Time	Matrix	Total # of Containers	NWOC's	% moist	pH	Comments	Lab ID	Lab Receipt Time
BPSB-181002-C28AH	10/2/18	1125	S	1	X	X	X	all samples placed	01	①
BPSB-181002-C21AH		1135	S	1	X	X	X	in site freezer	02	①
BPSB-181002-C27AH		1145	S	1	X	X	X	following sampling	03	①
BPSB-181002-C25AH		1150	S	1	X	X	X	(NS)	04	①
BPSB-181002-C24AH		1155	S	1	X	X	X		05	①
BPSB-181002-C26AH		1200	S	1	X	X	X	Tracking #7735-3097	06	①
BPSB-181002-C17AH		1215	S	1	X	X	X	9986	07	
BPSB-181002-C06AH		1225	S	1	X	X	X		08	①
BPSB-181002-C12AH		1235	S	1	X	X	X		09	
									—	

Preservation Codes
(A=None) B=HCL C=H_2SO_4 D=HNO_3 E=EnCore F=Methanol G=NaOH O=Other (Indicate)

Matrix Codes
A=Air (S=Soil) W=Water O=Other

Other Comments:
Placed in freezer after sampling
① pH cancelled. jj 10-31-18

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
[signature]	10/22/18	9:00	Kari Ann Killian	10/23/18	0940
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

Custody Seal: ☐ NA ☒ Intact ☐ Not Intact
Shipped Via: Fed Ex
Receipt Temp: 2.4°C
Thermometer #/ Exp. Date: 160142274 1/12/19
Temp Blank: ☒ Y ☐ N

Rev. 12/15

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CHAIN OF CUSTODY

No. 8181

Page: 2 of: 2

D88

Lab Work Order #: A184307

Report To: Sharon Nordstrom
Company: AECOM/Chemours
Address 1:
Address 2:
E-mail Address:

Project Number: PO Number:
Project Name: Bio Pilot Lime Addition
Project Location (City, State): Barksdale, WI
Turn Around (check one): ☒ Normal ☐ Rush
If Rush, Report Due Date:
Sampled By (Print): Wes Leksell

Preservation Codes
Analyses Requested

Invoice To:
Company:
Address 1:
Address 2:

Sample Description	Collection Date	Collection Time	Matrix	Total # of Containers	NNOCs	% moisture	pH				Comments	Lab ID	Lab Receipt Time
BPSB-181009-C31AH North West	10/9/18	1120	S	1	X	X	X				All samples placed	10	
BPSB-181009-C31AH South West		1125	S	1	X	X	X				in site freezer	11	
BPSB-181009-C31AH North East		1130	S	1	X	X	X				following sampling	12	
BPSB-181009-C31AH South East		1135	S	1	X	X	X				(WLL)	13	
BPSB-181016-C09-RZ04-root	10/16/18	1320	S	1	X	X	X				Root sample	14	①
BPSB-181016-C09-RZ04-soil	10/16/18	1330	S	1	X	X	X				Soil around root sample	15	①
BPSB-181018-C33	10/18/18	1525	S	1	X	X	X					16	②
BPSB-181018-C16AH	10/18/18	1510	S	1	X	X	X				Tracking # 7735-3077-9986	17	
												—	
② pH cancelled per 10-31-18													

Preservation Codes
A=None B=HCL C=H_2SO_4
D=HNO_3 E=EnCore F=Methanol
G=NaOH O=Other (Indicate)

Matrix Codes
A=Air S=Soil W=Water O=Other

Other Comments:
Placed in freezer after sampling
① Analysis cancelled per Sharon 10-24-18

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
[signature]	10/22/18	9:00	Kari-Ann Killen	10/23/18	0940
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

Custody Seal: ☐ NA ☒ Intact ☐ Not Intact
Shipped Via: Fed Ex
Receipt Temp: 2.4°C
Thermometer #/ Exp. Date: 160142274 1/12/19
Temp Blank: ☒ Y ☐ N

Rev. 12/15

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November 13, 2018

Sharon Nordstrom
AECOM
4051 Ogletown Road
Newark, DE 19713

RE: Bio Pilot Lime Addition

Enclosed are the analytical results for the samples received by the laboratory on 11/01/2018.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. These results are in compliance with the 2009 NELAC Standards and the appropriate agencies listed below, unless otherwise noted in the case narrative. This analytical report should be reproduced in its entirety.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jessica Esser

Project Manager

Certification List			Expires
DODELAP	DOD ELAP Accreditation (A2LA)	3269.01	03/31/2019
ILEPA	Illinois Secondary NELAP Accreditation	004366	04/30/2019
KDHE	Kansas Secondary NELAP Accreditation	E-10384	04/30/2019
LELAP	Louisiana Primary NELAP Accreditation	04165	06/30/2019
NCDEQ	North Carolina Dept. of Environmental Quality Accreditation	688	12/31/2018
NJDEP	New Jersey Secondary NELAP Accreditation	WI004	06/30/2019
ODEQ	Oklahoma Department of Environmental Quality Accreditation	2018-087	08/31/2019
TCEQ	Texas Secondary NELAP Accreditation	T104704504-16-7	11/30/2018
WDNR	Wisconsin Certification under NR 149	113289110	08/31/2019

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AECOM
4051 Ogletown Road
Newark DE, 19713

Project: Bio Pilot Lime Addition
Project Number: 60525839
Project Manager: Sharon Nordstrom

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BPSB-181030-C06AH-A	A184411-01	Soil	10/30/2018	11/01/2018
BPSB-181030-C21AH-A	A184411-02	Soil	10/30/2018	11/01/2018
BPSB-181030-C24AH-A	A184411-03	Soil	10/30/2018	11/01/2018
BPSB-181030-C25AH-A	A184411-04	Soil	10/30/2018	11/01/2018
BPSB-181030-C26AH-A	A184411-05	Soil	10/30/2018	11/01/2018
BPSB-181030-C27AH-A	A184411-06	Soil	10/30/2018	11/01/2018
BPSB-181030-C28AH-A	A184411-07	Soil	10/30/2018	11/01/2018
BPSB-181030-C33AH-A	A184411-08	Soil	10/30/2018	11/01/2018

CASE NARRATIVE

Sample Receipt Information:
8 samples were received on 11/01/2018. Samples were received at 5.5 degrees Celsius. Samples were received in acceptable condition.

Please see the chain of custody (COC) document at the end of this report for additional information.

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AECOM	Project: Bio Pilot Lime Addition
4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

BPSB-181030-C06AH-A

A184411-01 (Soil)

Date Sampled
10/30/2018 15:15

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Pace Analytical - Madison								
pH by EPA Method 9045					**Preparation Batch: A811250**			
pH	**12.2**		pH Units	1	11/09/2018	11/09/2018 16:47	EPA 9045D	

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2525 Advance Road
Madison, WI 53718
608.221.8700 Phone
608.221.4889 Fax

AECOM	Project: Bio Pilot Lime Addition
4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

BPSB-181030-C21AH-A

A184411-02 (Soil)

Date Sampled
10/30/2018 15:00

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Pace Analytical - Madison								
pH by EPA Method 9045					**Preparation Batch: A811250**			
pH	**8.02**		pH Units	1	11/09/2018	11/09/2018 16:50	EPA 9045D	

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AECOM	Project: Bio Pilot Lime Addition
4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

BPSB-181030-C24AH-A

A184411-03 (Soil)

Date Sampled
10/30/2018 14:45

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Pace Analytical - Madison								
pH by EPA Method 9045					**Preparation Batch: A811250**			
pH	**8.15**		pH Units	1	11/09/2018	11/09/2018 16:53	EPA 9045D	

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AECOM	Project: Bio Pilot Lime Addition
4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

BPSB-181030-C25AH-A

A184411-04 (Soil)

Date Sampled
10/30/2018 14:50

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Pace Analytical - Madison								
pH by EPA Method 9045					**Preparation Batch: A811250**			
pH	**8.22**		pH Units	1	11/09/2018	11/09/2018 16:56	EPA 9045D	

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AECOM	Project: Bio Pilot Lime Addition
4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

BPSB-181030-C26AH-A

A184411-05 (Soil)

Date Sampled
10/30/2018 14:40

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Pace Analytical - Madison								
pH by EPA Method 9045					**Preparation Batch: A811250**			
pH	**9.57**		pH Units	1	11/09/2018	11/09/2018 16:59	EPA 9045D	

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AECOM	Project: Bio Pilot Lime Addition
4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

BPSB-181030-C27AH-A

A184411-06 (Soil)

Date Sampled
10/30/2018 14:55

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Pace Analytical - Madison								
pH by EPA Method 9045					**Preparation Batch: A811250**			
pH	**7.96**		pH Units	1	11/09/2018	11/09/2018 17:08	EPA 9045D	

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AECOM	Project: Bio Pilot Lime Addition
4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

BPSB-181030-C28AH-A

A184411-07 (Soil)

Date Sampled
10/30/2018 15:30

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Pace Analytical - Madison								
pH by EPA Method 9045					**Preparation Batch: A811250**			
pH	**8.22**		pH Units	1	11/09/2018	11/09/2018 17:17	EPA 9045D	

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608.221.4889 Fax

AECOM	Project: Bio Pilot Lime Addition
4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

BPSB-181030-C33AH-A

A184411-08 (Soil)

Date Sampled
10/30/2018 15:05

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Pace Analytical - Madison								
pH by EPA Method 9045					**Preparation Batch: A811250**			
pH	**10.5**		pH Units	1	11/09/2018	11/09/2018 17:21	EPA 9045D	

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AECOM	Project: Bio Pilot Lime Addition
4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

pH by EPA Method 9045 - Quality Control

Pace Analytical - Madison

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch A811250 - Default Prep GenChem										
Duplicate (A811250-DUP1)	**Source: A184307-17**		Prepared: 11/09/2018 Analyzed: 11/09/2018 16:38							
pH	7.52		pH Units		7.20			4.27	20	
Duplicate (A811250-DUP2)	**Source: A184411-01**		Prepared: 11/09/2018 Analyzed: 11/09/2018 17:41							
pH	12.1		pH Units		12.2			0.910	20	
Duplicate (A811250-DUP3)	**Source: A184004-08**		Prepared: 11/09/2018 Analyzed: 11/09/2018 17:43							
pH	5.87		pH Units		5.86			0.0682	20	

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608.221.4889 Fax

AECOM	Project: Bio Pilot Lime Addition
4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. If the word 'dry' does not appear after the units, results are reported on an as-is basis.
RPD	Relative Percent Difference

Pace Analytical
ECCS Mobile Lab Services

Pace Analytical - ECCS Division
2525 Advance Road
Madison, WI 53718
608-221-8700 (phone)
608-221-4889 (fax)

CHAIN OF CUSTODY

No. 8438

Page: 1 of: 1

Lab Work Order #: A184411

Report To: SHARON NORDSTROM
Company: AECOM / CHROMOBIS
Address 1:
Address 2:
E-mail Address:

Project Number: PO Number:
Project Name: BIO PILOT LIME ADDITION
Project Location (City, State): BARKSDALE, WI
Preservation Codes
Analyses Requested

Turn Around (check one): ☒ Normal ☐ Rush
If Rush, Report Due Date:
Sampled By (Print): DAN BAIRTON

Invoice To:
Company:
Address 1:
Address 2:

Sample Description	Collection Date	Collection Time	Matrix	Total # of Containers	pH						Comments	Lab ID	Lab Receipt Time
BPSB-181030-C06AH-A	10/30/18	1515	S	1	X							01	
BPSB-181030-C21AH-A		1500	S	1	X							02	
BPSB-181030-C24AH-A		1445	S	1	X							03	
BPSB-181030-C25AH-A		1450	S	1	X							04	
BPSB-181030-C26AH-A		1440	S	1	X							05	
BPSB-181030-C27AH-A		1455	S	1	X							06	
BPSB-181030-C28AH-A		1530	S	1	X							07	
BPSB-181030-C33AH-A		1505	S	1	X							08	
-A added to sample description per client, JL 11-01-18													

Preservation Codes
A=None B=HCL C=H_2SO_4 D=HNO_3 E=EnCore F=Methanol G=NaOH O=Other (Indicate)
Matrix Codes
A=Air S=Soil W=Water O=Other

Other Comments:

Relinquished By: Date: 10/31/18 Time: 11:00 Received By: Date: 11/1/18 Time: 9:36
Relinquished By: Date: Time: Received By: Date: Time:

Custody Seal: ☐ NA ☑ Intact ☐ Not Intact
Shipped Via: FED EX
Receipt Temp: 5.5°C
Thermometer #/ Exp. Date: 160142274 1/12/19
Temp Blank: ☐ Y ☐ N

Rev. 12/15

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-115205-1
Client Project/Site: BAR-Bio Pilot 2018

For:
Chemours Company FC, LLC The
c/o AECOM
Sabre Building, Suite 300
4051 Ogletown Road
Newark, Delaware 19713

Attn: Sharon Nordstrom

Authorized for release by:
10/23/2018 9:49:36 AM

Michelle Johnston, Project Manager II
(303)736-0110
michelle.johnston@testamericainc.com

Table of Contents

Definitions/Glossary

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-115205-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
X	Surrogate is outside control limits

LCMS

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
F1	MS and/or MSD Recovery is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-115205-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE
Client: The Chemours Company FC, LLC
Project: BAR-Bio Pilot 2018
Report Number: 280-115205-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

Throughout this report the MDL is equivalent to the LOD and the RL is equivalent to the LOQ. The LOD and LOQ have been adjusted for all dilutions performed.

The LOD and LOQ for soil samples have been dry weight adjusted.

Sample Receipt

The sample was received on 10/5/2018 9:30 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.6º C.

Receipt Exceptions

The laboratory logged BPSF-180928-C09 (280-115205-1) for 8321A Nitro Organics (DuPont List + TNX + DNT isomers), 8270C DNX, and percent moisture per instructions received on 10/4/2018.

The requested analyses were logged on a 15 business day turn around time due to current laboratory capacity. The client was notified on 10/8/2018.

No other anomalies were observed during sample receipt.

Semivolatiles - Method 8270C DNX

Sample BPSF-180928-C09 (280-115205-1) was analyzed for semivolatile organic compounds (GC-MS) in accordance with EPA SW-846 Method 8270C. The sample was prepared on 10/11/2018 and analyzed on 10/18/2018.

Due to the matrix, the following samples could not be concentrated to the final method required volume: BPSF-180928-C09 (280-115205-1), BPSF-180928-C09 (280-115205-1[MS]) and BPSF-180928-C09 (280-115205-1[MSD]). The reporting limits (RLs) were elevated proportionately.

Each sample is analyzed to achieve the lowest possible reporting limits within the constraints of the method. Due to matrix, samples BPSF-180928-C09 (280-115205-1), BPSF-180928-C09 (280-115205-1[MS]) and BPSF-180928-C09 (280-115205-1[MSD]) had to be analyzed at dilutions. The samples were viscous. The surrogate recoveries were calculated from diluted samples. The reporting limits have been adjusted relative to the dilutions required.

The MS/MSD associated with prep batch 280-432882 was performed on sample BPSF-180928-C09 (280-115205-1). The MS/MSD spike compound recoveries and RPD data were not calculable due to the dilution required for the parent and MS/MSD. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action was deemed unnecessary.

No other analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Explosives - Method 8321A

Job ID: 280-115205-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

Sample BPSF-180928-C09 (280-115205-1) was analyzed for Explosives (dry weight) in accordance with SW846 8321A. The sample was leached on 10/10/2018, prepared on 10/12/2018 and analyzed on 10/19/2018.

The sample density was low for the following samples and 10g of matrix was not achievable in the extraction container size: BPSF-180928-C09 (280-115205-1), BPSF-180928-C09 (280-115205-1[MS]) and BPSF-180928-C09 (280-115205-1[MSD]). Only about 2.5g would offer a proper extraction because if more volume was used then the sample matrix would clog the extraction vessel and proper extraction would not be achieved.

A deviation from the Standard Operating Procedure (SOP) occurred. Details are as follows: The following samples were not sieved per SOP because the matrix contained mostly leaves of large particle size: BPSF-180928-C09 (280-115205-1), BPSF-180928-C09 (280-115205-1[MS]) and BPSF-180928-C09 (280-115205-1[MSD]). The sample was dried and then extracted.

The MS/MSD associated with prep batch 280-433198 was performed on sample BPSF-180928-C09 (280-115205-1). The MS/MSD exhibited spike compound recoveries below the QC control limits for Tetryl. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action was deemed unnecessary.

No other analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Percent Moisture

Sample BPSF-180928-C09 (280-115205-1) was analyzed for percent solids in accordance with ASTM D2216-90. The sample was analyzed on 10/08/2018.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-115205-1

Client Sample ID: BPSF-180928-C09 **Lab Sample ID: 280-115205-1**

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Denver

Method Summary

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-115205-1

Method	Method Description	Protocol	Laboratory
8270C	Semivolatile Organic Compounds (GC/MS)	SW846	TAL DEN
8321A	Nitroaromatic and Nitramine Compounds (Explosives) (LC/MS)	SW846	TAL DEN
D 2216-90	ASTM D 2216-90	ASTM	TAL DEN
3550C	Ultrasonic Extraction	SW846	TAL DEN
8330B	Sonication Extraction (Explosives)	SW846	TAL DEN
Increment, prep	ISM - Dry, Disaggregate, Sieve, 2 D Slabcake Subsample	EPA	TAL DEN

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-115205-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-115205-1	BPSF-180928-C09	Solid	09/28/18 12:30	10/05/18 09:30

Client Sample ID: BPSF-180928-C09
Date Collected: 09/28/18 12:30
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115205-1
Matrix: Solid
Percent Solids: 30.7

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dimethyl-3,4-Dinitrobenzene	18000	U	110000	18000	ug/Kg	☼	10/11/18 23:21	10/18/18 21:58	20
1,2-Dimethyl-3,5-Dinitrobenzene	15000	U	110000	15000	ug/Kg	☼	10/11/18 23:21	10/18/18 21:58	20
1,2-Dimethyl-3,6-Dinitrobenzene	16000	U	110000	16000	ug/Kg	☼	10/11/18 23:21	10/18/18 21:58	20
1,2-Dimethyl-4,5-Dinitrobenzene	15000	U	110000	15000	ug/Kg	☼	10/11/18 23:21	10/18/18 21:58	20
1,3-Dimethyl-2,4-Dinitrobenzene	11000	U	110000	11000	ug/Kg	☼	10/11/18 23:21	10/18/18 21:58	20
1,3-Dimethyl-2,5-Dinitrobenzene	10000	U	110000	10000	ug/Kg	☼	10/11/18 23:21	10/18/18 21:58	20
1,4-Dimethyl-2,3-Dinitrobenzene	17000	U	110000	17000	ug/Kg	☼	10/11/18 23:21	10/18/18 21:58	20
1,4-Dimethyl-2,5-Dinitrobenzene	8200	U	110000	8200	ug/Kg	☼	10/11/18 23:21	10/18/18 21:58	20
1,4-Dimethyl-2,6-Dinitrobenzene	11000	U	110000	11000	ug/Kg	☼	10/11/18 23:21	10/18/18 21:58	20
1,5-Dimethyl-2,3-Dinitrobenzene	17000	U	110000	17000	ug/Kg	☼	10/11/18 23:21	10/18/18 21:58	20
1,5-Dimethyl-2,4-Dinitrobenzene	15000	U	110000	15000	ug/Kg	☼	10/11/18 23:21	10/18/18 21:58	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*0*	*X D*	*24 - 135*	*10/11/18 23:21*	*10/18/18 21:58*	*20*
2-Fluorobiphenyl	*80*	*D*	*33 - 135*	*10/11/18 23:21*	*10/18/18 21:58*	*20*
2-Fluorophenol	*0*	*X D*	*39 - 135*	*10/11/18 23:21*	*10/18/18 21:58*	*20*
Nitrobenzene-d5	*0*	*X D*	*32 - 135*	*10/11/18 23:21*	*10/18/18 21:58*	*20*
Phenol-d5	*0*	*X D*	*39 - 135*	*10/11/18 23:21*	*10/18/18 21:58*	*20*
Terphenyl-d14	*70*	*D*	*30 - 135*	*10/11/18 23:21*	*10/18/18 21:58*	*20*

Method: 8321A - Nitroaromatic and Nitramine Compounds (Explosives) (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3,5-Trinitrobenzene	160	U	1200	160	ug/Kg	☼	10/12/18 17:45	10/19/18 00:18	1
1,3-Dinitrobenzene	88	U	1200	88	ug/Kg	☼	10/12/18 17:45	10/19/18 00:18	1
2,3-Dinitrotoluene	74	U	1200	74	ug/Kg	☼	10/12/18 17:45	10/19/18 00:18	1
2,4,6-Trinitro-3-xylene	51	U	1200	51	ug/Kg	☼	10/12/18 17:45	10/19/18 00:18	1
2,4,6-Trinitrotoluene	62	U	1200	62	ug/Kg	☼	10/12/18 17:45	10/19/18 00:18	1
2,4-Dinitrotoluene	100	U	1200	100	ug/Kg	☼	10/12/18 17:45	10/19/18 00:18	1
2,5-Dinitrotoluene	140	U	1200	140	ug/Kg	☼	10/12/18 17:45	10/19/18 00:18	1
2,6-Dinitrotoluene	250	U	1200	250	ug/Kg	☼	10/12/18 17:45	10/19/18 00:18	1
2-Amino-4,6-dinitrotoluene	150	U	1200	150	ug/Kg	☼	10/12/18 17:45	10/19/18 00:18	1
2-Nitrotoluene	71	U	1200	71	ug/Kg	☼	10/12/18 17:45	10/19/18 00:18	1
3,4-Dinitrotoluene	120	U	1200	120	ug/Kg	☼	10/12/18 17:45	10/19/18 00:18	1
3,5-Dinitrotoluene	260	U	1200	260	ug/Kg	☼	10/12/18 17:45	10/19/18 00:18	1
3-Nitrotoluene	160	U	1200	160	ug/Kg	☼	10/12/18 17:45	10/19/18 00:18	1
4-Amino-2,6-dinitrotoluene	63	U	1200	63	ug/Kg	☼	10/12/18 17:45	10/19/18 00:18	1
4-Nitrotoluene	140	U	1200	140	ug/Kg	☼	10/12/18 17:45	10/19/18 00:18	1
HMX	72	U	1200	72	ug/Kg	☼	10/12/18 17:45	10/19/18 00:18	1
Nitrobenzene	130	U	1200	130	ug/Kg	☼	10/12/18 17:45	10/19/18 00:18	1
Nitroglycerin	130	U	1200	130	ug/Kg	☼	10/12/18 17:45	10/19/18 00:18	1
PETN	64	U	1200	64	ug/Kg	☼	10/12/18 17:45	10/19/18 00:18	1
RDX	53	U	1200	53	ug/Kg	☼	10/12/18 17:45	10/19/18 00:18	1
Tetryl	94	U F1	1200	94	ug/Kg	☼	10/12/18 17:45	10/19/18 00:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*91*		*68 - 140*	*10/12/18 17:45*	*10/19/18 00:18*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**69.3**		0.1	0.1	%			10/08/18 15:05	1

Surrogate Summary

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-115205-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	FBP	2FP	NBZ	PHL	TPHL
Lab Sample ID	Client Sample ID	(24-135)	(33-135)	(39-135)	(32-135)	(39-135)	(30-135)
280-115205-1	BPSF-180928-C09	0 X D	80 D	0 X D	0 X D	0 X D	70 D
280-115205-1 MS	BPSF-180928-C09	0 X D	66 D	0 X D	0 X D	0 X D	73 D
280-115205-1 MSD	BPSF-180928-C09	0 X D	70 D	0 X D	0 X D	0 X D	84 D
LCS 280-432882/2-A	Lab Control Sample	76	74	75	68	74	76
MB 280-432882/1-A	Method Blank	65	71	70	64	70	69

Surrogate Legend

TBP = 2,4,6-Tribromophenol
FBP = 2-Fluorobiphenyl
2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
PHL = Phenol-d5
TPHL = Terphenyl-d14

Method: 8321A - Nitroaromatic and Nitramine Compounds (Explosives) (LC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		NBZ
Lab Sample ID	Client Sample ID	(68-140)
280-115205-1	BPSF-180928-C09	91
280-115205-1 MS	BPSF-180928-C09	90
280-115205-1 MSD	BPSF-180928-C09	89
LCS 280-433198/2-A	Lab Control Sample	95
MB 280-433198/1-A	Method Blank	87

Surrogate Legend

NBZ = Nitrobenzene-d5

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-432882/1-A
Matrix: Solid
Analysis Batch: 434017

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 432882

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dimethyl-3,4-Dinitrobenzene	28	U	170	28	ug/Kg		10/11/18 23:21	10/18/18 20:19	1
1,2-Dimethyl-3,5-Dinitrobenzene	23	U	170	23	ug/Kg		10/11/18 23:21	10/18/18 20:19	1
1,2-Dimethyl-3,6-Dinitrobenzene	25	U	170	25	ug/Kg		10/11/18 23:21	10/18/18 20:19	1
1,2-Dimethyl-4,5-Dinitrobenzene	23	U	170	23	ug/Kg		10/11/18 23:21	10/18/18 20:19	1
1,3-Dimethyl-2,4-Dinitrobenzene	17	U	170	17	ug/Kg		10/11/18 23:21	10/18/18 20:19	1
1,3-Dimethyl-2,5-Dinitrobenzene	16	U	170	16	ug/Kg		10/11/18 23:21	10/18/18 20:19	1
1,4-Dimethyl-2,3-Dinitrobenzene	27	U	170	27	ug/Kg		10/11/18 23:21	10/18/18 20:19	1
1,4-Dimethyl-2,5-Dinitrobenzene	13	U	170	13	ug/Kg		10/11/18 23:21	10/18/18 20:19	1
1,4-Dimethyl-2,6-Dinitrobenzene	18	U	170	18	ug/Kg		10/11/18 23:21	10/18/18 20:19	1
1,5-Dimethyl-2,3-Dinitrobenzene	27	U	170	27	ug/Kg		10/11/18 23:21	10/18/18 20:19	1
1,5-Dimethyl-2,4-Dinitrobenzene	23	U	170	23	ug/Kg		10/11/18 23:21	10/18/18 20:19	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*65*		*24 - 135*	*10/11/18 23:21*	*10/18/18 20:19*	*1*
2-Fluorobiphenyl	*71*		*33 - 135*	*10/11/18 23:21*	*10/18/18 20:19*	*1*
2-Fluorophenol	*70*		*39 - 135*	*10/11/18 23:21*	*10/18/18 20:19*	*1*
Nitrobenzene-d5	*64*		*32 - 135*	*10/11/18 23:21*	*10/18/18 20:19*	*1*
Phenol-d5	*70*		*39 - 135*	*10/11/18 23:21*	*10/18/18 20:19*	*1*
Terphenyl-d14	*69*		*30 - 135*	*10/11/18 23:21*	*10/18/18 20:19*	*1*

Lab Sample ID: LCS 280-432882/2-A
Matrix: Solid
Analysis Batch: 434017

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 432882

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dimethyl-3,4-Dinitrobenzene	1590	1420		ug/Kg		90	50 - 135
1,2-Dimethyl-3,5-Dinitrobenzene	1590	1440		ug/Kg		91	50 - 135
1,2-Dimethyl-3,6-Dinitrobenzene	1590	1420		ug/Kg		89	50 - 135
1,2-Dimethyl-4,5-Dinitrobenzene	1590	1420		ug/Kg		90	50 - 135
1,3-Dimethyl-2,4-Dinitrobenzene	1590	1440		ug/Kg		91	50 - 135
1,3-Dimethyl-2,5-Dinitrobenzene	1590	1440		ug/Kg		90	50 - 135
1,4-Dimethyl-2,3-Dinitrobenzene	1590	1420		ug/Kg		89	50 - 135
1,4-Dimethyl-2,5-Dinitrobenzene	1590	1390		ug/Kg		87	50 - 135
1,4-Dimethyl-2,6-Dinitrobenzene	1590	1400		ug/Kg		88	50 - 135
1,5-Dimethyl-2,3-Dinitrobenzene	1590	1440		ug/Kg		91	50 - 135
1,5-Dimethyl-2,4-Dinitrobenzene	1590	1420		ug/Kg		89	50 - 135

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol	*76*		*24 - 135*
2-Fluorobiphenyl	*74*		*33 - 135*
2-Fluorophenol	*75*		*39 - 135*
Nitrobenzene-d5	*68*		*32 - 135*
Phenol-d5	*74*		*39 - 135*
Terphenyl-d14	*76*		*30 - 135*

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-115205-1 MS
Matrix: Solid
Analysis Batch: 434017

Client Sample ID: BPSF-180928-C09
Prep Type: Total/NA
Prep Batch: 432882

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dimethyl-3,4-Dinitrobenzene	18000	U	4930	17000	U D	ug/Kg	☼	NC	50 - 135
1,2-Dimethyl-3,5-Dinitrobenzene	15000	U	4930	14000	U D	ug/Kg	☼	NC	50 - 135
1,2-Dimethyl-3,6-Dinitrobenzene	16000	U	4930	15000	U D	ug/Kg	☼	NC	50 - 135
1,2-Dimethyl-4,5-Dinitrobenzene	15000	U	4930	14000	U D	ug/Kg	☼	NC	50 - 135
1,3-Dimethyl-2,4-Dinitrobenzene	11000	U	4930	10000	U D	ug/Kg	☼	NC	50 - 135
1,3-Dimethyl-2,5-Dinitrobenzene	10000	U	4930	9500	U D	ug/Kg	☼	NC	50 - 135
1,4-Dimethyl-2,3-Dinitrobenzene	17000	U	4930	16000	U D	ug/Kg	☼	NC	50 - 135
1,4-Dimethyl-2,5-Dinitrobenzene	8200	U	4930	7700	U D	ug/Kg	☼	NC	50 - 135
1,4-Dimethyl-2,6-Dinitrobenzene	11000	U	4930	11000	U D	ug/Kg	☼	NC	50 - 135
1,5-Dimethyl-2,3-Dinitrobenzene	17000	U	4930	16000	U D	ug/Kg	☼	NC	50 - 135
1,5-Dimethyl-2,4-Dinitrobenzene	15000	U	4930	14000	U D	ug/Kg	☼	NC	50 - 135

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2,4,6-Tribromophenol	*0*	*X D*	*24 - 135*
2-Fluorobiphenyl	*66*	*D*	*33 - 135*
2-Fluorophenol	*0*	*X D*	*39 - 135*
Nitrobenzene-d5	*0*	*X D*	*32 - 135*
Phenol-d5	*0*	*X D*	*39 - 135*
Terphenyl-d14	*73*	*D*	*30 - 135*

Lab Sample ID: 280-115205-1 MSD
Matrix: Solid
Analysis Batch: 434017

Client Sample ID: BPSF-180928-C09
Prep Type: Total/NA
Prep Batch: 432882

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dimethyl-3,4-Dinitrobenzene	18000	U	5170	17000	U D	ug/Kg	☼	NC	50 - 135	NC	30
1,2-Dimethyl-3,5-Dinitrobenzene	15000	U	5170	14000	U D	ug/Kg	☼	NC	50 - 135	NC	30
1,2-Dimethyl-3,6-Dinitrobenzene	16000	U	5170	16000	U D	ug/Kg	☼	NC	50 - 135	NC	30
1,2-Dimethyl-4,5-Dinitrobenzene	15000	U	5170	14000	U D	ug/Kg	☼	NC	50 - 135	NC	30
1,3-Dimethyl-2,4-Dinitrobenzene	11000	U	5170	11000	U D	ug/Kg	☼	NC	50 - 135	NC	30
1,3-Dimethyl-2,5-Dinitrobenzene	10000	U	5170	9900	U D	ug/Kg	☼	NC	50 - 135	NC	30
1,4-Dimethyl-2,3-Dinitrobenzene	17000	U	5170	17000	U D	ug/Kg	☼	NC	50 - 135	NC	30
1,4-Dimethyl-2,5-Dinitrobenzene	8200	U	5170	8100	U D	ug/Kg	☼	NC	50 - 135	NC	30
1,4-Dimethyl-2,6-Dinitrobenzene	11000	U	5170	11000	U D	ug/Kg	☼	NC	50 - 135	NC	30
1,5-Dimethyl-2,3-Dinitrobenzene	17000	U	5170	17000	U D	ug/Kg	☼	NC	50 - 135	NC	30
1,5-Dimethyl-2,4-Dinitrobenzene	15000	U	5170	14000	U D	ug/Kg	☼	NC	50 - 135	NC	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*0*	*X D*	*24 - 135*
2-Fluorobiphenyl	*70*	*D*	*33 - 135*
2-Fluorophenol	*0*	*X D*	*39 - 135*
Nitrobenzene-d5	*0*	*X D*	*32 - 135*
Phenol-d5	*0*	*X D*	*39 - 135*
Terphenyl-d14	*84*	*D*	*30 - 135*

Method: 8321A - Nitroaromatic and Nitramine Compounds (Explosives) (LC/MS)

Lab Sample ID: MB 280-433198/1-A
Matrix: Solid
Analysis Batch: 434081

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433198

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3,5-Trinitrobenzene	13	U	100	13	ug/Kg		10/12/18 17:45	10/18/18 23:13	1
1,3-Dinitrobenzene	7.1	U	100	7.1	ug/Kg		10/12/18 17:45	10/18/18 23:13	1
2,3-Dinitrotoluene	6.0	U	100	6.0	ug/Kg		10/12/18 17:45	10/18/18 23:13	1
2,4,6-Trinitro-3-xylene	4.1	U	100	4.1	ug/Kg		10/12/18 17:45	10/18/18 23:13	1
2,4,6-Trinitrotoluene	5.0	U	100	5.0	ug/Kg		10/12/18 17:45	10/18/18 23:13	1
2,4-Dinitrotoluene	8.2	U	100	8.2	ug/Kg		10/12/18 17:45	10/18/18 23:13	1
2,5-Dinitrotoluene	11	U	100	11	ug/Kg		10/12/18 17:45	10/18/18 23:13	1
2,6-Dinitrotoluene	20	U	100	20	ug/Kg		10/12/18 17:45	10/18/18 23:13	1
2-Amino-4,6-dinitrotoluene	12	U	100	12	ug/Kg		10/12/18 17:45	10/18/18 23:13	1
2-Nitrotoluene	5.7	U	100	5.7	ug/Kg		10/12/18 17:45	10/18/18 23:13	1
3,4-Dinitrotoluene	10	U	100	10	ug/Kg		10/12/18 17:45	10/18/18 23:13	1
3,5-Dinitrotoluene	21	U	100	21	ug/Kg		10/12/18 17:45	10/18/18 23:13	1
3-Nitrotoluene	13	U	100	13	ug/Kg		10/12/18 17:45	10/18/18 23:13	1
4-Amino-2,6-dinitrotoluene	5.1	U	100	5.1	ug/Kg		10/12/18 17:45	10/18/18 23:13	1
4-Nitrotoluene	11	U	100	11	ug/Kg		10/12/18 17:45	10/18/18 23:13	1
HMX	5.8	U	100	5.8	ug/Kg		10/12/18 17:45	10/18/18 23:13	1
Nitrobenzene	11	U	100	11	ug/Kg		10/12/18 17:45	10/18/18 23:13	1
Nitroglycerin	11	U	100	11	ug/Kg		10/12/18 17:45	10/18/18 23:13	1
PETN	5.2	U	100	5.2	ug/Kg		10/12/18 17:45	10/18/18 23:13	1
RDX	4.3	U	100	4.3	ug/Kg		10/12/18 17:45	10/18/18 23:13	1
Tetryl	7.6	U	100	7.6	ug/Kg		10/12/18 17:45	10/18/18 23:13	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*87*		*68 - 140*	*10/12/18 17:45*	*10/18/18 23:13*	*1*

Lab Sample ID: LCS 280-433198/2-A
Matrix: Solid
Analysis Batch: 434081

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433198

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,3,5-Trinitrobenzene	400	417		ug/Kg		104	45 - 142
1,3-Dinitrobenzene	400	425		ug/Kg		106	74 - 130
2,3-Dinitrotoluene	400	402		ug/Kg		101	50 - 150
2,4,6-Trinitro-3-xylene	400	422		ug/Kg		105	50 - 150
2,4,6-Trinitrotoluene	400	399		ug/Kg		100	60 - 135
2,4-Dinitrotoluene	400	414		ug/Kg		104	63 - 130
2,5-Dinitrotoluene	400	441		ug/Kg		110	50 - 150
2,6-Dinitrotoluene	400	409		ug/Kg		102	65 - 133
2-Amino-4,6-dinitrotoluene	400	322		ug/Kg		81	51 - 148
2-Nitrotoluene	400	387		ug/Kg		97	59 - 150
3,4-Dinitrotoluene	400	414		ug/Kg		103	50 - 150
3,5-Dinitrotoluene	400	433		ug/Kg		108	50 - 150
3-Nitrotoluene	400	382		ug/Kg		95	56 - 154
4-Amino-2,6-dinitrotoluene	400	366		ug/Kg		92	60 - 141
4-Nitrotoluene	400	408		ug/Kg		102	72 - 145
HMX	400	400		ug/Kg		100	48 - 131
Nitrobenzene	400	396		ug/Kg		99	70 - 140
Nitroglycerin	400	361		ug/Kg		90	27 - 146

Method: 8321A - Nitroaromatic and Nitramine Compounds (Explosives) (LC/MS) (Continued)

Lab Sample ID: LCS 280-433198/2-A
Matrix: Solid
Analysis Batch: 434081

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433198

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
PETN			400	379		ug/Kg		95	31 - 171		
RDX			400	416		ug/Kg		104	69 - 130		
Tetryl			400	359		ug/Kg		90	10 - 170		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5	*95*		*68 - 140*

Lab Sample ID: 280-115205-1 MS
Matrix: Solid
Analysis Batch: 434081

Client Sample ID: BPSF-180928-C09
Prep Type: Total/NA
Prep Batch: 433198

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,3,5-Trinitrobenzene	160	U	5050	5540		ug/Kg	☼	110	45 - 142		
1,3-Dinitrobenzene	88	U	5050	4710		ug/Kg	☼	93	74 - 130		
2,3-Dinitrotoluene	74	U	5050	4630		ug/Kg	☼	92	50 - 150		
2,4,6-Trinitro-3-xylene	51	U	5050	5070		ug/Kg	☼	100	50 - 150		
2,4,6-Trinitrotoluene	62	U	5050	4600		ug/Kg	☼	91	60 - 135		
2,4-Dinitrotoluene	100	U	5050	4730		ug/Kg	☼	94	63 - 130		
2,5-Dinitrotoluene	140	U	5050	5350		ug/Kg	☼	106	50 - 150		
2,6-Dinitrotoluene	250	U	5050	4630		ug/Kg	☼	92	65 - 133		
2-Amino-4,6-dinitrotoluene	150	U	5050	4210		ug/Kg	☼	83	51 - 148		
2-Nitrotoluene	71	U	5050	4480		ug/Kg	☼	89	59 - 150		
3,4-Dinitrotoluene	120	U	5050	4840		ug/Kg	☼	96	50 - 150		
3,5-Dinitrotoluene	260	U	5050	4900		ug/Kg	☼	97	50 - 150		
3-Nitrotoluene	160	U	5050	4300		ug/Kg	☼	85	56 - 154		
4-Amino-2,6-dinitrotoluene	63	U	5050	4540		ug/Kg	☼	90	60 - 141		
4-Nitrotoluene	140	U	5050	4730		ug/Kg	☼	94	72 - 145		
HMX	72	U	5050	4800		ug/Kg	☼	95	48 - 131		
Nitrobenzene	130	U	5050	4560		ug/Kg	☼	90	70 - 140		
Nitroglycerin	130	U	5050	4390		ug/Kg	☼	87	27 - 146		
PETN	64	U	5050	4640		ug/Kg	☼	92	31 - 171		
RDX	53	U	5050	4170		ug/Kg	☼	83	69 - 130		
Tetryl	94	U F1	5050	96	U F1	ug/Kg	☼	0	10 - 170		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Nitrobenzene-d5	*90*		*68 - 140*

Lab Sample ID: 280-115205-1 MSD
Matrix: Solid
Analysis Batch: 434081

Client Sample ID: BPSF-180928-C09
Prep Type: Total/NA
Prep Batch: 433198

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,3,5-Trinitrobenzene	160	U	4950	5330		ug/Kg	☼	108	45 - 142	4	70
1,3-Dinitrobenzene	88	U	4950	4800		ug/Kg	☼	97	74 - 130	2	25
2,3-Dinitrotoluene	74	U	4950	5140		ug/Kg	☼	104	50 - 150	10	30
2,4,6-Trinitro-3-xylene	51	U	4950	5250		ug/Kg	☼	106	50 - 150	4	30
2,4,6-Trinitrotoluene	62	U	4950	4710		ug/Kg	☼	95	60 - 135	2	25
2,4-Dinitrotoluene	100	U	4950	5010		ug/Kg	☼	101	63 - 130	6	25

Method: 8321A - Nitroaromatic and Nitramine Compounds (Explosives) (LC/MS) (Continued)

Lab Sample ID: 280-115205-1 MSD
Matrix: Solid
Analysis Batch: 434081

Client Sample ID: BPSF-180928-C09
Prep Type: Total/NA
Prep Batch: 433198

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,5-Dinitrotoluene	140	U	4950	5060		ug/Kg	☼	102	50 - 150	6	30
2,6-Dinitrotoluene	250	U	4950	5170		ug/Kg	☼	104	65 - 133	11	25
2-Amino-4,6-dinitrotoluene	150	U	4950	4290		ug/Kg	☼	87	51 - 148	2	25
2-Nitrotoluene	71	U	4950	4680		ug/Kg	☼	94	59 - 150	4	45
3,4-Dinitrotoluene	120	U	4960	5090		ug/Kg	☼	103	50 - 150	5	30
3,5-Dinitrotoluene	260	U	4950	5510		ug/Kg	☼	111	50 - 150	12	30
3-Nitrotoluene	160	U	4950	4590		ug/Kg	☼	93	56 - 154	6	25
4-Amino-2,6-dinitrotoluene	63	U	4950	4600		ug/Kg	☼	93	60 - 141	1	48
4-Nitrotoluene	140	U	4950	4840		ug/Kg	☼	98	72 - 145	2	25
HMX	72	U	4950	4650		ug/Kg	☼	94	48 - 131	3	25
Nitrobenzene	130	U	4950	4970		ug/Kg	☼	100	70 - 140	9	25
Nitroglycerin	130	U	4950	4470		ug/Kg	☼	90	27 - 146	2	92
PETN	64	U	4950	4720		ug/Kg	☼	95	31 - 171	2	40
RDX	53	U	4950	4290		ug/Kg	☼	87	69 - 130	3	25
Tetryl	94	U F1	4950	94	U F1	ug/Kg	☼	0	10 - 170	NC	50

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Nitrobenzene-d5	*89*		*68 - 140*

Method: D 2216-90 - ASTM D 2216-90

Lab Sample ID: 280-115144-B-1 DU
Matrix: Solid
Analysis Batch: 432479

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Moisture	79.6		79.6		%		0	20

QC Association Summary

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-115205-1

GC/MS Semi VOA

Prep Batch: 432882

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115205-1	BPSF-180928-C09	Total/NA	Solid	3550C	
MB 280-432882/1-A	Method Blank	Total/NA	Solid	3550C	
LCS 280-432882/2-A	Lab Control Sample	Total/NA	Solid	3550C	
280-115205-1 MS	BPSF-180928-C09	Total/NA	Solid	3550C	
280-115205-1 MSD	BPSF-180928-C09	Total/NA	Solid	3550C	

Analysis Batch: 434017

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115205-1	BPSF-180928-C09	Total/NA	Solid	8270C	432882
MB 280-432882/1-A	Method Blank	Total/NA	Solid	8270C	432882
LCS 280-432882/2-A	Lab Control Sample	Total/NA	Solid	8270C	432882
280-115205-1 MS	BPSF-180928-C09	Total/NA	Solid	8270C	432882
280-115205-1 MSD	BPSF-180928-C09	Total/NA	Solid	8270C	432882

LCMS

ISM Prep Batch: 432826

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115205-1	BPSF-180928-C09	Total/NA	Solid	Increment, prep	
280-115205-1 MS	BPSF-180928-C09	Total/NA	Solid	Increment, prep	
280-115205-1 MSD	BPSF-180928-C09	Total/NA	Solid	Increment, prep	

Prep Batch: 433198

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115205-1	BPSF-180928-C09	Total/NA	Solid	8330B	432826
MB 280-433198/1-A	Method Blank	Total/NA	Solid	8330B	
LCS 280-433198/2-A	Lab Control Sample	Total/NA	Solid	8330B	
280-115205-1 MS	BPSF-180928-C09	Total/NA	Solid	8330B	432826
280-115205-1 MSD	BPSF-180928-C09	Total/NA	Solid	8330B	432826

Analysis Batch: 434081

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115205-1	BPSF-180928-C09	Total/NA	Solid	8321A	433198
MB 280-433198/1-A	Method Blank	Total/NA	Solid	8321A	433198
LCS 280-433198/2-A	Lab Control Sample	Total/NA	Solid	8321A	433198
280-115205-1 MS	BPSF-180928-C09	Total/NA	Solid	8321A	433198
280-115205-1 MSD	BPSF-180928-C09	Total/NA	Solid	8321A	433198

General Chemistry

Analysis Batch: 432479

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115205-1	BPSF-180928-C09	Total/NA	Solid	D 2216-90	
280-115144-B-1 DU	Duplicate	Total/NA	Solid	D 2216-90	

Lab Chronicle

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-115205-1

Client Sample ID: BPSF-180928-C09

Lab Sample ID: 280-115205-1

Date Collected: 09/28/18 12:30

Matrix: Solid

Date Received: 10/05/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216-90		1			432479	10/08/18 15:05	MJS	TAL DEN

Client Sample ID: BPSF-180928-C09

Lab Sample ID: 280-115205-1

Date Collected: 09/28/18 12:30

Matrix: Solid

Date Received: 10/05/18 09:30

Percent Solids: 30.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			30.9 g	10 mL	432882	10/11/18 23:21	DWC	TAL DEN
Total/NA	Analysis	8270C		20			434017	10/18/18 21:58	DCK	TAL DEN
Total/NA	ISM Prep	Increment, prep					432826	10/10/18 15:31	RPC	TAL DEN
Total/NA	Prep	8330B			2.64 g	40 mL	433198	10/12/18 17:45	RPC	TAL DEN
Total/NA	Analysis	8321A		1			434081	10/19/18 00:18	AGCM	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-115205-1

Laboratory: TestAmerica Denver

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Wisconsin	State Program	5	999615430	08-31-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Eric Schmidt & Dan Barton	Lab PM: Johnston, Michelle A	Carrier Tracking No(s): FEDEX 4546 9351 9577	COC No: 180004-1
Client Contact: Sharon Nordstrom	Phone: 715-373-2100	E-Mail: michelle.johnston@testamericainc.com		Page: Page 1 of 1
Company: The Chemours Company FC, LLC				Job #:
Address: c/o AECOM Sabre Building, Suite 300 4051 Ogletown Road	Due Date Requested:			
City: Newark	TAT Requested (days): 15 Business Days			
State, Zip: DE, 19713				
Phone: 302-892-8947(Tel)	PO #: LBIO-67048/77201000-WH06-507911			
Email: sharon.nordstrom@aecom.com	WO #:			
Project Name: BAR-Bio Pilot ~~2017~~ 2018	Project #: ~~28003388~~ 507911 / 160525839			
Site: Barksdale, WI	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

SAMPLE FROZEN ON 10/2 (REFRIGERATED PRIOR)

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	NWOE + PFAST (8321A)	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
BPSF-180928-C09	9/28/18	1230	Comp	BT	N	Y	X		

280-115205 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date: 9/25/17	Time: 0845	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
E Schmidt	10/4/18 1200	AECOM		10/5/18 0930	TADEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.9 +0.7 IR#9 transfer by JD

Login Sample Receipt Checklist

Client: Chemours Company FC, LLC The

Job Number: 280-115205-1

Login Number: 115205
List Number: 1
Creator: Diffendall, Jessica L

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-115961-1
Client Project/Site: BAR-Bio Pilot 2018

For:
Chemours Company FC, LLC The
c/o AECOM
Sabre Building, Suite 300
4051 Ogletown Road
Newark, Delaware 19713

Attn: Sharon Nordstrom

Authorized for release by:
11/5/2018 9:25:40 AM

Michelle Johnston, Project Manager II
(303)736-0110
michelle.johnston@testamericainc.com

Table of Contents

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-115961-1

Qualifiers

Metals

Qualifier	Qualifier Description
F2	MS/MSD RPD exceeds control limits
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F4	MS/MSD RPD exceeds control limits due to sample size difference.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-115961-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE
Client: The Chemours Company FC, LLC
Project: BAR-Bio Pilot 2018
Report Number: 280-115961-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

Throughout this report the MDL is equivalent to the LOD and the RL is equivalent to the LOQ. The LOD and LOQ have been adjusted for all dilutions performed.

The LOD and LOQ for soil samples have been dry weight adjusted.

Sample Receipt

The samples were received on 10/23/2018 8:50 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.5ºC.

The project name was revised to BAR-Bio Pilot 2018 to match the year the samples were collected.

No other anomalies were observed during sample receipt.

Metals - 6010B

Samples BPSB-181009-C31AH (280-115961-1), BPSB-181002-C28AH (280-115961-2), BPSB-181002-C21AH (280-115961-3), BPSB-181002-C27AH (280-115961-4), BPSB-181002-C25AH (280-115961-5), BPSB-181002-C24AH (280-115961-6), BPSB-181002-C26AH (280-115961-7), BPSB-181002-C17AH (280-115961-8), BPSB-181002-C06AH (280-115961-9), BPSB-181002-C12AH (280-115961-10), BPSB-181018-C16AH (280-115961-11) and BPSB-181018-C33 (280-115961-12) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010B. The samples were prepared on 10/26/2018 and analyzed on 10/27/2018, 10/29/2018 and 11/01/2018.

The MS/MSD associated with prep batch 280-434891 was performed on sample BPSB-181009-C31AH (280-115961-1). The MS/MSD exhibited RPD data above the QC control limits for Antimony. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action was deemed unnecessary.

No other analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Mercury - 7471A

Samples BPSB-181009-C31AH (280-115961-1), BPSB-181002-C28AH (280-115961-2), BPSB-181002-C21AH (280-115961-3), BPSB-181002-C27AH (280-115961-4), BPSB-181002-C25AH (280-115961-5), BPSB-181002-C24AH (280-115961-6), BPSB-181002-C26AH (280-115961-7), BPSB-181002-C17AH (280-115961-8), BPSB-181002-C06AH (280-115961-9), BPSB-181002-C12AH (280-115961-10), BPSB-181018-C16AH (280-115961-11) and BPSB-181018-C33 (280-115961-12) were analyzed for total mercury (CVAA) in accordance with EPA SW-846 Method 7471A. The samples were prepared and analyzed on 10/30/2018.

The method required MS/MSD could not be performed for prep batch 280-435433, due to insufficient sample volume. Method precision and accuracy have been verified by the acceptable LCS/LCSD analyses data.

No other analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Job ID: 280-115961-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

Percent Moisture

Samples BPSB-181009-C31AH (280-115961-1), BPSB-181002-C28AH (280-115961-2), BPSB-181002-C21AH (280-115961-3), BPSB-181002-C27AH (280-115961-4), BPSB-181002-C25AH (280-115961-5), BPSB-181002-C24AH (280-115961-6), BPSB-181002-C26AH (280-115961-7), BPSB-181002-C17AH (280-115961-8), BPSB-181002-C06AH (280-115961-9), BPSB-181002-C12AH (280-115961-10), BPSB-181018-C16AH (280-115961-11) and BPSB-181018-C33 (280-115961-12) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 10/27/2018.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-115961-1

Client Sample ID: BPSB-181009-C31AH — Lab Sample ID: 280-115961-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	2800	J	3200	1100	ug/Kg	1	☼	6010B	Total/NA
Barium	91000		1600	170	ug/Kg	1	☼	6010B	Total/NA
Beryllium	520	J	800	53	ug/Kg	1	☼	6010B	Total/NA
Chromium	25000		2400	93	ug/Kg	1	☼	6010B	Total/NA
Copper	22000		3200	350	ug/Kg	1	☼	6010B	Total/NA
Lead	44000		1400	500	ug/Kg	1	☼	6010B	Total/NA
Nickel	20000		6400	210	ug/Kg	1	☼	6010B	Total/NA
Zinc	45000		4800	640	ug/Kg	1	☼	6010B	Total/NA
Mercury	180		34	11	ug/Kg	1	☼	7471A	Total/NA

Client Sample ID: BPSB-181002-C28AH — Lab Sample ID: 280-115961-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	2500		2400	790	ug/Kg	1	☼	6010B	Total/NA
Barium	64000		1200	120	ug/Kg	1	☼	6010B	Total/NA
Beryllium	400	J	590	39	ug/Kg	1	☼	6010B	Total/NA
Chromium	22000		1800	69	ug/Kg	1	☼	6010B	Total/NA
Copper	12000		2400	260	ug/Kg	1	☼	6010B	Total/NA
Lead	13000		1100	370	ug/Kg	1	☼	6010B	Total/NA
Nickel	14000		4700	160	ug/Kg	1	☼	6010B	Total/NA
Zinc	34000		3500	470	ug/Kg	1	☼	6010B	Total/NA
Mercury	32		22	7.1	ug/Kg	1	☼	7471A	Total/NA

Client Sample ID: BPSB-181002-C21AH — Lab Sample ID: 280-115961-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	3000		2100	710	ug/Kg	1	☼	6010B	Total/NA
Barium	69000		1100	110	ug/Kg	1	☼	6010B	Total/NA
Beryllium	390	J	530	35	ug/Kg	1	☼	6010B	Total/NA
Chromium	24000		1600	62	ug/Kg	1	☼	6010B	Total/NA
Copper	23000		2100	230	ug/Kg	1	☼	6010B	Total/NA
Lead	120000		960	330	ug/Kg	1	☼	6010B	Total/NA
Nickel	17000		4300	140	ug/Kg	1	☼	6010B	Total/NA
Zinc	43000		3200	420	ug/Kg	1	☼	6010B	Total/NA
Mercury	150		21	7.0	ug/Kg	1	☼	7471A	Total/NA

Client Sample ID: BPSB-181002-C27AH — Lab Sample ID: 280-115961-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	2100		2000	660	ug/Kg	1	☼	6010B	Total/NA
Barium	64000		990	100	ug/Kg	1	☼	6010B	Total/NA
Beryllium	380	J	490	33	ug/Kg	1	☼	6010B	Total/NA
Chromium	17000		1500	57	ug/Kg	1	☼	6010B	Total/NA
Copper	17000		2000	210	ug/Kg	1	☼	6010B	Total/NA
Lead	18000		890	310	ug/Kg	1	☼	6010B	Total/NA
Nickel	14000		4000	130	ug/Kg	1	☼	6010B	Total/NA
Zinc	26000		3000	390	ug/Kg	1	☼	6010B	Total/NA

Client Sample ID: BPSB-181002-C25AH — Lab Sample ID: 280-115961-5

This Detection Summary does not include radiochemical test results.

TestAmerica Denver

Client Sample ID: BPSB-181002-C25AH (Continued) — Lab Sample ID: 280-115961-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	2500		2300	770	ug/Kg	1	☼	6010B	Total/NA
Barium	67000		1200	120	ug/Kg	1	☼	6010B	Total/NA
Beryllium	380	J	580	38	ug/Kg	1	☼	6010B	Total/NA
Chromium	20000		1700	67	ug/Kg	1	☼	6010B	Total/NA
Copper	17000		2300	250	ug/Kg	1	☼	6010B	Total/NA
Lead	350000		1000	360	ug/Kg	1	☼	6010B	Total/NA
Nickel	14000		4600	150	ug/Kg	1	☼	6010B	Total/NA
Zinc	33000		3500	460	ug/Kg	1	☼	6010B	Total/NA
Mercury	100		22	7.2	ug/Kg	1	☼	7471A	Total/NA

Client Sample ID: BPSB-181002-C24AH — Lab Sample ID: 280-115961-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	3100		2300	780	ug/Kg	1	☼	6010B	Total/NA
Barium	95000		1200	120	ug/Kg	1	☼	6010B	Total/NA
Beryllium	490	J	580	39	ug/Kg	1	☼	6010B	Total/NA
Chromium	26000		1800	68	ug/Kg	1	☼	6010B	Total/NA
Copper	23000		2300	250	ug/Kg	1	☼	6010B	Total/NA
Lead	85000		1100	360	ug/Kg	1	☼	6010B	Total/NA
Nickel	21000		4700	150	ug/Kg	1	☼	6010B	Total/NA
Zinc	51000		3500	470	ug/Kg	1	☼	6010B	Total/NA
Mercury	100		21	7.0	ug/Kg	1	☼	7471A	Total/NA

Client Sample ID: BPSB-181002-C26AH — Lab Sample ID: 280-115961-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	3000		2300	770	ug/Kg	1	☼	6010B	Total/NA
Barium	84000		1200	120	ug/Kg	1	☼	6010B	Total/NA
Beryllium	460	J	580	38	ug/Kg	1	☼	6010B	Total/NA
Chromium	23000		1700	67	ug/Kg	1	☼	6010B	Total/NA
Copper	22000		2300	250	ug/Kg	1	☼	6010B	Total/NA
Lead	150000		1000	360	ug/Kg	1	☼	6010B	Total/NA
Nickel	17000		4600	150	ug/Kg	1	☼	6010B	Total/NA
Zinc	46000		3500	460	ug/Kg	1	☼	6010B	Total/NA
Mercury	69		21	6.8	ug/Kg	1	☼	7471A	Total/NA

Client Sample ID: BPSB-181002-C17AH — Lab Sample ID: 280-115961-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	13000		2400	790	ug/Kg	1	☼	6010B	Total/NA
Barium	150000		1200	120	ug/Kg	1	☼	6010B	Total/NA
Beryllium	570	J	590	39	ug/Kg	1	☼	6010B	Total/NA
Cadmium	5800		590	49	ug/Kg	1	☼	6010B	Total/NA
Chromium	38000		1800	69	ug/Kg	1	☼	6010B	Total/NA
Copper	91000		2400	260	ug/Kg	1	☼	6010B	Total/NA
Lead	240000		1100	370	ug/Kg	1	☼	6010B	Total/NA
Nickel	29000		4700	160	ug/Kg	1	☼	6010B	Total/NA
Silver	390	J	1200	190	ug/Kg	1	☼	6010B	Total/NA
Zinc	1800000		3600	470	ug/Kg	1	☼	6010B	Total/NA
Mercury	390		22	7.2	ug/Kg	1	☼	7471A	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-115961-1

Client Sample ID: BPSB-181002-C06AH — Lab Sample ID: 280-115961-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	1900		1600	790	ug/Kg	1	☼	6010B	Total/NA
Arsenic	5200		2100	710	ug/Kg	1	☼	6010B	Total/NA
Barium	160000		1100	110	ug/Kg	1	☼	6010B	Total/NA
Beryllium	550		540	35	ug/Kg	1	☼	6010B	Total/NA
Cadmium	130	J	540	44	ug/Kg	1	☼	6010B	Total/NA
Chromium	36000		1600	62	ug/Kg	1	☼	6010B	Total/NA
Copper	42000		2100	230	ug/Kg	1	☼	6010B	Total/NA
Lead	430000		960	330	ug/Kg	1	☼	6010B	Total/NA
Nickel	26000		4300	140	ug/Kg	1	☼	6010B	Total/NA
Zinc	130000		3200	430	ug/Kg	1	☼	6010B	Total/NA
Mercury	280		25	8.1	ug/Kg	1	☼	7471A	Total/NA

Client Sample ID: BPSB-181002-C12AH — Lab Sample ID: 280-115961-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	13000		2300	770	ug/Kg	1	☼	6010B	Total/NA
Barium	170000		1200	120	ug/Kg	1	☼	6010B	Total/NA
Beryllium	360	J	580	38	ug/Kg	1	☼	6010B	Total/NA
Cadmium	210	J	580	47	ug/Kg	1	☼	6010B	Total/NA
Chromium	32000		1700	67	ug/Kg	1	☼	6010B	Total/NA
Copper	52000		2300	250	ug/Kg	1	☼	6010B	Total/NA
Lead	290000		1000	360	ug/Kg	1	☼	6010B	Total/NA
Nickel	37000		4600	150	ug/Kg	1	☼	6010B	Total/NA
Silver	250	J	1200	190	ug/Kg	1	☼	6010B	Total/NA
Zinc	150000		3500	460	ug/Kg	1	☼	6010B	Total/NA
Mercury	180		26	8.4	ug/Kg	1	☼	7471A	Total/NA

Client Sample ID: BPSB-181018-C16AH — Lab Sample ID: 280-115961-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	2600		2400	810	ug/Kg	1	☼	6010B	Total/NA
Barium	75000		1200	130	ug/Kg	1	☼	6010B	Total/NA
Beryllium	400	J	610	40	ug/Kg	1	☼	6010B	Total/NA
Chromium	24000		1800	70	ug/Kg	1	☼	6010B	Total/NA
Copper	16000		2400	260	ug/Kg	1	☼	6010B	Total/NA
Lead	100000		1100	380	ug/Kg	1	☼	6010B	Total/NA
Nickel	15000		4800	160	ug/Kg	1	☼	6010B	Total/NA
Silver	240	J	1200	190	ug/Kg	1	☼	6010B	Total/NA
Zinc	44000		3600	480	ug/Kg	1	☼	6010B	Total/NA
Mercury	44		25	8.0	ug/Kg	1	☼	7471A	Total/NA

Client Sample ID: BPSB-181018-C33 — Lab Sample ID: 280-115961-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	3500		2400	800	ug/Kg	1	☼	6010B	Total/NA
Barium	140000		1200	130	ug/Kg	1	☼	6010B	Total/NA
Beryllium	1000		600	40	ug/Kg	1	☼	6010B	Total/NA
Chromium	39000		1800	70	ug/Kg	1	☼	6010B	Total/NA
Copper	30000		2400	260	ug/Kg	1	☼	6010B	Total/NA
Lead	16000		1100	370	ug/Kg	1	☼	6010B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Denver

Client Sample ID: BPSB-181018-C33 (Continued)

Lab Sample ID: 280-115961-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Nickel	27000		4800	160	ug/Kg	1	☼	6010B	Total/NA
Zinc	58000		3600	480	ug/Kg	1	☼	6010B	Total/NA
Mercury	100		23	7.6	ug/Kg	1	☼	7471A	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-115961-1

Method	Method Description	Protocol	Laboratory
6010B	Metals (ICP)	SW846	TAL DEN
7471A	Mercury (CVAA)	SW846	TAL DEN
D 2216-90	ASTM D 2216-90	ASTM	TAL DEN
3050B	Preparation, Metals	SW846	TAL DEN
7471A	Preparation, Mercury	SW846	TAL DEN

Protocol References:

ASTM = ASTM International

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-115961-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-115961-1	BPSB-181009-C31AH	Solid	10/09/18 11:20	10/23/18 08:50
280-115961-2	BPSB-181002-C28AH	Solid	10/02/18 11:25	10/23/18 08:50
280-115961-3	BPSB-181002-C21AH	Solid	10/02/18 11:35	10/23/18 08:50
280-115961-4	BPSB-181002-C27AH	Solid	10/02/18 11:45	10/23/18 08:50
280-115961-5	BPSB-181002-C25AH	Solid	10/02/18 11:50	10/23/18 08:50
280-115961-6	BPSB-181002-C24AH	Solid	10/02/18 11:55	10/23/18 08:50
280-115961-7	BPSB-181002-C26AH	Solid	10/02/18 12:00	10/23/18 08:50
280-115961-8	BPSB-181002-C17AH	Solid	10/02/18 12:15	10/23/18 08:50
280-115961-9	BPSB-181002-C06AH	Solid	10/02/18 12:25	10/23/18 08:50
280-115961-10	BPSB-181002-C12AH	Solid	10/02/18 12:35	10/23/18 08:50
280-115961-11	BPSB-181018-C16AH	Solid	10/18/18 15:05	10/23/18 08:50
280-115961-12	BPSB-181018-C33	Solid	10/18/18 15:20	10/23/18 08:50

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-115961-1

Client Sample ID: BPSB-181009-C31AH
Date Collected: 10/09/18 11:20
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115961-1
Matrix: Solid
Percent Solids: 57.4

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	1200	U F2	2400	1200	ug/Kg	☼	10/26/18 06:45	10/27/18 02:58	1
Arsenic	**2800**	**J**	3200	1100	ug/Kg	☼	10/26/18 06:45	10/27/18 02:58	1
Barium	**91000**		1600	170	ug/Kg	☼	10/26/18 06:45	10/27/18 02:58	1
Beryllium	**520**	**J**	800	53	ug/Kg	☼	10/26/18 06:45	10/29/18 17:26	1
Cadmium	66	U	800	66	ug/Kg	☼	10/26/18 06:45	10/27/18 02:58	1
Chromium	**25000**		2400	93	ug/Kg	☼	10/26/18 06:45	10/27/18 02:58	1
Copper	**22000**		3200	350	ug/Kg	☼	10/26/18 06:45	10/27/18 02:58	1
Lead	**44000**		1400	500	ug/Kg	☼	10/26/18 06:45	10/27/18 02:58	1
Nickel	**20000**		6400	210	ug/Kg	☼	10/26/18 06:45	10/27/18 02:58	1
Selenium	1400	U	2400	1400	ug/Kg	☼	10/26/18 06:45	10/27/18 02:58	1
Silver	260	U	1600	260	ug/Kg	☼	10/26/18 06:45	10/27/18 02:58	1
Thallium	1000	U	1900	1000	ug/Kg	☼	10/26/18 06:45	10/27/18 02:58	1
Zinc	**45000**		4800	640	ug/Kg	☼	10/26/18 06:45	10/27/18 02:58	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**180**		34	11	ug/Kg	☼	10/30/18 12:25	10/30/18 15:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**42.6**		0.1	0.1	%			10/27/18 13:29	1

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-115961-1

Client Sample ID: BPSB-181002-C28AH
Date Collected: 10/02/18 11:25
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115961-2
Matrix: Solid
Percent Solids: 80.5

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	870	U	1800	870	ug/Kg	☼	10/26/18 06:45	10/27/18 03:29	1
Arsenic	**2500**		2400	790	ug/Kg	☼	10/26/18 06:45	10/27/18 03:29	1
Barium	**64000**		1200	120	ug/Kg	☼	10/26/18 06:45	10/27/18 03:29	1
Beryllium	**400**	**J**	590	39	ug/Kg	☼	10/26/18 06:45	10/29/18 17:43	1
Cadmium	48	U	590	48	ug/Kg	☼	10/26/18 06:45	10/27/18 03:29	1
Chromium	**22000**		1800	69	ug/Kg	☼	10/26/18 06:45	10/27/18 03:29	1
Copper	**12000**		2400	260	ug/Kg	☼	10/26/18 06:45	10/27/18 03:29	1
Lead	**13000**		1100	370	ug/Kg	☼	10/26/18 06:45	10/27/18 03:29	1
Nickel	**14000**		4700	160	ug/Kg	☼	10/26/18 06:45	10/27/18 03:29	1
Selenium	1000	U	1800	1000	ug/Kg	☼	10/26/18 06:45	10/27/18 03:29	1
Silver	190	U	1200	190	ug/Kg	☼	10/26/18 06:45	10/27/18 03:29	1
Thallium	770	U	1400	770	ug/Kg	☼	10/26/18 06:45	10/27/18 03:29	1
Zinc	**34000**		3500	470	ug/Kg	☼	10/26/18 06:45	10/27/18 03:29	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**32**		22	7.1	ug/Kg	☼	10/30/18 12:25	10/30/18 15:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**19.5**		0.1	0.1	%			10/27/18 13:29	1

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-115961-1

Client Sample ID: BPSB-181002-C21AH
Date Collected: 10/02/18 11:35
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115961-3
Matrix: Solid
Percent Solids: 88.3

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	780	U	1600	780	ug/Kg	☼	10/26/18 06:45	10/27/18 03:32	1
Arsenic	**3000**		2100	710	ug/Kg	☼	10/26/18 06:45	10/27/18 03:32	1
Barium	**69000**		1100	110	ug/Kg	☼	10/26/18 06:45	10/27/18 03:32	1
Beryllium	**390**	**J**	530	35	ug/Kg	☼	10/26/18 06:45	10/29/18 17:47	1
Cadmium	44	U	530	44	ug/Kg	☼	10/26/18 06:45	10/27/18 03:32	1
Chromium	**24000**		1600	62	ug/Kg	☼	10/26/18 06:45	10/27/18 03:32	1
Copper	**23000**		2100	230	ug/Kg	☼	10/26/18 06:45	10/27/18 03:32	1
Lead	**120000**		960	330	ug/Kg	☼	10/26/18 06:45	10/27/18 03:32	1
Nickel	**17000**		4300	140	ug/Kg	☼	10/26/18 06:45	10/27/18 03:32	1
Selenium	920	U	1600	920	ug/Kg	☼	10/26/18 06:45	10/27/18 03:32	1
Silver	170	U	1100	170	ug/Kg	☼	10/26/18 06:45	10/27/18 03:32	1
Thallium	690	U	1300	690	ug/Kg	☼	10/26/18 06:45	10/27/18 03:32	1
Zinc	**43000**		3200	420	ug/Kg	☼	10/26/18 06:45	10/27/18 03:32	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**150**		21	7.0	ug/Kg	☼	10/30/18 12:25	10/30/18 15:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**11.7**		0.1	0.1	%			10/27/18 13:29	1

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-115961-1

Client Sample ID: BPSB-181002-C27AH
Date Collected: 10/02/18 11:45
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115961-4
Matrix: Solid
Percent Solids: 85.6

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	720	U	1500	720	ug/Kg	☼	10/26/18 06:45	10/27/18 03:35	1
Arsenic	**2100**		2000	660	ug/Kg	☼	10/26/18 06:45	10/27/18 03:35	1
Barium	**64000**		990	100	ug/Kg	☼	10/26/18 06:45	10/27/18 03:35	1
Beryllium	**380**	**J**	490	33	ug/Kg	☼	10/26/18 06:45	10/29/18 17:50	1
Cadmium	41	U	490	41	ug/Kg	☼	10/26/18 06:45	10/27/18 03:35	1
Chromium	**17000**		1500	57	ug/Kg	☼	10/26/18 06:45	10/27/18 03:35	1
Copper	**17000**		2000	210	ug/Kg	☼	10/26/18 06:45	10/27/18 03:35	1
Lead	**18000**		890	310	ug/Kg	☼	10/26/18 06:45	10/27/18 03:35	1
Nickel	**14000**		4000	130	ug/Kg	☼	10/26/18 06:45	10/27/18 03:35	1
Selenium	850	U	1500	850	ug/Kg	☼	10/26/18 06:45	10/27/18 03:35	1
Silver	160	U	990	160	ug/Kg	☼	10/26/18 06:45	10/27/18 03:35	1
Thallium	640	U	1200	640	ug/Kg	☼	10/26/18 06:45	10/27/18 03:35	1
Zinc	**26000**		3000	390	ug/Kg	☼	10/26/18 06:45	10/27/18 03:35	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	6.8	U	21	6.8	ug/Kg	☼	10/30/18 12:25	10/30/18 15:34	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**14.4**		0.1	0.1	%			10/27/18 13:29	1

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-115961-1

Client Sample ID: BPSB-181002-C25AH
Date Collected: 10/02/18 11:50
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115961-5
Matrix: Solid
Percent Solids: 82.6

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	840	U	1700	840	ug/Kg	☼	10/26/18 06:45	10/27/18 03:39	1
Arsenic	**2500**		2300	770	ug/Kg	☼	10/26/18 06:45	10/27/18 03:39	1
Barium	**67000**		1200	120	ug/Kg	☼	10/26/18 06:45	10/27/18 03:39	1
Beryllium	**380**	**J**	580	38	ug/Kg	☼	10/26/18 06:45	10/29/18 18:07	1
Cadmium	47	U	580	47	ug/Kg	☼	10/26/18 06:45	10/27/18 03:39	1
Chromium	**20000**		1700	67	ug/Kg	☼	10/26/18 06:45	10/27/18 03:39	1
Copper	**17000**		2300	250	ug/Kg	☼	10/26/18 06:45	10/27/18 03:39	1
Lead	**350000**		1000	360	ug/Kg	☼	10/26/18 06:45	10/27/18 03:39	1
Nickel	**14000**		4600	150	ug/Kg	☼	10/26/18 06:45	10/27/18 03:39	1
Selenium	990	U	1700	990	ug/Kg	☼	10/26/18 06:45	10/27/18 03:39	1
Silver	180	U	1200	180	ug/Kg	☼	10/26/18 06:45	10/27/18 03:39	1
Thallium	750	U	1400	750	ug/Kg	☼	10/26/18 06:45	10/27/18 03:39	1
Zinc	**33000**		3500	460	ug/Kg	☼	10/26/18 06:45	10/27/18 03:39	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**100**		22	7.2	ug/Kg	☼	10/30/18 12:25	10/30/18 15:37	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**17.4**		0.1	0.1	%			10/27/18 13:29	1

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-115961-1

Client Sample ID: BPSB-181002-C24AH
Date Collected: 10/02/18 11:55
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115961-6
Matrix: Solid
Percent Solids: 83.6

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	860	U	1800	860	ug/Kg	☼	10/26/18 06:45	10/27/18 03:42	1
Arsenic	**3100**		2300	780	ug/Kg	☼	10/26/18 06:45	10/27/18 03:42	1
Barium	**95000**		1200	120	ug/Kg	☼	10/26/18 06:45	10/27/18 03:42	1
Beryllium	**490**	**J**	580	39	ug/Kg	☼	10/26/18 06:45	10/29/18 18:10	1
Cadmium	48	U	580	48	ug/Kg	☼	10/26/18 06:45	10/27/18 03:42	1
Chromium	**26000**		1800	68	ug/Kg	☼	10/26/18 06:45	10/27/18 03:42	1
Copper	**23000**		2300	250	ug/Kg	☼	10/26/18 06:45	10/27/18 03:42	1
Lead	**85000**		1100	360	ug/Kg	☼	10/26/18 06:45	10/27/18 03:42	1
Nickel	**21000**		4700	150	ug/Kg	☼	10/26/18 06:45	10/27/18 03:42	1
Selenium	1000	U	1800	1000	ug/Kg	☼	10/26/18 06:45	10/27/18 03:42	1
Silver	190	U	1200	190	ug/Kg	☼	10/26/18 06:45	10/27/18 03:42	1
Thallium	760	U	1400	760	ug/Kg	☼	10/26/18 06:45	10/27/18 03:42	1
Zinc	**51000**		3500	470	ug/Kg	☼	10/26/18 06:45	10/27/18 03:42	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**100**		21	7.0	ug/Kg	☼	10/30/18 12:25	10/30/18 15:44	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**16.4**		0.1	0.1	%			10/27/18 13:29	1

Client Sample ID: BPSB-181002-C26AH

Lab Sample ID: 280-115961-7

Date Collected: 10/02/18 12:00

Matrix: Solid

Date Received: 10/23/18 08:50

Percent Solids: 80.9

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	850	U	1700	850	ug/Kg	☼	10/26/18 06:45	10/27/18 03:46	1
Arsenic	**3000**		2300	770	ug/Kg	☼	10/26/18 06:45	10/27/18 03:46	1
Barium	**84000**		1200	120	ug/Kg	☼	10/26/18 06:45	10/27/18 03:46	1
Beryllium	**460**	**J**	580	38	ug/Kg	☼	10/26/18 06:45	10/29/18 18:14	1
Cadmium	48	U	580	48	ug/Kg	☼	10/26/18 06:45	10/27/18 03:46	1
Chromium	**23000**		1700	67	ug/Kg	☼	10/26/18 06:45	10/27/18 03:46	1
Copper	**22000**		2300	250	ug/Kg	☼	10/26/18 06:45	10/27/18 03:46	1
Lead	**150000**		1000	360	ug/Kg	☼	10/26/18 06:45	10/27/18 03:46	1
Nickel	**17000**		4600	150	ug/Kg	☼	10/26/18 06:45	10/27/18 03:46	1
Selenium	1000	U	1700	1000	ug/Kg	☼	10/26/18 06:45	10/27/18 03:46	1
Silver	190	U	1200	190	ug/Kg	☼	10/26/18 06:45	10/27/18 03:46	1
Thallium	760	U	1400	760	ug/Kg	☼	10/26/18 06:45	10/27/18 03:46	1
Zinc	**46000**		3500	460	ug/Kg	☼	10/26/18 06:45	10/27/18 03:46	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**69**		21	6.8	ug/Kg	☼	10/30/18 12:25	10/30/18 15:46	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**19.1**		0.1	0.1	%			10/27/18 13:29	1

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-115961-1

Client Sample ID: BPSB-181002-C17AH
Date Collected: 10/02/18 12:15
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115961-8
Matrix: Solid
Percent Solids: 78.9

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	870	U	1800	870	ug/Kg	☼	10/26/18 06:45	10/27/18 03:49	1
Arsenic	**13000**		2400	790	ug/Kg	☼	10/26/18 06:45	10/27/18 03:49	1
Barium	**150000**		1200	120	ug/Kg	☼	10/26/18 06:45	10/27/18 03:49	1
Beryllium	**570**	**J**	590	39	ug/Kg	☼	10/26/18 06:45	10/29/18 18:17	1
Cadmium	**5800**		590	49	ug/Kg	☼	10/26/18 06:45	10/27/18 03:49	1
Chromium	**38000**		1800	69	ug/Kg	☼	10/26/18 06:45	10/27/18 03:49	1
Copper	**91000**		2400	260	ug/Kg	☼	10/26/18 06:45	10/27/18 03:49	1
Lead	**240000**		1100	370	ug/Kg	☼	10/26/18 06:45	10/27/18 03:49	1
Nickel	**29000**		4700	160	ug/Kg	☼	10/26/18 06:45	10/27/18 03:49	1
Selenium	1000	U	1800	1000	ug/Kg	☼	10/26/18 06:45	10/27/18 03:49	1
Silver	**390**	**J**	1200	190	ug/Kg	☼	10/26/18 06:45	10/27/18 03:49	1
Thallium	770	U	1400	770	ug/Kg	☼	10/26/18 06:45	10/27/18 03:49	1
Zinc	**1800000**		3600	470	ug/Kg	☼	10/26/18 06:45	10/27/18 03:49	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**390**		22	7.2	ug/Kg	☼	10/30/18 12:25	10/30/18 15:48	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**21.1**		0.1	0.1	%			10/27/18 13:29	1

Client Sample Results

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-115961-1

Client Sample ID: BPSB-181002-C06AH
Date Collected: 10/02/18 12:25
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115961-9
Matrix: Solid
Percent Solids: 78.9

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	1900		1600	790	ug/Kg	☼	10/26/18 06:45	10/27/18 03:52	1
Arsenic	5200		2100	710	ug/Kg	☼	10/26/18 06:45	10/27/18 03:52	1
Barium	160000		1100	110	ug/Kg	☼	10/26/18 06:45	10/27/18 03:52	1
Beryllium	550		540	35	ug/Kg	☼	10/26/18 06:45	10/29/18 18:21	1
Cadmium	130	J	540	44	ug/Kg	☼	10/26/18 06:45	10/27/18 03:52	1
Chromium	36000		1600	62	ug/Kg	☼	10/26/18 06:45	10/27/18 03:52	1
Copper	42000		2100	230	ug/Kg	☼	10/26/18 06:45	10/27/18 03:52	1
Lead	430000		960	330	ug/Kg	☼	10/26/18 06:45	10/27/18 03:52	1
Nickel	26000		4300	140	ug/Kg	☼	10/26/18 06:45	10/27/18 03:52	1
Selenium	920	U	1600	920	ug/Kg	☼	10/26/18 06:45	10/27/18 03:52	1
Silver	170	U	1100	170	ug/Kg	☼	10/26/18 06:45	10/27/18 03:52	1
Thallium	700	U	1300	700	ug/Kg	☼	10/26/18 06:45	10/27/18 03:52	1
Zinc	130000		3200	430	ug/Kg	☼	10/26/18 06:45	10/27/18 03:52	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	280		25	8.1	ug/Kg	☼	10/30/18 12:25	10/30/18 15:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	21.1		0.1	0.1	%			10/27/18 13:29	1

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-115961-1

Client Sample ID: BPSB-181002-C12AH
Date Collected: 10/02/18 12:35
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115961-10
Matrix: Solid
Percent Solids: 74.9

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	850	U	1700	850	ug/Kg	☼	10/26/18 06:45	10/27/18 03:56	1
Arsenic	**13000**		2300	770	ug/Kg	☼	10/26/18 06:45	10/27/18 03:56	1
Barium	**170000**		1200	120	ug/Kg	☼	10/26/18 06:45	10/27/18 03:56	1
Beryllium	**360**	**J**	580	38	ug/Kg	☼	10/26/18 06:45	10/29/18 18:24	1
Cadmium	**210**	**J**	580	47	ug/Kg	☼	10/26/18 06:45	10/27/18 03:56	1
Chromium	**32000**		1700	67	ug/Kg	☼	10/26/18 06:45	10/27/18 03:56	1
Copper	**52000**		2300	250	ug/Kg	☼	10/26/18 06:45	10/27/18 03:56	1
Lead	**290000**		1000	360	ug/Kg	☼	10/26/18 06:45	10/27/18 03:56	1
Nickel	**37000**		4600	150	ug/Kg	☼	10/26/18 06:45	10/27/18 03:56	1
Selenium	1000	U	1700	1000	ug/Kg	☼	10/26/18 06:45	10/27/18 03:56	1
Silver	**250**	**J**	1200	190	ug/Kg	☼	10/26/18 06:45	10/27/18 03:56	1
Thallium	750	U	1400	750	ug/Kg	☼	10/26/18 06:45	10/27/18 03:56	1
Zinc	**150000**		3500	460	ug/Kg	☼	10/26/18 06:45	10/27/18 03:56	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**180**		26	8.4	ug/Kg	☼	10/30/18 12:25	10/30/18 15:53	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**25.1**		0.1	0.1	%			10/27/18 13:29	1

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-115961-1

Client Sample ID: BPSB-181018-C16AH
Date Collected: 10/18/18 15:05
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115961-11
Matrix: Solid
Percent Solids: 76.5

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	890	U	1800	890	ug/Kg	☼	10/26/18 06:45	10/27/18 04:13	1
Arsenic	**2600**		2400	810	ug/Kg	☼	10/26/18 06:45	10/27/18 04:13	1
Barium	**75000**		1200	130	ug/Kg	☼	10/26/18 06:45	10/27/18 04:13	1
Beryllium	**400**	**J**	610	40	ug/Kg	☼	10/26/18 06:45	10/29/18 18:27	1
Cadmium	50	U	610	50	ug/Kg	☼	10/26/18 06:45	10/27/18 04:13	1
Chromium	**24000**		1800	70	ug/Kg	☼	10/26/18 06:45	10/27/18 04:13	1
Copper	**16000**		2400	260	ug/Kg	☼	10/26/18 06:45	10/27/18 04:13	1
Lead	**100000**		1100	380	ug/Kg	☼	10/26/18 06:45	10/27/18 04:13	1
Nickel	**15000**		4800	160	ug/Kg	☼	10/26/18 06:45	10/27/18 04:13	1
Selenium	1000	U	1800	1000	ug/Kg	☼	10/26/18 06:45	10/27/18 04:13	1
Silver	**240**	**J**	1200	190	ug/Kg	☼	10/26/18 06:45	10/27/18 04:13	1
Thallium	790	U	1500	790	ug/Kg	☼	10/26/18 06:45	10/27/18 04:13	1
Zinc	**44000**		3600	480	ug/Kg	☼	10/26/18 06:45	10/27/18 04:13	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**44**		25	8.0	ug/Kg	☼	10/30/18 12:25	10/30/18 15:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**23.5**		0.1	0.1	%			10/27/18 13:29	1

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-115961-1

Client Sample ID: BPSB-181018-C33
Date Collected: 10/18/18 15:20
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115961-12
Matrix: Solid
Percent Solids: 79.6

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	880	U	1800	880	ug/Kg	☼	10/26/18 06:45	10/27/18 04:16	1
Arsenic	**3500**		2400	800	ug/Kg	☼	10/26/18 06:45	10/27/18 04:16	1
Barium	**140000**		1200	130	ug/Kg	☼	10/26/18 06:45	10/27/18 04:16	1
Beryllium	**1000**		600	40	ug/Kg	☼	10/26/18 06:45	11/01/18 13:22	1
Cadmium	49	U	600	49	ug/Kg	☼	10/26/18 06:45	10/27/18 04:16	1
Chromium	**39000**		1800	70	ug/Kg	☼	10/26/18 06:45	10/27/18 04:16	1
Copper	**30000**		2400	260	ug/Kg	☼	10/26/18 06:45	10/27/18 04:16	1
Lead	**16000**		1100	370	ug/Kg	☼	10/26/18 06:45	10/27/18 04:16	1
Nickel	**27000**		4800	160	ug/Kg	☼	10/26/18 06:45	10/27/18 04:16	1
Selenium	1000	U	1800	1000	ug/Kg	☼	10/26/18 06:45	10/27/18 04:16	1
Silver	190	U	1200	190	ug/Kg	☼	10/26/18 06:45	10/27/18 04:16	1
Thallium	780	U	1400	780	ug/Kg	☼	10/26/18 06:45	10/27/18 04:16	1
Zinc	**58000**		3600	480	ug/Kg	☼	10/26/18 06:45	10/27/18 04:16	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**100**		23	7.6	ug/Kg	☼	10/30/18 12:25	10/30/18 15:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**20.4**		0.1	0.1	%			10/27/18 13:29	1

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 280-434891/1-A
Matrix: Solid
Analysis Batch: 435284

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 434891

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	730	U	1500	730	ug/Kg		10/26/18 06:45	10/27/18 02:51	1
Arsenic	670	U	2000	670	ug/Kg		10/26/18 06:45	10/27/18 02:51	1
Barium	100	U	1000	100	ug/Kg		10/26/18 06:45	10/27/18 02:51	1
Cadmium	41	U	500	41	ug/Kg		10/26/18 06:45	10/27/18 02:51	1
Chromium	58	U	1500	58	ug/Kg		10/26/18 06:45	10/27/18 02:51	1
Copper	220	U	2000	220	ug/Kg		10/26/18 06:45	10/27/18 02:51	1
Lead	310	U	900	310	ug/Kg		10/26/18 06:45	10/27/18 02:51	1
Nickel	130	U	4000	130	ug/Kg		10/26/18 06:45	10/27/18 02:51	1
Selenium	860	U	1500	860	ug/Kg		10/26/18 06:45	10/27/18 02:51	1
Silver	160	U	1000	160	ug/Kg		10/26/18 06:45	10/27/18 02:51	1
Thallium	650	U	1200	650	ug/Kg		10/26/18 06:45	10/27/18 02:51	1
Zinc	400	U	3000	400	ug/Kg		10/26/18 06:45	10/27/18 02:51	1

Lab Sample ID: MB 280-434891/1-A
Matrix: Solid
Analysis Batch: 435466

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 434891

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	33	U	500	33	ug/Kg		10/26/18 06:45	10/29/18 17:20	1

Lab Sample ID: LCS 280-434891/2-A
Matrix: Solid
Analysis Batch: 435284

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434891

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	50000	52300		ug/Kg		105	82 - 110
Arsenic	100000	98900		ug/Kg		99	85 - 110
Barium	200000	198000		ug/Kg		99	87 - 112
Cadmium	10000	10200		ug/Kg		102	87 - 110
Chromium	20000	21000		ug/Kg		105	84 - 114
Copper	25000	25400		ug/Kg		102	88 - 110
Lead	50000	49400		ug/Kg		99	86 - 110
Nickel	50000	52100		ug/Kg		104	87 - 110
Selenium	200000	202000		ug/Kg		101	83 - 110
Silver	5000	5250		ug/Kg		105	87 - 114
Thallium	200000	207000		ug/Kg		104	84 - 110
Zinc	50000	51900		ug/Kg		104	76 - 114

Lab Sample ID: LCS 280-434891/2-A
Matrix: Solid
Analysis Batch: 435466

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434891

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Beryllium	5000	4590		ug/Kg		92	84 - 114

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: 280-115961-1 MS — **Client Sample ID: BPSB-181009-C31AH**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 435284 — **Prep Batch: 434891**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	1200	U F2	72900	40800		ug/Kg	☼	56	20 - 200
Arsenic	2800	J	146000	147000		ug/Kg	☼	99	76 - 111
Barium	91000		291000	394000		ug/Kg	☼	104	52 - 159
Cadmium	66	U	14600	13800		ug/Kg	☼	95	40 - 130
Chromium	25000		29100	59500		ug/Kg	☼	118	70 - 200
Copper	22000		36400	61900		ug/Kg	☼	111	37 - 187
Lead	44000		72900	117000		ug/Kg	☼	101	70 - 200
Nickel	20000		72900	92900		ug/Kg	☼	101	61 - 126
Selenium	1400	U	291000	290000		ug/Kg	☼	100	76 - 104
Silver	260	U	7290	7870		ug/Kg	☼	108	75 - 141
Thallium	1000	U	291000	278000		ug/Kg	☼	95	78 - 101
Zinc	45000		72900	120000		ug/Kg	☼	104	70 - 200

Lab Sample ID: 280-115961-1 MS — **Client Sample ID: BPSB-181009-C31AH**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 435466 — **Prep Batch: 434891**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Beryllium	520	J	7290	7280		ug/Kg	☼	93	72 - 105

Lab Sample ID: 280-115961-1 MSD — **Client Sample ID: BPSB-181009-C31AH**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 435284 — **Prep Batch: 434891**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	1200	U F2	87000	61600	F4	ug/Kg	☼	71	20 - 200	41	20
Arsenic	2800	J	174000	177000		ug/Kg	☼	100	76 - 111	19	20
Barium	91000		348000	439000		ug/Kg	☼	100	52 - 159	11	20
Cadmium	66	U	17400	16900		ug/Kg	☼	97	40 - 130	20	20
Chromium	25000		34800	60700		ug/Kg	☼	103	70 - 200	2	20
Copper	22000		43500	65600		ug/Kg	☼	101	37 - 187	6	20
Lead	44000		87000	127000		ug/Kg	☼	96	70 - 200	8	20
Nickel	20000		87000	105000		ug/Kg	☼	98	61 - 126	12	20
Selenium	1400	U	348000	353000		ug/Kg	☼	101	76 - 104	19	20
Silver	260	U	8700	9520		ug/Kg	☼	110	75 - 141	19	20
Thallium	1000	U	348000	340000		ug/Kg	☼	98	78 - 101	20	20
Zinc	45000		87000	136000		ug/Kg	☼	105	70 - 200	12	20

Lab Sample ID: 280-115961-1 MSD — **Client Sample ID: BPSB-181009-C31AH**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 435466 — **Prep Batch: 434891**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Beryllium	520	J	8700	8670		ug/Kg	☼	94	72 - 105	17	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 280-435433/1-A
Matrix: Solid
Analysis Batch: 435640

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435433

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	5.5	U	17	5.5	ug/Kg		10/30/18 12:25	10/30/18 14:48	1

Lab Sample ID: LCS 280-435433/2-A
Matrix: Solid
Analysis Batch: 435640

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435433

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	333	337		ug/Kg		101	87 - 111

Lab Sample ID: LCSD 280-435433/3-A
Matrix: Solid
Analysis Batch: 435640

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 435433

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	333	344		ug/Kg		103	87 - 111	2	20

Method: D 2216-90 - ASTM D 2216-90

Lab Sample ID: 280-115961-1 DU
Matrix: Solid
Analysis Batch: 435224

Client Sample ID: BPSB-181009-C31AH
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Moisture	42.6		42.2		%		0.9	20

Metals

Prep Batch: 434891

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115961-1	BPSB-181009-C31AH	Total/NA	Solid	3050B	
280-115961-2	BPSB-181002-C28AH	Total/NA	Solid	3050B	
280-115961-3	BPSB-181002-C21AH	Total/NA	Solid	3050B	
280-115961-4	BPSB-181002-C27AH	Total/NA	Solid	3050B	
280-115961-5	BPSB-181002-C25AH	Total/NA	Solid	3050B	
280-115961-6	BPSB-181002-C24AH	Total/NA	Solid	3050B	
280-115961-7	BPSB-181002-C26AH	Total/NA	Solid	3050B	
280-115961-8	BPSB-181002-C17AH	Total/NA	Solid	3050B	
280-115961-9	BPSB-181002-C06AH	Total/NA	Solid	3050B	
280-115961-10	BPSB-181002-C12AH	Total/NA	Solid	3050B	
280-115961-11	BPSB-181018-C16AH	Total/NA	Solid	3050B	
280-115961-12	BPSB-181018-C33	Total/NA	Solid	3050B	
MB 280-434891/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 280-434891/2-A	Lab Control Sample	Total/NA	Solid	3050B	
280-115961-1 MS	BPSB-181009-C31AH	Total/NA	Solid	3050B	
280-115961-1 MSD	BPSB-181009-C31AH	Total/NA	Solid	3050B	

Analysis Batch: 435284

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115961-1	BPSB-181009-C31AH	Total/NA	Solid	6010B	434891
280-115961-2	BPSB-181002-C28AH	Total/NA	Solid	6010B	434891
280-115961-3	BPSB-181002-C21AH	Total/NA	Solid	6010B	434891
280-115961-4	BPSB-181002-C27AH	Total/NA	Solid	6010B	434891
280-115961-5	BPSB-181002-C25AH	Total/NA	Solid	6010B	434891
280-115961-6	BPSB-181002-C24AH	Total/NA	Solid	6010B	434891
280-115961-7	BPSB-181002-C26AH	Total/NA	Solid	6010B	434891
280-115961-8	BPSB-181002-C17AH	Total/NA	Solid	6010B	434891
280-115961-9	BPSB-181002-C06AH	Total/NA	Solid	6010B	434891
280-115961-10	BPSB-181002-C12AH	Total/NA	Solid	6010B	434891
280-115961-11	BPSB-181018-C16AH	Total/NA	Solid	6010B	434891
280-115961-12	BPSB-181018-C33	Total/NA	Solid	6010B	434891
MB 280-434891/1-A	Method Blank	Total/NA	Solid	6010B	434891
LCS 280-434891/2-A	Lab Control Sample	Total/NA	Solid	6010B	434891
280-115961-1 MS	BPSB-181009-C31AH	Total/NA	Solid	6010B	434891
280-115961-1 MSD	BPSB-181009-C31AH	Total/NA	Solid	6010B	434891

Prep Batch: 435433

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115961-1	BPSB-181009-C31AH	Total/NA	Solid	7471A	
280-115961-2	BPSB-181002-C28AH	Total/NA	Solid	7471A	
280-115961-3	BPSB-181002-C21AH	Total/NA	Solid	7471A	
280-115961-4	BPSB-181002-C27AH	Total/NA	Solid	7471A	
280-115961-5	BPSB-181002-C25AH	Total/NA	Solid	7471A	
280-115961-6	BPSB-181002-C24AH	Total/NA	Solid	7471A	
280-115961-7	BPSB-181002-C26AH	Total/NA	Solid	7471A	
280-115961-8	BPSB-181002-C17AH	Total/NA	Solid	7471A	
280-115961-9	BPSB-181002-C06AH	Total/NA	Solid	7471A	
280-115961-10	BPSB-181002-C12AH	Total/NA	Solid	7471A	
280-115961-11	BPSB-181018-C16AH	Total/NA	Solid	7471A	
280-115961-12	BPSB-181018-C33	Total/NA	Solid	7471A	
MB 280-435433/1-A	Method Blank	Total/NA	Solid	7471A	

Metals (Continued)

Prep Batch: 435433 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 280-435433/2-A	Lab Control Sample	Total/NA	Solid	7471A	
LCSD 280-435433/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	

Analysis Batch: 435466

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115961-1	BPSB-181009-C31AH	Total/NA	Solid	6010B	434891
280-115961-2	BPSB-181002-C28AH	Total/NA	Solid	6010B	434891
280-115961-3	BPSB-181002-C21AH	Total/NA	Solid	6010B	434891
280-115961-4	BPSB-181002-C27AH	Total/NA	Solid	6010B	434891
280-115961-5	BPSB-181002-C25AH	Total/NA	Solid	6010B	434891
280-115961-6	BPSB-181002-C24AH	Total/NA	Solid	6010B	434891
280-115961-7	BPSB-181002-C26AH	Total/NA	Solid	6010B	434891
280-115961-8	BPSB-181002-C17AH	Total/NA	Solid	6010B	434891
280-115961-9	BPSB-181002-C06AH	Total/NA	Solid	6010B	434891
280-115961-10	BPSB-181002-C12AH	Total/NA	Solid	6010B	434891
280-115961-11	BPSB-181018-C16AH	Total/NA	Solid	6010B	434891
MB 280-434891/1-A	Method Blank	Total/NA	Solid	6010B	434891
LCS 280-434891/2-A	Lab Control Sample	Total/NA	Solid	6010B	434891
280-115961-1 MS	BPSB-181009-C31AH	Total/NA	Solid	6010B	434891
280-115961-1 MSD	BPSB-181009-C31AH	Total/NA	Solid	6010B	434891

Analysis Batch: 435640

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115961-1	BPSB-181009-C31AH	Total/NA	Solid	7471A	435433
280-115961-2	BPSB-181002-C28AH	Total/NA	Solid	7471A	435433
280-115961-3	BPSB-181002-C21AH	Total/NA	Solid	7471A	435433
280-115961-4	BPSB-181002-C27AH	Total/NA	Solid	7471A	435433
280-115961-5	BPSB-181002-C25AH	Total/NA	Solid	7471A	435433
280-115961-6	BPSB-181002-C24AH	Total/NA	Solid	7471A	435433
280-115961-7	BPSB-181002-C26AH	Total/NA	Solid	7471A	435433
280-115961-8	BPSB-181002-C17AH	Total/NA	Solid	7471A	435433
280-115961-9	BPSB-181002-C06AH	Total/NA	Solid	7471A	435433
280-115961-10	BPSB-181002-C12AH	Total/NA	Solid	7471A	435433
280-115961-11	BPSB-181018-C16AH	Total/NA	Solid	7471A	435433
280-115961-12	BPSB-181018-C33	Total/NA	Solid	7471A	435433
MB 280-435433/1-A	Method Blank	Total/NA	Solid	7471A	435433
LCS 280-435433/2-A	Lab Control Sample	Total/NA	Solid	7471A	435433
LCSD 280-435433/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	435433

Analysis Batch: 435994

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115961-12	BPSB-181018-C33	Total/NA	Solid	6010B	434891

General Chemistry

Analysis Batch: 435224

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115961-1	BPSB-181009-C31AH	Total/NA	Solid	D 2216-90	
280-115961-2	BPSB-181002-C28AH	Total/NA	Solid	D 2216-90	
280-115961-3	BPSB-181002-C21AH	Total/NA	Solid	D 2216-90	

General Chemistry (Continued)

Analysis Batch: 435224 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115961-4	BPSB-181002-C27AH	Total/NA	Solid	D 2216-90	
280-115961-5	BPSB-181002-C25AH	Total/NA	Solid	D 2216-90	
280-115961-6	BPSB-181002-C24AH	Total/NA	Solid	D 2216-90	
280-115961-7	BPSB-181002-C26AH	Total/NA	Solid	D 2216-90	
280-115961-8	BPSB-181002-C17AH	Total/NA	Solid	D 2216-90	
280-115961-9	BPSB-181002-C06AH	Total/NA	Solid	D 2216-90	
280-115961-10	BPSB-181002-C12AH	Total/NA	Solid	D 2216-90	
280-115961-11	BPSB-181018-C16AH	Total/NA	Solid	D 2216-90	
280-115961-12	BPSB-181018-C33	Total/NA	Solid	D 2216-90	
280-115961-1 DU	BPSB-181009-C31AH	Total/NA	Solid	D 2216-90	

Lab Chronicle

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-115961-1

Client Sample ID: BPSB-181009-C31AH — Lab Sample ID: 280-115961-1

Date Collected: 10/09/18 11:20 — **Matrix: Solid**
Date Received: 10/23/18 08:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216-90		1			435224	10/27/18 13:29	LMD	TAL DEN

Client Sample ID: BPSB-181009-C31AH — Lab Sample ID: 280-115961-1

Date Collected: 10/09/18 11:20 — **Matrix: Solid**
Date Received: 10/23/18 08:50 — **Percent Solids: 57.4**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.090 g	100 mL	434891	10/26/18 06:45	THP	TAL DEN
Total/NA	Analysis	6010B		1			435284	10/27/18 02:58	CML	TAL DEN
Total/NA	Prep	3050B			1.090 g	100 mL	434891	10/26/18 06:45	THP	TAL DEN
Total/NA	Analysis	6010B		1			435466	10/29/18 17:26	CML	TAL DEN
Total/NA	Prep	7471A			0.52 g	50 mL	435433	10/30/18 12:25	THP	TAL DEN
Total/NA	Analysis	7471A		1			435640	10/30/18 15:28	THP	TAL DEN

Client Sample ID: BPSB-181002-C28AH — Lab Sample ID: 280-115961-2

Date Collected: 10/02/18 11:25 — **Matrix: Solid**
Date Received: 10/23/18 08:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216-90		1			435224	10/27/18 13:29	LMD	TAL DEN

Client Sample ID: BPSB-181002-C28AH — Lab Sample ID: 280-115961-2

Date Collected: 10/02/18 11:25 — **Matrix: Solid**
Date Received: 10/23/18 08:50 — **Percent Solids: 80.5**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.050 g	100 mL	434891	10/26/18 06:45	THP	TAL DEN
Total/NA	Analysis	6010B		1			435284	10/27/18 03:29	CML	TAL DEN
Total/NA	Prep	3050B			1.050 g	100 mL	434891	10/26/18 06:45	THP	TAL DEN
Total/NA	Analysis	6010B		1			435466	10/29/18 17:43	CML	TAL DEN
Total/NA	Prep	7471A			0.58 g	50 mL	435433	10/30/18 12:25	THP	TAL DEN
Total/NA	Analysis	7471A		1			435640	10/30/18 15:30	THP	TAL DEN

Client Sample ID: BPSB-181002-C21AH — Lab Sample ID: 280-115961-3

Date Collected: 10/02/18 11:35 — **Matrix: Solid**
Date Received: 10/23/18 08:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216-90		1			435224	10/27/18 13:29	LMD	TAL DEN

Lab Chronicle

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-115961-1

Client Sample ID: BPSB-181002-C21AH — Lab Sample ID: 280-115961-3

Date Collected: 10/02/18 11:35 — **Matrix: Solid**
Date Received: 10/23/18 08:50 — **Percent Solids: 88.3**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.064 g	100 mL	434891	10/26/18 06:45	THP	TAL DEN
Total/NA	Analysis	6010B		1			435284	10/27/18 03:32	CML	TAL DEN
Total/NA	Prep	3050B			1.064 g	100 mL	434891	10/26/18 06:45	THP	TAL DEN
Total/NA	Analysis	6010B		1			435466	10/29/18 17:47	CML	TAL DEN
Total/NA	Prep	7471A			0.54 g	50 mL	435433	10/30/18 12:25	THP	TAL DEN
Total/NA	Analysis	7471A		1			435640	10/30/18 15:32	THP	TAL DEN

Client Sample ID: BPSB-181002-C27AH — Lab Sample ID: 280-115961-4

Date Collected: 10/02/18 11:45 — **Matrix: Solid**
Date Received: 10/23/18 08:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216-90		1			435224	10/27/18 13:29	LMD	TAL DEN

Client Sample ID: BPSB-181002-C27AH — Lab Sample ID: 280-115961-4

Date Collected: 10/02/18 11:45 — **Matrix: Solid**
Date Received: 10/23/18 08:50 — **Percent Solids: 85.6**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.182 g	100 mL	434891	10/26/18 06:45	THP	TAL DEN
Total/NA	Analysis	6010B		1			435284	10/27/18 03:35	CML	TAL DEN
Total/NA	Prep	3050B			1.182 g	100 mL	434891	10/26/18 06:45	THP	TAL DEN
Total/NA	Analysis	6010B		1			435466	10/29/18 17:50	CML	TAL DEN
Total/NA	Prep	7471A			0.57 g	50 mL	435433	10/30/18 12:25	THP	TAL DEN
Total/NA	Analysis	7471A		1			435640	10/30/18 15:34	THP	TAL DEN

Client Sample ID: BPSB-181002-C25AH — Lab Sample ID: 280-115961-5

Date Collected: 10/02/18 11:50 — **Matrix: Solid**
Date Received: 10/23/18 08:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216-90		1			435224	10/27/18 13:29	LMD	TAL DEN

Client Sample ID: BPSB-181002-C25AH — Lab Sample ID: 280-115961-5

Date Collected: 10/02/18 11:50 — **Matrix: Solid**
Date Received: 10/23/18 08:50 — **Percent Solids: 82.6**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.051 g	100 mL	434891	10/26/18 06:45	THP	TAL DEN
Total/NA	Analysis	6010B		1			435284	10/27/18 03:39	CML	TAL DEN
Total/NA	Prep	3050B			1.051 g	100 mL	434891	10/26/18 06:45	THP	TAL DEN
Total/NA	Analysis	6010B		1			435466	10/29/18 18:07	CML	TAL DEN
Total/NA	Prep	7471A			0.56 g	50 mL	435433	10/30/18 12:25	THP	TAL DEN

Client Sample ID: BPSB-181002-C25AH — Lab Sample ID: 280-115961-5

Date Collected: 10/02/18 11:50 — **Matrix: Solid**
Date Received: 10/23/18 08:50 — **Percent Solids: 82.6**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7471A		1			435640	10/30/18 15:37	THP	TAL DEN

Client Sample ID: BPSB-181002-C24AH — Lab Sample ID: 280-115961-6

Date Collected: 10/02/18 11:55 — **Matrix: Solid**
Date Received: 10/23/18 08:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216-90		1			435224	10/27/18 13:29	LMD	TAL DEN

Client Sample ID: BPSB-181002-C24AH — Lab Sample ID: 280-115961-6

Date Collected: 10/02/18 11:55 — **Matrix: Solid**
Date Received: 10/23/18 08:50 — **Percent Solids: 83.6**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.024 g	100 mL	434891	10/26/18 06:45	THP	TAL DEN
Total/NA	Analysis	6010B		1			435284	10/27/18 03:42	CML	TAL DEN
Total/NA	Prep	3050B			1.024 g	100 mL	434891	10/26/18 06:45	THP	TAL DEN
Total/NA	Analysis	6010B		1			435466	10/29/18 18:10	CML	TAL DEN
Total/NA	Prep	7471A			0.57 g	50 mL	435433	10/30/18 12:25	THP	TAL DEN
Total/NA	Analysis	7471A		1			435640	10/30/18 15:44	THP	TAL DEN

Client Sample ID: BPSB-181002-C26AH — Lab Sample ID: 280-115961-7

Date Collected: 10/02/18 12:00 — **Matrix: Solid**
Date Received: 10/23/18 08:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216-90		1			435224	10/27/18 13:29	LMD	TAL DEN

Client Sample ID: BPSB-181002-C26AH — Lab Sample ID: 280-115961-7

Date Collected: 10/02/18 12:00 — **Matrix: Solid**
Date Received: 10/23/18 08:50 — **Percent Solids: 80.9**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.063 g	100 mL	434891	10/26/18 06:45	THP	TAL DEN
Total/NA	Analysis	6010B		1			435284	10/27/18 03:46	CML	TAL DEN
Total/NA	Prep	3050B			1.063 g	100 mL	434891	10/26/18 06:45	THP	TAL DEN
Total/NA	Analysis	6010B		1			435466	10/29/18 18:14	CML	TAL DEN
Total/NA	Prep	7471A			0.60 g	50 mL	435433	10/30/18 12:25	THP	TAL DEN
Total/NA	Analysis	7471A		1			435640	10/30/18 15:46	THP	TAL DEN

Client Sample ID: BPSB-181002-C17AH
Date Collected: 10/02/18 12:15
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115961-8
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216-90		1			435224	10/27/18 13:29	LMD	TAL DEN

Client Sample ID: BPSB-181002-C17AH
Date Collected: 10/02/18 12:15
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115961-8
Matrix: Solid
Percent Solids: 78.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.069 g	100 mL	434891	10/26/18 06:45	THP	TAL DEN
Total/NA	Analysis	6010B		1			435284	10/27/18 03:49	CML	TAL DEN
Total/NA	Prep	3050B			1.069 g	100 mL	434891	10/26/18 06:45	THP	TAL DEN
Total/NA	Analysis	6010B		1			435466	10/29/18 18:17	CML	TAL DEN
Total/NA	Prep	7471A			0.58 g	50 mL	435433	10/30/18 12:25	THP	TAL DEN
Total/NA	Analysis	7471A		1			435640	10/30/18 15:48	THP	TAL DEN

Client Sample ID: BPSB-181002-C06AH
Date Collected: 10/02/18 12:25
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115961-9
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216-90		1			435224	10/27/18 13:29	LMD	TAL DEN

Client Sample ID: BPSB-181002-C06AH
Date Collected: 10/02/18 12:25
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115961-9
Matrix: Solid
Percent Solids: 78.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.182 g	100 mL	434891	10/26/18 06:45	THP	TAL DEN
Total/NA	Analysis	6010B		1			435284	10/27/18 03:52	CML	TAL DEN
Total/NA	Prep	3050B			1.182 g	100 mL	434891	10/26/18 06:45	THP	TAL DEN
Total/NA	Analysis	6010B		1			435466	10/29/18 18:21	CML	TAL DEN
Total/NA	Prep	7471A			0.52 g	50 mL	435433	10/30/18 12:25	THP	TAL DEN
Total/NA	Analysis	7471A		1			435640	10/30/18 15:51	THP	TAL DEN

Client Sample ID: BPSB-181002-C12AH
Date Collected: 10/02/18 12:35
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115961-10
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216-90		1			435224	10/27/18 13:29	LMD	TAL DEN

Lab Chronicle

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-115961-1

Client Sample ID: BPSB-181002-C12AH
Lab Sample ID: 280-115961-10
Date Collected: 10/02/18 12:35
Matrix: Solid
Date Received: 10/23/18 08:50
Percent Solids: 74.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.153 g	100 mL	434891	10/26/18 06:45	THP	TAL DEN
Total/NA	Analysis	6010B		1			435284	10/27/18 03:56	CML	TAL DEN
Total/NA	Prep	3050B			1.153 g	100 mL	434891	10/26/18 06:45	THP	TAL DEN
Total/NA	Analysis	6010B		1			435466	10/29/18 18:24	CML	TAL DEN
Total/NA	Prep	7471A			0.53 g	50 mL	435433	10/30/18 12:25	THP	TAL DEN
Total/NA	Analysis	7471A		1			435640	10/30/18 15:53	THP	TAL DEN

Client Sample ID: BPSB-181018-C16AH
Lab Sample ID: 280-115961-11
Date Collected: 10/18/18 15:05
Matrix: Solid
Date Received: 10/23/18 08:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216-90		1			435224	10/27/18 13:29	LMD	TAL DEN

Client Sample ID: BPSB-181018-C16AH
Lab Sample ID: 280-115961-11
Date Collected: 10/18/18 15:05
Matrix: Solid
Date Received: 10/23/18 08:50
Percent Solids: 76.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.080 g	100 mL	434891	10/26/18 06:45	THP	TAL DEN
Total/NA	Analysis	6010B		1			435284	10/27/18 04:13	CML	TAL DEN
Total/NA	Prep	3050B			1.080 g	100 mL	434891	10/26/18 06:45	THP	TAL DEN
Total/NA	Analysis	6010B		1			435466	10/29/18 18:27	CML	TAL DEN
Total/NA	Prep	7471A			0.54 g	50 mL	435433	10/30/18 12:25	THP	TAL DEN
Total/NA	Analysis	7471A		1			435640	10/30/18 15:55	THP	TAL DEN

Client Sample ID: BPSB-181018-C33
Lab Sample ID: 280-115961-12
Date Collected: 10/18/18 15:20
Matrix: Solid
Date Received: 10/23/18 08:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216-90		1			435224	10/27/18 13:29	LMD	TAL DEN

Client Sample ID: BPSB-181018-C33
Lab Sample ID: 280-115961-12
Date Collected: 10/18/18 15:20
Matrix: Solid
Date Received: 10/23/18 08:50
Percent Solids: 79.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.045 g	100 mL	434891	10/26/18 06:45	THP	TAL DEN
Total/NA	Analysis	6010B		1			435284	10/27/18 04:16	CML	TAL DEN
Total/NA	Prep	3050B			1.045 g	100 mL	434891	10/26/18 06:45	THP	TAL DEN
Total/NA	Analysis	6010B		1			435994	11/01/18 13:22	TEB	TAL DEN
Total/NA	Prep	7471A			0.55 g	50 mL	435433	10/30/18 12:25	THP	TAL DEN

Lab Chronicle

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-115961-1

Client Sample ID: BPSB-181018-C33
Date Collected: 10/18/18 15:20
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115961-12
Matrix: Solid
Percent Solids: 79.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7471A		1			435640	10/30/18 15:58	THP	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-115961-1

Laboratory: TestAmerica Denver

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Wisconsin	State Program	5	999615430	08-31-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Nick Sterling, Wes Udell, Dan Benton	Lab PM: Johnston, Michelle A	Carrier Tracking No(s):	COC No:
Client Contact: Sharon Nordstrom	Phone: 248-895-6055	E-Mail: michelle.johnston@testamericainc.com		Page: Page 1 of 2
Company: The Chemours Company FC, LLC		Analysis Requested		Job #: 503001
Address: c/o AECOM Sabre Building, Suite 300 4051 Ogletown Road	Due Date Requested:			Preservation Codes: A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, Amchlor, Ascorbic Acid, e, ll Water, EDTA, DA; M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
City: Newark	TAT Requested (days): 15 Business Days			
State, Zip: DE, 19713				
Phone: 302-892-8947(Tel)	PO #: LBIO-67048/77201000-WH06-507911			
Email: sharon.nordstrom@aecom.com	WO #:			
Project Name: BAR-Bio Pilot 2017	Project #: 28003388			
Site: Barksdale, WI	SSOW#:			

280-115961 Chain of Custody

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Metals	Total Number	Special Instructions/Note:
			Preservation Code:						Tracking # 4467-6849-8785
BPSB-181009-C31AH ~~North West~~ DBB	10/9/18	1120	C	S	N	N	X	1	*Analyze the following metals: Sb - Antimony, As - Arsenic, Be - Beryllium, Cd - Cadmium, Cr - chromium, Cu - Copper, Pb - Lead, Hg - mercury, Ni - Nickle, Se - Selenium, Ag - Silver, Tl - Thallium, Zn - Zinc, Ba - Barium
DBB ~~BPSB-181009-C31AH South West~~	↓	1125	C	S			X		
DBB ~~BPSB-181009-C31AH North East~~		1130	C	S			X		
DBB ~~BPSB-181009-C31AH South East~~		1135	C	S			X		
DBB ~~BPSB-181016-C19-RZ04~~							X		
BPSB-181002-C28AH	10/2/18	1125	C	S	N	N	X	1	
BPSB-181002-C21AH		1135	C	S	N	N	X	1	
BPSB-181002-C27AH		1145	C	S	N	N	X	1	
BPSB-181002-C25AH		1150	C	S	N	N	X	1	
BPSB-181002-C24AH		1155	C	S	N	N	X	1	
BPSB-181002-C26AH	↓	1200	C	S	N	N	X	1	↓

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date: 9/25/17	Time: 0845	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/22/18 9:00	AECom		10/23/18 0850	TAL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: △ Yes △ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 2.8 +0.1 IR #9

1 2 3 4 5 6 7 8 9 10 11 12 13 14

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information

Client Contact: Sharon Nordstrom
Company: The Chemours Company FC, LLC
Address: c/o AECOM Sabre Building, Suite 300 4051 Ogletown Road
City: Newark
State, Zip: DE, 19713
Phone: 302-892-8947(Tel)
Email: sharon.nordstrom@aecom.com
Project Name: BAR-Bio Pilot 2017
Site: Barksdale, WI

Sampler: Nick Shelley, Wes Kell, D. Barton
Phone: (248) 895-6055
Due Date Requested:
TAT Requested (days): 15 Business Days
PO #: LBIO-67048/77201000-WH06-507911
WO #:
Project #: 28003388
SSOW#:

Lab PM: Johnston, Michelle A
E-Mail: michelle.johnston@testamericainc.com
Carrier Tracking No(s):
COC No:
Page: Page 2 of 2
Job #: 508201

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA
M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Metals	Total Number of containers	Special Instructions/Note: Tracking # 4467-6849 8785
			Preservation Code:						
BPSB-181002-C17AH	10/2/18	1215	C	S	N	N	X	1	
BPSB-181002-C06AH	↓	1225	C	S	N	N	X	1	
BPSB-181002-C12AH	↓	1235	C	S	N	N	X	1	
~~BPSB-181009-C31AH~~									
BPSB-181018-C16AH	10/18/18	1505	C	S	N	N	X	1	
BPSB-181018-C33	10/18/18	1520	C	S	N	N	X	1	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify)
Special Instructions/QC Requirements:

Empty Kit Relinquished by: [signature] Date: 9/25/17 Time: 0845 Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	10/22/18 9:00	AECOM	[signature]	10/23/18 0850	TA Denver

Custody Seals Intact: △ Yes △ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks: 2.8+0.7 IR #9 transfer by JD

Login Sample Receipt Checklist

Client: Chemours Company FC, LLC The

Job Number: 280-115961-1

Login Number: 115961
List Number: 1
Creator: Diffendall, Jessica L

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-116093-1
Client Project/Site: BAR-Bio Pilot Lime Addition

For:
Chemours Company FC, LLC The
c/o AECOM
Sabre Building, Suite 300
4051 Ogletown Road
Newark, Delaware 19713

Attn: Sharon Nordstrom

Authorized for release by:
11/28/2018 1:52:09 PM

Michelle Johnston, Project Manager II
(303)736-0110
michelle.johnston@testamericainc.com

Table of Contents

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
U	Indicates the analyte was analyzed for but not detected.

LCMS

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F2	MS/MSD RPD exceeds control limits

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-116093-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE
Client: The Chemours Company FC, LLC
Project: BAR-Bio Pilot Lime Addition
Report Number: 280-116093-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

Throughout this report the MDL is equivalent to the LOD and the RL is equivalent to the LOQ. The LOD and LOQ have been adjusted for all dilutions performed.

The LOD and LOQ for soil samples have been dry weight adjusted.

Sample Arrival and Receipt
The samples were received on 10/25/2018 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.3º C.

Receipt Exceptions
Samples were received on 10/25/2018, and per client instruction were logged on hold. The client activated the samples on 10/30/2018, and instructed the laboratory to proceed with the extractions outside of hold time.

The start date for the job was set to 10/30/2018, and the requested analyses were logged on a 15 business day turn around time due to current laboratory capacity. The client was notified on 11/2/2018.

The sample volume for BPSB-181016-C09-RZ04-root (280-116093-1) was consumed before the pH analysis could be performed; therefore, this analysis was canceled. The client was notified on 11/26/2018.

No other anomalies were observed during sample receipt.

Semivolatiles - Method 8270C DNX
Samples BPSB-181016-C09-RZ04-root (280-116093-1) and BPSB-181016-C09-RZ04-soil (280-116093-2) were analyzed for semivolatile organic compounds (GC-MS) in accordance with EPA SW-846 Method 8270C. The samples were prepared on 11/02/2018 and analyzed on 11/07/2018.

The following samples were prepared outside of preparation holding time as the samples were activated by the client after holding time had expired: BPSB-181016-C09-RZ04-root (280-116093-1) and BPSB-181016-C09-RZ04-soil (280-116093-2).

The method required MS/MSD could not be performed for prep batch 280-436140, due to insufficient sample volume. Method precision and accuracy have been verified by the acceptable LCS/LCSD analyses data.

No other analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Explosives - Method 8321A
Samples BPSB-181016-C09-RZ04-root (280-116093-1) and BPSB-181016-C09-RZ04-soil (280-116093-2) were analyzed for Explosives (dry weight) in accordance with SW846 8321A. The samples were leached on 11/02/2018, prepared on 11/06/2018 and analyzed on 11/10/2018.

Job ID: 280-116093-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

The following samples were prepared outside of preparation holding time as the samples were activated by the client after holding time had expired: BPSB-181016-C09-RZ04-root (280-116093-1) and BPSB-181016-C09-RZ04-soil (280-116093-2).

The MS/MSD associated with prep batch 280-436589 was performed on a sample from another job. The MS/MSD exhibited RPD data above the QC control limits for 3,4-Dinitrotoluene, 3-Nitrotoluene and 4-Nitrotoluene. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action was deemed unnecessary.

No other analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Corrosivity (pH)

Sample BPSB-181016-C09-RZ04-soil (280-116093-2) was analyzed for Corrosivity (pH) in accordance with EPA SW-846 Method 9045D. The sample was leached on 11/16/2018 and analyzed on 11/16/2018.

Corrosivity (pH) analysis should be performed in the field immediately following sampling; therefore, data have been flagged “HF”.

No other analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Percent Moisture

Samples BPSB-181016-C09-RZ04-root (280-116093-1) and BPSB-181016-C09-RZ04-soil (280-116093-2) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 11/08/2018.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot Lime Addition

TestAmerica Job ID: 280-116093-1

Client Sample ID: BPSB-181016-C09-RZ04-root — Lab Sample ID: 280-116093-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2,4-Dinitrotoluene	12	J H	120	9.8	ug/Kg	1	☼	8321A	Total/NA
3-Nitrotoluene	23	J H	120	15	ug/Kg	1	☼	8321A	Total/NA
4-Amino-2,6-dinitrotoluene	11	J H	120	6.1	ug/Kg	1	☼	8321A	Total/NA

Client Sample ID: BPSB-181016-C09-RZ04-soil — Lab Sample ID: 280-116093-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2,3-Dinitrotoluene	12	J H	120	7.4	ug/Kg	1	☼	8321A	Total/NA
2,4,6-Trinitro-3-xylene	9.1	J H	120	5.1	ug/Kg	1	☼	8321A	Total/NA
2,4,6-Trinitrotoluene	11	J H	120	6.2	ug/Kg	1	☼	8321A	Total/NA
2,4-Dinitrotoluene	64	J H	120	10	ug/Kg	1	☼	8321A	Total/NA
4-Amino-2,6-dinitrotoluene	12	J H	120	6.3	ug/Kg	1	☼	8321A	Total/NA
pH adj. to 25 deg C	7.8	HF	0.1	0.1	SU	1		9045D	Soluble

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot Lime Addition

TestAmerica Job ID: 280-116093-1

Method	Method Description	Protocol	Laboratory
8270C	Semivolatile Organic Compounds (GC/MS)	SW846	TAL DEN
8321A	Nitroaromatic and Nitramine Compounds (Explosives) (LC/MS)	SW846	TAL DEN
9045D	pH	SW846	TAL DEN
D 2216-90	ASTM D 2216-90	ASTM	TAL DEN
3550C	Ultrasonic Extraction	SW846	TAL DEN
8330B	Sonication Extraction (Explosives)	SW846	TAL DEN
DI Leach	Deionized Water Leaching Procedure	ASTM	TAL DEN
Increment, prep	ISM - Dry, Disaggregate, Sieve, 2 D Slabcake Subsample	EPA	TAL DEN

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot Lime Addition

TestAmerica Job ID: 280-116093-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-116093-1	BPSB-181016-C09-RZ04-root	Solid	10/16/18 13:20	10/25/18 09:00
280-116093-2	BPSB-181016-C09-RZ04-soil	Solid	10/16/18 13:30	10/25/18 09:00

Client Sample ID: BPSB-181016-C09-RZ04-root

Date Collected: 10/16/18 13:20
Date Received: 10/25/18 09:00

Lab Sample ID: 280-116093-1

Matrix: Solid
Percent Solids: 79.5

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dimethyl-3,4-Dinitrobenzene	58	U H	350	58	ug/Kg	☼	11/02/18 19:28	11/07/18 22:31	1
1,2-Dimethyl-3,5-Dinitrobenzene	48	U H	350	48	ug/Kg	☼	11/02/18 19:28	11/07/18 22:31	1
1,2-Dimethyl-3,6-Dinitrobenzene	52	U H	350	52	ug/Kg	☼	11/02/18 19:28	11/07/18 22:31	1
1,2-Dimethyl-4,5-Dinitrobenzene	48	U H	350	48	ug/Kg	☼	11/02/18 19:28	11/07/18 22:31	1
1,3-Dimethyl-2,4-Dinitrobenzene	35	U H	350	35	ug/Kg	☼	11/02/18 19:28	11/07/18 22:31	1
1,3-Dimethyl-2,5-Dinitrobenzene	33	U H	350	33	ug/Kg	☼	11/02/18 19:28	11/07/18 22:31	1
1,4-Dimethyl-2,3-Dinitrobenzene	56	U H	350	56	ug/Kg	☼	11/02/18 19:28	11/07/18 22:31	1
1,4-Dimethyl-2,5-Dinitrobenzene	27	U H	350	27	ug/Kg	☼	11/02/18 19:28	11/07/18 22:31	1
1,4-Dimethyl-2,6-Dinitrobenzene	38	U H	350	38	ug/Kg	☼	11/02/18 19:28	11/07/18 22:31	1
1,5-Dimethyl-2,3-Dinitrobenzene	56	U H	350	56	ug/Kg	☼	11/02/18 19:28	11/07/18 22:31	1
1,5-Dimethyl-2,4-Dinitrobenzene	48	U H	350	48	ug/Kg	☼	11/02/18 19:28	11/07/18 22:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*90*		*24 - 135*	*11/02/18 19:28*	*11/07/18 22:31*	*1*
2-Fluorobiphenyl	*82*		*33 - 135*	*11/02/18 19:28*	*11/07/18 22:31*	*1*
2-Fluorophenol	*84*		*39 - 135*	*11/02/18 19:28*	*11/07/18 22:31*	*1*
Nitrobenzene-d5	*71*		*32 - 135*	*11/02/18 19:28*	*11/07/18 22:31*	*1*
Phenol-d5	*87*		*39 - 135*	*11/02/18 19:28*	*11/07/18 22:31*	*1*
Terphenyl-d14	*79*		*30 - 135*	*11/02/18 19:28*	*11/07/18 22:31*	*1*

Method: 8321A - Nitroaromatic and Nitramine Compounds (Explosives) (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3,5-Trinitrobenzene	15	U H	120	15	ug/Kg	☼	11/06/18 21:30	11/10/18 22:10	1
1,3-Dinitrobenzene	8.5	U H	120	8.5	ug/Kg	☼	11/06/18 21:30	11/10/18 22:10	1
2,3-Dinitrotoluene	7.2	U H	120	7.2	ug/Kg	☼	11/06/18 21:30	11/10/18 22:10	1
2,4,6-Trinitro-3-xylene	4.9	U H	120	4.9	ug/Kg	☼	11/06/18 21:30	11/10/18 22:10	1
2,4,6-Trinitrotoluene	6.0	U H	120	6.0	ug/Kg	☼	11/06/18 21:30	11/10/18 22:10	1
2,4-Dinitrotoluene	**12**	**J H**	120	9.8	ug/Kg	☼	11/06/18 21:30	11/10/18 22:10	1
2,5-Dinitrotoluene	13	U H	120	13	ug/Kg	☼	11/06/18 21:30	11/10/18 22:10	1
2,6-Dinitrotoluene	24	U H	120	24	ug/Kg	☼	11/06/18 21:30	11/10/18 22:10	1
2-Amino-4,6-dinitrotoluene	14	U H	120	14	ug/Kg	☼	11/06/18 21:30	11/10/18 22:10	1
2-Nitrotoluene	6.9	U H	120	6.9	ug/Kg	☼	11/06/18 21:30	11/10/18 22:10	1
3,4-Dinitrotoluene	12	U H	120	12	ug/Kg	☼	11/06/18 21:30	11/10/18 22:10	1
3,5-Dinitrotoluene	25	U H	120	25	ug/Kg	☼	11/06/18 21:30	11/10/18 22:10	1
3-Nitrotoluene	**23**	**J H**	120	15	ug/Kg	☼	11/06/18 21:30	11/10/18 22:10	1
4-Amino-2,6-dinitrotoluene	**11**	**J H**	120	6.1	ug/Kg	☼	11/06/18 21:30	11/10/18 22:10	1
4-Nitrotoluene	13	U H	120	13	ug/Kg	☼	11/06/18 21:30	11/10/18 22:10	1
HMX	7.0	U H	120	7.0	ug/Kg	☼	11/06/18 21:30	11/10/18 22:10	1
Nitrobenzene	13	U H	120	13	ug/Kg	☼	11/06/18 21:30	11/10/18 22:10	1
Nitroglycerin	13	U H	120	13	ug/Kg	☼	11/06/18 21:30	11/10/18 22:10	1
PETN	6.2	U H	120	6.2	ug/Kg	☼	11/06/18 21:30	11/10/18 22:10	1
RDX	5.2	U H	120	5.2	ug/Kg	☼	11/06/18 21:30	11/10/18 22:10	1
Tetryl	9.1	U H	120	9.1	ug/Kg	☼	11/06/18 21:30	11/10/18 22:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*70*		*68 - 140*	*11/06/18 21:30*	*11/10/18 22:10*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**20.5**		0.1	0.1	%			11/08/18 19:27	1

Client Sample ID: BPSB-181016-C09-RZ04-soil

Date Collected: 10/16/18 13:30
Date Received: 10/25/18 09:00

Lab Sample ID: 280-116093-2

Matrix: Solid
Percent Solids: 80.1

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dimethyl-3,4-Dinitrobenzene	33	U H	200	33	ug/Kg	☼	11/02/18 19:28	11/07/18 22:55	1
1,2-Dimethyl-3,5-Dinitrobenzene	27	U H	200	27	ug/Kg	☼	11/02/18 19:28	11/07/18 22:55	1
1,2-Dimethyl-3,6-Dinitrobenzene	29	U H	200	29	ug/Kg	☼	11/02/18 19:28	11/07/18 22:55	1
1,2-Dimethyl-4,5-Dinitrobenzene	27	U H	200	27	ug/Kg	☼	11/02/18 19:28	11/07/18 22:55	1
1,3-Dimethyl-2,4-Dinitrobenzene	20	U H	200	20	ug/Kg	☼	11/02/18 19:28	11/07/18 22:55	1
1,3-Dimethyl-2,5-Dinitrobenzene	19	U H	200	19	ug/Kg	☼	11/02/18 19:28	11/07/18 22:55	1
1,4-Dimethyl-2,3-Dinitrobenzene	32	U H	200	32	ug/Kg	☼	11/02/18 19:28	11/07/18 22:55	1
1,4-Dimethyl-2,5-Dinitrobenzene	15	U H	200	15	ug/Kg	☼	11/02/18 19:28	11/07/18 22:55	1
1,4-Dimethyl-2,6-Dinitrobenzene	21	U H	200	21	ug/Kg	☼	11/02/18 19:28	11/07/18 22:55	1
1,5-Dimethyl-2,3-Dinitrobenzene	32	U H	200	32	ug/Kg	☼	11/02/18 19:28	11/07/18 22:55	1
1,5-Dimethyl-2,4-Dinitrobenzene	27	U H	200	27	ug/Kg	☼	11/02/18 19:28	11/07/18 22:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*79*		*24 - 135*	*11/02/18 19:28*	*11/07/18 22:55*	*1*
2-Fluorobiphenyl	*79*		*33 - 135*	*11/02/18 19:28*	*11/07/18 22:55*	*1*
2-Fluorophenol	*87*		*39 - 135*	*11/02/18 19:28*	*11/07/18 22:55*	*1*
Nitrobenzene-d5	*74*		*32 - 135*	*11/02/18 19:28*	*11/07/18 22:55*	*1*
Phenol-d5	*86*		*39 - 135*	*11/02/18 19:28*	*11/07/18 22:55*	*1*
Terphenyl-d14	*79*		*30 - 135*	*11/02/18 19:28*	*11/07/18 22:55*	*1*

Method: 8321A - Nitroaromatic and Nitramine Compounds (Explosives) (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3,5-Trinitrobenzene	16	U H	120	16	ug/Kg	☼	11/06/18 21:30	11/10/18 22:43	1
1,3-Dinitrobenzene	8.8	U H	120	8.8	ug/Kg	☼	11/06/18 21:30	11/10/18 22:43	1
2,3-Dinitrotoluene	**12**	**J H**	120	7.4	ug/Kg	☼	11/06/18 21:30	11/10/18 22:43	1
2,4,6-Trinitro-3-xylene	**9.1**	**J H**	120	5.1	ug/Kg	☼	11/06/18 21:30	11/10/18 22:43	1
2,4,6-Trinitrotoluene	**11**	**J H**	120	6.2	ug/Kg	☼	11/06/18 21:30	11/10/18 22:43	1
2,4-Dinitrotoluene	**64**	**J H**	120	10	ug/Kg	☼	11/06/18 21:30	11/10/18 22:43	1
2,5-Dinitrotoluene	14	U H	120	14	ug/Kg	☼	11/06/18 21:30	11/10/18 22:43	1
2,6-Dinitrotoluene	25	U H	120	25	ug/Kg	☼	11/06/18 21:30	11/10/18 22:43	1
2-Amino-4,6-dinitrotoluene	15	U H	120	15	ug/Kg	☼	11/06/18 21:30	11/10/18 22:43	1
2-Nitrotoluene	7.1	U H	120	7.1	ug/Kg	☼	11/06/18 21:30	11/10/18 22:43	1
3,4-Dinitrotoluene	12	U H	120	12	ug/Kg	☼	11/06/18 21:30	11/10/18 22:43	1
3,5-Dinitrotoluene	26	U H	120	26	ug/Kg	☼	11/06/18 21:30	11/10/18 22:43	1
3-Nitrotoluene	16	U H	120	16	ug/Kg	☼	11/06/18 21:30	11/10/18 22:43	1
4-Amino-2,6-dinitrotoluene	**12**	**J H**	120	6.3	ug/Kg	☼	11/06/18 21:30	11/10/18 22:43	1
4-Nitrotoluene	14	U H	120	14	ug/Kg	☼	11/06/18 21:30	11/10/18 22:43	1
HMX	7.2	U H	120	7.2	ug/Kg	☼	11/06/18 21:30	11/10/18 22:43	1
Nitrobenzene	13	U H	120	13	ug/Kg	☼	11/06/18 21:30	11/10/18 22:43	1
Nitroglycerin	13	U H	120	13	ug/Kg	☼	11/06/18 21:30	11/10/18 22:43	1
PETN	6.4	U H	120	6.4	ug/Kg	☼	11/06/18 21:30	11/10/18 22:43	1
RDX	5.3	U H	120	5.3	ug/Kg	☼	11/06/18 21:30	11/10/18 22:43	1
Tetryl	9.4	U H	120	9.4	ug/Kg	☼	11/06/18 21:30	11/10/18 22:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*91*		*68 - 140*	*11/06/18 21:30*	*11/10/18 22:43*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**19.9**		0.1	0.1	%			11/08/18 19:27	1

Client Sample Results

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot Lime Addition

TestAmerica Job ID: 280-116093-1

Client Sample ID: BPSB-181016-C09-RZ04-soil
Date Collected: 10/16/18 13:30
Date Received: 10/25/18 09:00

Lab Sample ID: 280-116093-2
Matrix: Solid
Percent Solids: 80.1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.8	HF	0.1	0.1	SU			11/16/18 16:17	1

Surrogate Summary

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot Lime Addition

TestAmerica Job ID: 280-116093-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	FBP	2FP	NBZ	PHL	TPHL
Lab Sample ID	Client Sample ID	(24-135)	(33-135)	(39-135)	(32-135)	(39-135)	(30-135)
280-116093-1	BPSB-181016-C09-RZ04-root	90	82	84	71	87	79
280-116093-2	BPSB-181016-C09-RZ04-soil	79	79	87	74	86	79
LCS 280-436140/2-A	Lab Control Sample	69	75	78	71	78	80
LCSD 280-436140/3-A	Lab Control Sample Dup	70	72	73	68	72	76
MB 280-436140/1-A	Method Blank	68	80	83	75	83	79

Surrogate Legend

TBP = 2,4,6-Tribromophenol
FBP = 2-Fluorobiphenyl
2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
PHL = Phenol-d5
TPHL = Terphenyl-d14

Method: 8321A - Nitroaromatic and Nitramine Compounds (Explosives) (LC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		NBZ
Lab Sample ID	Client Sample ID	(68-140)
280-116093-1	BPSB-181016-C09-RZ04-root	70
280-116093-2	BPSB-181016-C09-RZ04-soil	91
280-116232-A-1-C MS	Matrix Spike	96
280-116232-A-1-D MSD	Matrix Spike Duplicate	99
LCS 280-436589/2-A	Lab Control Sample	87
MB 280-436589/1-A	Method Blank	80

Surrogate Legend

NBZ = Nitrobenzene-d5

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-436140/1-A
Matrix: Solid
Analysis Batch: 436667

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436140

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dimethyl-3,4-Dinitrobenzene	27	U	160	27	ug/Kg		11/02/18 19:28	11/07/18 18:04	1
1,2-Dimethyl-3,5-Dinitrobenzene	22	U	160	22	ug/Kg		11/02/18 19:28	11/07/18 18:04	1
1,2-Dimethyl-3,6-Dinitrobenzene	24	U	160	24	ug/Kg		11/02/18 19:28	11/07/18 18:04	1
1,2-Dimethyl-4,5-Dinitrobenzene	22	U	160	22	ug/Kg		11/02/18 19:28	11/07/18 18:04	1
1,3-Dimethyl-2,4-Dinitrobenzene	16	U	160	16	ug/Kg		11/02/18 19:28	11/07/18 18:04	1
1,3-Dimethyl-2,5-Dinitrobenzene	15	U	160	15	ug/Kg		11/02/18 19:28	11/07/18 18:04	1
1,4-Dimethyl-2,3-Dinitrobenzene	26	U	160	26	ug/Kg		11/02/18 19:28	11/07/18 18:04	1
1,4-Dimethyl-2,5-Dinitrobenzene	12	U	160	12	ug/Kg		11/02/18 19:28	11/07/18 18:04	1
1,4-Dimethyl-2,6-Dinitrobenzene	17	U	160	17	ug/Kg		11/02/18 19:28	11/07/18 18:04	1
1,5-Dimethyl-2,3-Dinitrobenzene	26	U	160	26	ug/Kg		11/02/18 19:28	11/07/18 18:04	1
1,5-Dimethyl-2,4-Dinitrobenzene	22	U	160	22	ug/Kg		11/02/18 19:28	11/07/18 18:04	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*68*		*24 - 135*	*11/02/18 19:28*	*11/07/18 18:04*	*1*
2-Fluorobiphenyl	*80*		*33 - 135*	*11/02/18 19:28*	*11/07/18 18:04*	*1*
2-Fluorophenol	*83*		*39 - 135*	*11/02/18 19:28*	*11/07/18 18:04*	*1*
Nitrobenzene-d5	*75*		*32 - 135*	*11/02/18 19:28*	*11/07/18 18:04*	*1*
Phenol-d5	*83*		*39 - 135*	*11/02/18 19:28*	*11/07/18 18:04*	*1*
Terphenyl-d14	*79*		*30 - 135*	*11/02/18 19:28*	*11/07/18 18:04*	*1*

Lab Sample ID: LCS 280-436140/2-A
Matrix: Solid
Analysis Batch: 436667

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436140

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dimethyl-3,4-Dinitrobenzene	1550	1490		ug/Kg		96	50 - 135
1,2-Dimethyl-3,5-Dinitrobenzene	1550	1490		ug/Kg		96	50 - 135
1,2-Dimethyl-3,6-Dinitrobenzene	1550	1440		ug/Kg		93	50 - 135
1,2-Dimethyl-4,5-Dinitrobenzene	1550	1510		ug/Kg		98	50 - 135
1,3-Dimethyl-2,4-Dinitrobenzene	1550	1370		ug/Kg		88	50 - 135
1,3-Dimethyl-2,5-Dinitrobenzene	1550	1390		ug/Kg		90	50 - 135
1,4-Dimethyl-2,3-Dinitrobenzene	1550	1410		ug/Kg		91	50 - 135
1,4-Dimethyl-2,5-Dinitrobenzene	1550	1420		ug/Kg		92	50 - 135
1,4-Dimethyl-2,6-Dinitrobenzene	1550	1370		ug/Kg		88	50 - 135
1,5-Dimethyl-2,3-Dinitrobenzene	1550	1460		ug/Kg		94	50 - 135
1,5-Dimethyl-2,4-Dinitrobenzene	1550	1430		ug/Kg		92	50 - 135

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol	*69*		*24 - 135*
2-Fluorobiphenyl	*75*		*33 - 135*
2-Fluorophenol	*78*		*39 - 135*
Nitrobenzene-d5	*71*		*32 - 135*
Phenol-d5	*78*		*39 - 135*
Terphenyl-d14	*80*		*30 - 135*

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-436140/3-A
Matrix: Solid
Analysis Batch: 436667

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 436140

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dimethyl-3,4-Dinitrobenzene			1590	1370		ug/Kg		86	50 - 135	8	30
1,2-Dimethyl-3,5-Dinitrobenzene			1590	1370		ug/Kg		86	50 - 135	8	30
1,2-Dimethyl-3,6-Dinitrobenzene			1590	1340		ug/Kg		84	50 - 135	7	30
1,2-Dimethyl-4,5-Dinitrobenzene			1590	1360		ug/Kg		85	50 - 135	11	30
1,3-Dimethyl-2,4-Dinitrobenzene			1590	1350		ug/Kg		85	50 - 135	1	30
1,3-Dimethyl-2,5-Dinitrobenzene			1590	1370		ug/Kg		86	50 - 135	2	30
1,4-Dimethyl-2,3-Dinitrobenzene			1590	1380		ug/Kg		86	50 - 135	2	30
1,4-Dimethyl-2,5-Dinitrobenzene			1590	1350		ug/Kg		85	50 - 135	5	30
1,4-Dimethyl-2,6-Dinitrobenzene			1590	1310		ug/Kg		82	50 - 135	4	30
1,5-Dimethyl-2,3-Dinitrobenzene			1590	1370		ug/Kg		86	50 - 135	7	30
1,5-Dimethyl-2,4-Dinitrobenzene			1590	1380		ug/Kg		87	50 - 135	3	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*70*		*24 - 135*
2-Fluorobiphenyl	*72*		*33 - 135*
2-Fluorophenol	*73*		*39 - 135*
Nitrobenzene-d5	*68*		*32 - 135*
Phenol-d5	*72*		*39 - 135*
Terphenyl-d14	*76*		*30 - 135*

Method: 8321A - Nitroaromatic and Nitramine Compounds (Explosives) (LC/MS)

Lab Sample ID: MB 280-436589/1-A
Matrix: Solid
Analysis Batch: 437139

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436589

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3,5-Trinitrobenzene	13	U	100	13	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
1,3-Dinitrobenzene	7.1	U	100	7.1	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
2,3-Dinitrotoluene	6.0	U	100	6.0	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
2,4,6-Trinitro-3-xylene	4.1	U	100	4.1	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
2,4,6-Trinitrotoluene	5.0	U	100	5.0	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
2,4-Dinitrotoluene	8.2	U	100	8.2	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
2,5-Dinitrotoluene	11	U	100	11	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
2,6-Dinitrotoluene	20	U	100	20	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
2-Amino-4,6-dinitrotoluene	12	U	100	12	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
2-Nitrotoluene	5.7	U	100	5.7	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
3,4-Dinitrotoluene	10	U	100	10	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
3,5-Dinitrotoluene	21	U	100	21	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
3-Nitrotoluene	13	U	100	13	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
4-Amino-2,6-dinitrotoluene	5.1	U	100	5.1	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
4-Nitrotoluene	11	U	100	11	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
HMX	5.8	U	100	5.8	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
Nitrobenzene	11	U	100	11	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
Nitroglycerin	11	U	100	11	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
PETN	5.2	U	100	5.2	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
RDX	4.3	U	100	4.3	ug/Kg		11/06/18 21:30	11/10/18 18:57	1

Method: 8321A - Nitroaromatic and Nitramine Compounds (Explosives) (LC/MS) (Continued)

Lab Sample ID: MB 280-436589/1-A
Matrix: Solid
Analysis Batch: 437139

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436589

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetryl	7.6	U	100	7.6	ug/Kg		11/06/18 21:30	11/10/18 18:57	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*80*		*68 - 140*	*11/06/18 21:30*	*11/10/18 18:57*	*1*

Lab Sample ID: LCS 280-436589/2-A
Matrix: Solid
Analysis Batch: 437139

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436589

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,3,5-Trinitrobenzene	400	407		ug/Kg		102	45 - 142
1,3-Dinitrobenzene	400	384		ug/Kg		96	74 - 130
2,3-Dinitrotoluene	400	306		ug/Kg		76	50 - 150
2,4,6-Trinitro-3-xylene	400	308		ug/Kg		77	50 - 150
2,4,6-Trinitrotoluene	400	332		ug/Kg		83	60 - 135
2,4-Dinitrotoluene	400	372		ug/Kg		93	63 - 130
2,5-Dinitrotoluene	400	417		ug/Kg		104	50 - 150
2,6-Dinitrotoluene	400	263		ug/Kg		66	65 - 133
2-Amino-4,6-dinitrotoluene	400	406		ug/Kg		101	51 - 148
2-Nitrotoluene	400	348		ug/Kg		87	59 - 150
3,4-Dinitrotoluene	400	366		ug/Kg		91	50 - 150
3,5-Dinitrotoluene	400	364		ug/Kg		91	50 - 150
3-Nitrotoluene	400	314		ug/Kg		79	56 - 154
4-Amino-2,6-dinitrotoluene	400	397		ug/Kg		99	60 - 141
4-Nitrotoluene	400	365		ug/Kg		91	72 - 145
HMX	400	357		ug/Kg		89	48 - 131
Nitrobenzene	400	354		ug/Kg		88	70 - 140
Nitroglycerin	400	403		ug/Kg		101	27 - 146
PETN	400	361		ug/Kg		90	31 - 171
RDX	400	357		ug/Kg		89	69 - 130
Tetryl	400	414		ug/Kg		104	10 - 170

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5	*87*		*68 - 140*

Lab Sample ID: 280-116232-A-1-C MS
Matrix: Solid
Analysis Batch: 437139

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 436589

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,3,5-Trinitrobenzene	12	U	407	383		ug/Kg	☼	94	45 - 142
1,3-Dinitrobenzene	7.0	U	407	433		ug/Kg	☼	106	74 - 130
2,3-Dinitrotoluene	5.9	U	407	317		ug/Kg	☼	78	50 - 150
2,4,6-Trinitro-3-xylene	4.5	J	407	472		ug/Kg	☼	115	50 - 150
2,4,6-Trinitrotoluene	50	J	407	493		ug/Kg	☼	109	60 - 135
2,4-Dinitrotoluene	8.1	U	407	441		ug/Kg	☼	108	63 - 130
2,5-Dinitrotoluene	11	U	407	422		ug/Kg	☼	104	50 - 150
2,6-Dinitrotoluene	20	U	407	415		ug/Kg	☼	102	65 - 133

Method: 8321A - Nitroaromatic and Nitramine Compounds (Explosives) (LC/MS) (Continued)

Lab Sample ID: 280-116232-A-1-C MS
Matrix: Solid
Analysis Batch: 437139

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 436589

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Amino-4,6-dinitrotoluene	12	U	407	349		ug/Kg	☼	86	51 - 148
2-Nitrotoluene	5.7	U	407	434		ug/Kg	☼	106	59 - 150
3,4-Dinitrotoluene	9.8	U F2	408	529		ug/Kg	☼	130	50 - 150
3,5-Dinitrotoluene	21	U	407	483		ug/Kg	☼	119	50 - 150
3-Nitrotoluene	13	U F2	407	474		ug/Kg	☼	116	56 - 154
4-Amino-2,6-dinitrotoluene	26	J	407	324		ug/Kg	☼	73	60 - 141
4-Nitrotoluene	11	U F2	407	476		ug/Kg	☼	117	72 - 145
HMX	5.7	U	407	397		ug/Kg	☼	97	48 - 131
Nitrobenzene	11	U	407	401		ug/Kg	☼	98	70 - 140
Nitroglycerin	10	U	407	352		ug/Kg	☼	87	27 - 146
PETN	5.1	U	407	412		ug/Kg	☼	101	31 - 171
RDX	4.3	U	407	415		ug/Kg	☼	102	69 - 130
Tetryl	7.5	U	407	401		ug/Kg	☼	98	10 - 170

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Nitrobenzene-d5	*96*		*68 - 140*

Lab Sample ID: 280-116232-A-1-D MSD
Matrix: Solid
Analysis Batch: 437139

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 436589

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,3,5-Trinitrobenzene	12	U	390	426		ug/Kg	☼	109	45 - 142	11	70
1,3-Dinitrobenzene	7.0	U	390	390		ug/Kg	☼	100	74 - 130	10	25
2,3-Dinitrotoluene	5.9	U	390	324		ug/Kg	☼	83	50 - 150	2	30
2,4,6-Trinitro-3-xylene	4.5	J	390	380		ug/Kg	☼	96	50 - 150	22	30
2,4,6-Trinitrotoluene	50	J	390	416		ug/Kg	☼	94	60 - 135	17	25
2,4-Dinitrotoluene	8.1	U	390	389		ug/Kg	☼	100	63 - 130	13	25
2,5-Dinitrotoluene	11	U	390	409		ug/Kg	☼	105	50 - 150	3	30
2,6-Dinitrotoluene	20	U	390	342		ug/Kg	☼	88	65 - 133	19	25
2-Amino-4,6-dinitrotoluene	12	U	390	353		ug/Kg	☼	91	51 - 148	1	25
2-Nitrotoluene	5.7	U	390	387		ug/Kg	☼	99	59 - 150	11	45
3,4-Dinitrotoluene	9.8	U F2	390	360	F2	ug/Kg	☼	92	50 - 150	38	30
3,5-Dinitrotoluene	21	U	390	398		ug/Kg	☼	102	50 - 150	19	30
3-Nitrotoluene	13	U F2	390	364	F2	ug/Kg	☼	93	56 - 154	26	25
4-Amino-2,6-dinitrotoluene	26	J	390	438		ug/Kg	☼	106	60 - 141	30	48
4-Nitrotoluene	11	U F2	390	365	F2	ug/Kg	☼	94	72 - 145	26	25
HMX	5.7	U	390	361		ug/Kg	☼	93	48 - 131	9	25
Nitrobenzene	11	U	390	389		ug/Kg	☼	100	70 - 140	3	25
Nitroglycerin	10	U	390	330		ug/Kg	☼	85	27 - 146	7	92
PETN	5.1	U	390	392		ug/Kg	☼	101	31 - 171	5	40
RDX	4.3	U	390	378		ug/Kg	☼	97	69 - 130	9	25
Tetryl	7.5	U	390	408		ug/Kg	☼	105	10 - 170	2	50

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Nitrobenzene-d5	*99*		*68 - 140*

Method: 9045D - pH

Lab Sample ID: LCS 280-437951/1-A
Matrix: Solid
Analysis Batch: 437953

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
pH adj. to 25 deg C			7.00	7.0		SU		101	97 - 103		

Lab Sample ID: 280-116932-C-6-D DU
Matrix: Solid
Analysis Batch: 437953

Client Sample ID: Duplicate
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH adj. to 25 deg C	8.9			9.0		SU				0.6	5

Method: D 2216-90 - ASTM D 2216-90

Lab Sample ID: 280-116639-D-8 DU
Matrix: Solid
Analysis Batch: 436911

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	77.6			77.7		%				0.06	20

GC/MS Semi VOA

Prep Batch: 436140

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116093-1	BPSB-181016-C09-RZ04-root	Total/NA	Solid	3550C	
280-116093-2	BPSB-181016-C09-RZ04-soil	Total/NA	Solid	3550C	
MB 280-436140/1-A	Method Blank	Total/NA	Solid	3550C	
LCS 280-436140/2-A	Lab Control Sample	Total/NA	Solid	3550C	
LCSD 280-436140/3-A	Lab Control Sample Dup	Total/NA	Solid	3550C	

Analysis Batch: 436667

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116093-1	BPSB-181016-C09-RZ04-root	Total/NA	Solid	8270C	436140
280-116093-2	BPSB-181016-C09-RZ04-soil	Total/NA	Solid	8270C	436140
MB 280-436140/1-A	Method Blank	Total/NA	Solid	8270C	436140
LCS 280-436140/2-A	Lab Control Sample	Total/NA	Solid	8270C	436140
LCSD 280-436140/3-A	Lab Control Sample Dup	Total/NA	Solid	8270C	436140

LCMS

ISM Prep Batch: 435414

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116232-A-1-C MS	Matrix Spike	Total/NA	Solid	Increment, prep	
280-116232-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	Increment, prep	

ISM Prep Batch: 436141

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116093-1	BPSB-181016-C09-RZ04-root	Total/NA	Solid	Increment, prep	
280-116093-2	BPSB-181016-C09-RZ04-soil	Total/NA	Solid	Increment, prep	

Prep Batch: 436589

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116093-1	BPSB-181016-C09-RZ04-root	Total/NA	Solid	8330B	436141
280-116093-2	BPSB-181016-C09-RZ04-soil	Total/NA	Solid	8330B	436141
MB 280-436589/1-A	Method Blank	Total/NA	Solid	8330B	
LCS 280-436589/2-A	Lab Control Sample	Total/NA	Solid	8330B	
280-116232-A-1-C MS	Matrix Spike	Total/NA	Solid	8330B	435414
280-116232-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8330B	435414

Analysis Batch: 437139

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116093-1	BPSB-181016-C09-RZ04-root	Total/NA	Solid	8321A	436589
280-116093-2	BPSB-181016-C09-RZ04-soil	Total/NA	Solid	8321A	436589
MB 280-436589/1-A	Method Blank	Total/NA	Solid	8321A	436589
LCS 280-436589/2-A	Lab Control Sample	Total/NA	Solid	8321A	436589
280-116232-A-1-C MS	Matrix Spike	Total/NA	Solid	8321A	436589
280-116232-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8321A	436589

General Chemistry

Analysis Batch: 436911

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116093-1	BPSB-181016-C09-RZ04-root	Total/NA	Solid	D 2216-90	
280-116093-2	BPSB-181016-C09-RZ04-soil	Total/NA	Solid	D 2216-90	

General Chemistry (Continued)

Analysis Batch: 436911 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116639-D-8 DU	Duplicate	Total/NA	Solid	D 2216-90	

Leach Batch: 437951

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116093-2	BPSB-181016-C09-RZ04-soil	Soluble	Solid	DI Leach	
LCS 280-437951/1-A	Lab Control Sample	Soluble	Solid	DI Leach	
280-116932-C-6-D DU	Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 437953

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116093-2	BPSB-181016-C09-RZ04-soil	Soluble	Solid	9045D	437951
LCS 280-437951/1-A	Lab Control Sample	Soluble	Solid	9045D	437951
280-116932-C-6-D DU	Duplicate	Soluble	Solid	9045D	437951

Lab Chronicle

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot Lime Addition

TestAmerica Job ID: 280-116093-1

Client Sample ID: BPSB-181016-C09-RZ04-root
Lab Sample ID: 280-116093-1
Date Collected: 10/16/18 13:20
Matrix: Solid
Date Received: 10/25/18 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216-90		1			436911	11/08/18 19:27	EC	TAL DEN

Client Sample ID: BPSB-181016-C09-RZ04-root
Lab Sample ID: 280-116093-1
Date Collected: 10/16/18 13:20
Matrix: Solid
Date Received: 10/25/18 09:00
Percent Solids: 79.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18.1 g	1 mL	436140	11/02/18 19:28	DWC	TAL DEN
Total/NA	Analysis	8270C		1			436667	11/07/18 22:31	AFH	TAL DEN
Total/NA	ISM Prep	Increment, prep					436141	11/02/18 19:30	RPC	TAL DEN
Total/NA	Prep	8330B			10.49 g	40 mL	436589	11/06/18 21:30	RPC	TAL DEN
Total/NA	Analysis	8321A		1			437139	11/10/18 22:10	AGCM	TAL DEN

Client Sample ID: BPSB-181016-C09-RZ04-soil
Lab Sample ID: 280-116093-2
Date Collected: 10/16/18 13:30
Matrix: Solid
Date Received: 10/25/18 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			40.40 g	40 mL	437951	11/16/18 15:54	SGB	TAL DEN
Soluble	Analysis	9045D		1			437953	11/16/18 16:17	SGB	TAL DEN
Total/NA	Analysis	D 2216-90		1			436911	11/08/18 19:27	EC	TAL DEN

Client Sample ID: BPSB-181016-C09-RZ04-soil
Lab Sample ID: 280-116093-2
Date Collected: 10/16/18 13:30
Matrix: Solid
Date Received: 10/25/18 09:00
Percent Solids: 80.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			32.0 g	1 mL	436140	11/02/18 19:28	DWC	TAL DEN
Total/NA	Analysis	8270C		1			436667	11/07/18 22:55	AFH	TAL DEN
Total/NA	ISM Prep	Increment, prep					436141	11/02/18 19:30	RPC	TAL DEN
Total/NA	Prep	8330B			10.10 g	40 mL	436589	11/06/18 21:30	RPC	TAL DEN
Total/NA	Analysis	8321A		1			437139	11/10/18 22:43	AGCM	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot Lime Addition

TestAmerica Job ID: 280-116093-1

Laboratory: TestAmerica Denver

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Wisconsin	State Program	5	999615430	08-31-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Pace Analytical - ECCS Division
2525 Advance Road
Madison, WI 53718
608-221-8700 (phone)
608-221-4889 (fax)

CHAIN OF CUSTODY

No. 8181

DBB

Page: 2 of: 2

Lab Work Order #: A184307

Report To: Sharon Nordstrom
Company: AECOM/Chemours
Address 1:
Address 2:
E-mail Address:

Project Number: PO Number:
Project Name: Bio Pilot Lime Addition
Project Location (City, State): Barksdale, WI
Turn Around (check one): ☒ Normal ☐ Rush
If Rush, Report Due Date:
Sampled By (Print): Wes Leksell

Preservation Codes
Analyses Requested

Invoice To:
Company:
Address 1:
Address 2:

Sample Description	Collection Date	Collection Time	Matrix	Total # of Containers	NNOCs	% moisture	pH	Comments	Lab ID	Lab Receipt Time
BPSB-181009-C31AH North West	10/9/18	1120	S	1	X	X	X	All samples placed	10	
BPSB-181009-C31AH South West		1125	S	1	X	X	X	in site freezer	11	
BPSB-181009-C31AH North East		1130	S	1	X	X	X	following sampling	12	
BPSB-181009-C31AH South East		1135	S	1	X	X	X	(WLL)	13	
BPSB-181016-C09-RZ04-root	10/16/18	1320	S	1	X	X	X	Root sample	14	①
BPSB-181016-C09-RZ04-soil	10/16/18	1330	S	1	X	X	X	Soil around root sample	15	①
BPSB-181018-C33	10/18/18	1525	S	1	X	X	X		16	
BPSB-181018-C16AH	10/18/18	1510	S	1	X	X	X	Tracking # 7735-3077-9986	17	
									—	

280-116093 Chain of Custody

Page 22 of 23

Preservation Codes
A=None B=HCL C=H_2SO_4 D=HNO_3 E=EnCore F=Methanol G=NaOH O=Other (Indicate)

Matrix Codes
A=Air S=Soil W=Water O=Other

Other Comments:
Placed in freezer after sampling
① Samples sent to TA per Sharon 10-24-18

Relinquished By: [signature] Date: 10/22/18 Time: 9:00 Received By: Kari-Ann Killian Date: 10/23/18 Time: 0940
Relinquished By: [signature] Date: 10-24-18 Time: 1500 Received By: [signature] Date: 10/25/18 Time: 0900

Custody Seal: ☐ NA ☒ Intact ☐ Not Intact
Shipped Via: Fed Ex
Receipt Temp: 2.4°C
Thermometer #/ Exp. Date: 160142274 1/12/19
Temp Blank: ☒ Y ☐ N

Rev. 12/15

~~1.5~~ 0.6 IR#9 +0.7 DB 10/25/18 transferred by DB 10/25/18

Login Sample Receipt Checklist

Client: Chemours Company FC, LLC The

Job Number: 280-116093-1
SDG Number:

Login Number: 116093
List Number: 1
Creator: Johnston, Michelle A

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	N/A	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-116232-1
Client Project/Site: BAR-Bio Pilot 2018

For:
Chemours Company FC, LLC The
c/o AECOM
Sabre Building, Suite 300
4051 Ogletown Road
Newark, Delaware 19713

Attn: Sharon Nordstrom

Authorized for release by:
12/11/2018 11:33:17 AM

Michelle Johnston, Project Manager II
(303)736-0110
michelle.johnston@testamericainc.com

Table of Contents

Definitions/Glossary

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-116232-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
X	Surrogate is outside control limits

LCMS

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.
F2	MS/MSD RPD exceeds control limits
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
F3	Duplicate RPD exceeds the control limit

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-116232-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE
Client: The Chemours Company FC, LLC
Project: BAR-Bio Pilot 2018
Report Number: 280-116232-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

Throughout this report the MDL is equivalent to the LOD and the RL is equivalent to the LOQ. The LOD and LOQ have been adjusted for all dilutions performed.

The LOD and LOQ for soil samples have been dry weight adjusted.

Sample Arrival and Receipt
The samples were received on 10/26/2018 9:25 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.8° C.

Receipt Exceptions
The project description was logged as BAR-Bio Pilot 2018 to match the year of sample collection. The client was notified on 10/31/2018.

The TCLP DNX analyses were canceled as the laboratory does not have current reporting limits (RLs), method detection limits (MDLs) or control limits for the DNX analytes by the TCLP 3510C extraction. The laboratory's current DNX RLs, MDLs and control limits are by the 3520C extraction for liquid samples. The client was notified on 12/6/2018.

No other anomalies were observed during sample receipt.

Semivolatiles - Method 8270C DNX
Samples SITG-18023-VCP-clean (280-116232-1) and SITG-18023-VCP-Prev-Impacted (280-116232-2) were analyzed for semivolatile organic compounds (GC-MS) in accordance with EPA SW-846 Method 8270C. The samples were prepared on 11/01/2018 and analyzed on 11/07/2018.

Surrogate 2,4,6-Tribromophenol was recovered below the QC control limits in samples SITG-18023-VCP-clean (280-116232-1) and SITG-18023-VCP-Prev-Impacted (280-116232-2). This is an indicator that data may be biased low. These anomalies are due to obvious matrix interferences; therefore, corrective action was deemed unnecessary.

The method required MS/MSD could not be performed for prep batch 280-435936, due to insufficient sample volume. Method precision and accuracy have been verified by the acceptable LCS/LCSD analyses data.

No other analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Explosives - Method 8321A
Samples SITG-18023-VCP-clean (280-116232-1) and SITG-18023-VCP-Prev-Impacted (280-116232-2) were analyzed for Explosives (dry weight) in accordance with SW846 8321A. The samples were leached on 10/29/2018, prepared on 11/06/2018 and analyzed on 11/10/2018.

The MS/MSD associated with prep batch 280-436589 was performed on sample SITG-18023-VCP-clean (280-116232-1). The MS/MSD

Job ID: 280-116232-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

exhibited RPD data above the QC control limits for 3,4-Dinitrotoluene, 3-Nitrotoluene and 4-Nitrotoluene. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action was deemed unnecessary.

No other analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

TCLP Explosives - Method 1311/8321A

Samples SITG-18023-VCP-clean (280-116232-1) and SITG-18023-VCP-Prev-Impacted (280-116232-2) were analyzed for TCLP Explosives in accordance with EPA SW846 Methods 1311/8321A. The samples were leached on 11/01/2018, prepared on 11/02/2018 and analyzed on 11/10/2018.

Insufficient volume was provided to perform the TCLP leaching procedure with the required 100g for the following samples: SITG-18023-VCP-clean (280-116232-1) and SITG-18023-VCP-Prev-Impacted (280-116232-2). The volume of leaching fluid was adjusted proportionally to maintain a 20:1 ratio of leaching fluid to weight of sample. Reporting limits (RLs) were not affected.

Each sample is analyzed to achieve the lowest possible reporting limits within the constraints of the method. Due to high constituent concentrations, sample SITG-18023-VCP-Prev-Impacted (280-116232-2) had to be analyzed at a dilution. The surrogate recoveries were calculated from a diluted sample. The reporting limits have been adjusted relative to the dilution required.

The method required MS/MSD could not be performed for prep batch 280-436109, due to insufficient sample volume. Method precision and accuracy have been verified by the acceptable LCS/LCSD analyses data.

No other analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

TCLP Metals - 1311/6010B

Samples SITG-18023-VCP-clean (280-116232-1) and SITG-18023-VCP-Prev-Impacted (280-116232-2) were analyzed for TCLP metals in accordance with EPA SW-846 Methods 1311/ 6010B. The samples were leached on 10/30/2018, prepared on 11/02/2018 and analyzed on 11/02/2018 and 11/07/2018.

The MS/MSD associated with prep batch 280-435905 was performed on a sample from another job. The MS/MSD exhibited a spike compound recovery below the QC control limits for Thallium. The acceptable LCS/LCSD analysis data indicated that the analytical system was operating within control; therefore, corrective action was deemed unnecessary.

No other analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

TCLP Mercury - 1311/7470A

Samples SITG-18023-VCP-clean (280-116232-1) and SITG-18023-VCP-Prev-Impacted (280-116232-2) were analyzed for TCLP mercury in accordance with EPA SW-846 Methods 1311/7470A. The samples were leached on 10/30/2018, and prepared and analyzed on 11/12/2018.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Percent Solids - ASTM D2216

Samples SITG-18023-VCP-clean (280-116232-1) and SITG-18023-VCP-Prev-Impacted (280-116232-2) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 10/31/2018.

Percent Moisture exceeded the RPD limit for the duplicate of sample SITG-18023-VCP-Prev-Impacted (280-116232-2).

No other analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-116232-1

Client Sample ID: SITG-18023-VCP-clean — Lab Sample ID: 280-116232-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2,4,6-Trinitro-3-xylene	4.5	J	98	4.0	ug/Kg	1	☼	8321A	Total/NA
2,4,6-Trinitrotoluene	50	J	98	5.0	ug/Kg	1	☼	8321A	Total/NA
4-Amino-2,6-dinitrotoluene	26	J	98	5.0	ug/Kg	1	☼	8321A	Total/NA
1,3,5-Trinitrobenzene	0.025	J	0.098	0.017	ug/L	1		8321A	TCLP
2,4,6-Trinitrotoluene	0.21		0.098	0.022	ug/L	1		8321A	TCLP
2-Amino-4,6-dinitrotoluene	0.23		0.098	0.021	ug/L	1		8321A	TCLP
4-Amino-2,6-dinitrotoluene	0.70		0.098	0.019	ug/L	1		8321A	TCLP
Barium	0.19	J	1.0	0.0040	mg/L	1		6010B	TCLP
Chromium	0.0043	J	0.50	0.0030	mg/L	1		6010B	TCLP
Lead	0.11	J	0.50	0.014	mg/L	1		6010B	TCLP
Zinc	0.091	J	2.0	0.023	mg/L	1		6010B	TCLP

Client Sample ID: SITG-18023-VCP-Prev-Impacted — Lab Sample ID: 280-116232-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,3,5-Trinitrobenzene	18	J	96	12	ug/Kg	1	☼	8321A	Total/NA
2,4,6-Trinitrotoluene	85	J	96	4.8	ug/Kg	1	☼	8321A	Total/NA
2-Amino-4,6-dinitrotoluene	31	J	96	11	ug/Kg	1	☼	8321A	Total/NA
4-Amino-2,6-dinitrotoluene	27	J	96	4.9	ug/Kg	1	☼	8321A	Total/NA
1,3,5-Trinitrobenzene	0.25		0.11	0.019	ug/L	1		8321A	TCLP
2,4-Dinitrotoluene	0.022	J	0.11	0.021	ug/L	1		8321A	TCLP
2-Amino-4,6-dinitrotoluene	0.75		0.11	0.023	ug/L	1		8321A	TCLP
4-Amino-2,6-dinitrotoluene	1.0		0.11	0.021	ug/L	1		8321A	TCLP
2,4,6-Trinitrotoluene - DL	2.5		0.22	0.048	ug/L	2		8321A	TCLP
Barium	0.14	J	1.0	0.0040	mg/L	1		6010B	TCLP
Lead	0.039	J	0.50	0.014	mg/L	1		6010B	TCLP
Copper	0.024	J	2.0	0.021	mg/L	1		6010B	TCLP
Zinc	0.056	J	2.0	0.023	mg/L	1		6010B	TCLP

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-116232-1

Method	Method Description	Protocol	Laboratory
8270C	Semivolatile Organic Compounds (GC/MS)	SW846	TAL DEN
8321A	Nitroaromatic and Nitramine Compounds (Explosives) (LC/MS)	SW846	TAL DEN
6010B	Metals (ICP)	SW846	TAL DEN
7470A	Mercury (CVAA)	SW846	TAL DEN
D 2216-90	ASTM D 2216-90	ASTM	TAL DEN
1311	TCLP Extraction	SW846	TAL DEN
3010A	Preparation, Total Metals	SW846	TAL DEN
3535	Solid-Phase Extraction (SPE)	SW846	TAL DEN
3550C	Ultrasonic Extraction	SW846	TAL DEN
7470A	Preparation, Mercury	SW846	TAL DEN
8330B	Sonication Extraction (Explosives)	SW846	TAL DEN
Increment, prep	ISM - Dry, Disaggregate, Sieve, 2 D Slabcake Subsample	EPA	TAL DEN

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-116232-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-116232-1	SITG-18023-VCP-clean	Solid	10/23/18 15:30	10/26/18 09:25
280-116232-2	SITG-18023-VCP-Prev-Impacted	Solid	10/23/18 15:50	10/26/18 09:25

Client Sample ID: SITG-18023-VCP-clean
Date Collected: 10/23/18 15:30
Date Received: 10/26/18 09:25

Lab Sample ID: 280-116232-1
Matrix: Solid
Percent Solids: 98.1

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dimethyl-3,4-Dinitrobenzene	28	U	170	28	ug/Kg	☼	11/01/18 17:05	11/07/18 21:42	1
1,2-Dimethyl-3,5-Dinitrobenzene	23	U	170	23	ug/Kg	☼	11/01/18 17:05	11/07/18 21:42	1
1,2-Dimethyl-3,6-Dinitrobenzene	25	U	170	25	ug/Kg	☼	11/01/18 17:05	11/07/18 21:42	1
1,2-Dimethyl-4,5-Dinitrobenzene	23	U	170	23	ug/Kg	☼	11/01/18 17:05	11/07/18 21:42	1
1,3-Dimethyl-2,4-Dinitrobenzene	17	U	170	17	ug/Kg	☼	11/01/18 17:05	11/07/18 21:42	1
1,3-Dimethyl-2,5-Dinitrobenzene	16	U	170	16	ug/Kg	☼	11/01/18 17:05	11/07/18 21:42	1
1,4-Dimethyl-2,3-Dinitrobenzene	27	U	170	27	ug/Kg	☼	11/01/18 17:05	11/07/18 21:42	1
1,4-Dimethyl-2,5-Dinitrobenzene	13	U	170	13	ug/Kg	☼	11/01/18 17:05	11/07/18 21:42	1
1,4-Dimethyl-2,6-Dinitrobenzene	18	U	170	18	ug/Kg	☼	11/01/18 17:05	11/07/18 21:42	1
1,5-Dimethyl-2,3-Dinitrobenzene	27	U	170	27	ug/Kg	☼	11/01/18 17:05	11/07/18 21:42	1
1,5-Dimethyl-2,4-Dinitrobenzene	23	U	170	23	ug/Kg	☼	11/01/18 17:05	11/07/18 21:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*22*	*X*	*24 - 135*	*11/01/18 17:05*	*11/07/18 21:42*	*1*
2-Fluorobiphenyl	*65*		*33 - 135*	*11/01/18 17:05*	*11/07/18 21:42*	*1*
2-Fluorophenol	*67*		*39 - 135*	*11/01/18 17:05*	*11/07/18 21:42*	*1*
Nitrobenzene-d5	*62*		*32 - 135*	*11/01/18 17:05*	*11/07/18 21:42*	*1*
Phenol-d5	*67*		*39 - 135*	*11/01/18 17:05*	*11/07/18 21:42*	*1*
Terphenyl-d14	*76*		*30 - 135*	*11/01/18 17:05*	*11/07/18 21:42*	*1*

Method: 8321A - Nitroaromatic and Nitramine Compounds (Explosives) (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3,5-Trinitrobenzene	12	U	98	12	ug/Kg	☼	11/06/18 21:30	11/10/18 20:01	1
1,3-Dinitrobenzene	7.0	U	98	7.0	ug/Kg	☼	11/06/18 21:30	11/10/18 20:01	1
2,3-Dinitrotoluene	5.9	U	98	5.9	ug/Kg	☼	11/06/18 21:30	11/10/18 20:01	1
2,4,6-Trinitro-3-xylene	**4.5**	**J**	98	4.0	ug/Kg	☼	11/06/18 21:30	11/10/18 20:01	1
2,4,6-Trinitrotoluene	**50**	**J**	98	5.0	ug/Kg	☼	11/06/18 21:30	11/10/18 20:01	1
2,4-Dinitrotoluene	8.1	U	98	8.1	ug/Kg	☼	11/06/18 21:30	11/10/18 20:01	1
2,5-Dinitrotoluene	11	U	98	11	ug/Kg	☼	11/06/18 21:30	11/10/18 20:01	1
2,6-Dinitrotoluene	20	U	98	20	ug/Kg	☼	11/06/18 21:30	11/10/18 20:01	1
2-Amino-4,6-dinitrotoluene	12	U	98	12	ug/Kg	☼	11/06/18 21:30	11/10/18 20:01	1
2-Nitrotoluene	5.7	U	98	5.7	ug/Kg	☼	11/06/18 21:30	11/10/18 20:01	1
3,4-Dinitrotoluene	9.8	U F2	98	9.8	ug/Kg	☼	11/06/18 21:30	11/10/18 20:01	1
3,5-Dinitrotoluene	21	U	98	21	ug/Kg	☼	11/06/18 21:30	11/10/18 20:01	1
3-Nitrotoluene	13	U F2	98	13	ug/Kg	☼	11/06/18 21:30	11/10/18 20:01	1
4-Amino-2,6-dinitrotoluene	**26**	**J**	98	5.0	ug/Kg	☼	11/06/18 21:30	11/10/18 20:01	1
4-Nitrotoluene	11	U F2	98	11	ug/Kg	☼	11/06/18 21:30	11/10/18 20:01	1
HMX	5.7	U	98	5.7	ug/Kg	☼	11/06/18 21:30	11/10/18 20:01	1
Nitrobenzene	11	U	98	11	ug/Kg	☼	11/06/18 21:30	11/10/18 20:01	1
Nitroglycerin	10	U	98	10	ug/Kg	☼	11/06/18 21:30	11/10/18 20:01	1
PETN	5.1	U	98	5.1	ug/Kg	☼	11/06/18 21:30	11/10/18 20:01	1
RDX	4.3	U	98	4.3	ug/Kg	☼	11/06/18 21:30	11/10/18 20:01	1
Tetryl	7.5	U	98	7.5	ug/Kg	☼	11/06/18 21:30	11/10/18 20:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*104*		*68 - 140*	*11/06/18 21:30*	*11/10/18 20:01*	*1*

Method: 8321A - Nitroaromatic and Nitramine Compounds (Explosives) (LC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3,5-Trinitrobenzene	**0.025**	**J**	0.098	0.017	ug/L		11/02/18 17:26	11/10/18 16:48	1

Client Sample ID: SITG-18023-VCP-clean
Date Collected: 10/23/18 15:30
Date Received: 10/26/18 09:25

Lab Sample ID: 280-116232-1
Matrix: Solid
Percent Solids: 98.1

Method: 8321A - Nitroaromatic and Nitramine Compounds (Explosives) (LC/MS) - TCLP (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dinitrobenzene	0.014	U	0.098	0.014	ug/L		11/02/18 17:26	11/10/18 16:48	1
2,3-Dinitrotoluene	0.015	U	0.098	0.015	ug/L		11/02/18 17:26	11/10/18 16:48	1
2,4,6-Trinitro-3-xylene	0.012	U	0.098	0.012	ug/L		11/02/18 17:26	11/10/18 16:48	1
2,4,6-Trinitrotoluene	**0.21**		0.098	0.022	ug/L		11/02/18 17:26	11/10/18 16:48	1
2,4-Dinitrotoluene	0.019	U	0.098	0.019	ug/L		11/02/18 17:26	11/10/18 16:48	1
2,5-Dinitrotoluene	0.014	U	0.098	0.014	ug/L		11/02/18 17:26	11/10/18 16:48	1
2,6-Dinitrotoluene	0.022	U	0.098	0.022	ug/L		11/02/18 17:26	11/10/18 16:48	1
2-Amino-4,6-dinitrotoluene	**0.23**		0.098	0.021	ug/L		11/02/18 17:26	11/10/18 16:48	1
2-Nitrotoluene	0.022	U	0.098	0.022	ug/L		11/02/18 17:26	11/10/18 16:48	1
3,4-Dinitrotoluene	0.020	U	0.098	0.020	ug/L		11/02/18 17:26	11/10/18 16:48	1
3,5-Dinitrotoluene	0.033	U	0.098	0.033	ug/L		11/02/18 17:26	11/10/18 16:48	1
3-Nitrotoluene	0.025	U	0.098	0.025	ug/L		11/02/18 17:26	11/10/18 16:48	1
4-Amino-2,6-dinitrotoluene	**0.70**		0.098	0.019	ug/L		11/02/18 17:26	11/10/18 16:48	1
4-Nitrotoluene	0.026	U	0.098	0.026	ug/L		11/02/18 17:26	11/10/18 16:48	1
HMX	0.019	U	0.098	0.019	ug/L		11/02/18 17:26	11/10/18 16:48	1
Nitrobenzene	0.032	U	0.098	0.032	ug/L		11/02/18 17:26	11/10/18 16:48	1
Nitroglycerin	0.044	U	0.14	0.044	ug/L		11/02/18 17:26	11/10/18 16:48	1
PETN	0.018	U	0.098	0.018	ug/L		11/02/18 17:26	11/10/18 16:48	1
RDX	0.021	U	0.098	0.021	ug/L		11/02/18 17:26	11/10/18 16:48	1
Tetryl	0.021	U	0.098	0.021	ug/L		11/02/18 17:26	11/10/18 16:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*80*		*48 - 130*	*11/02/18 17:26*	*11/10/18 16:48*	*1*

Method: 6010B - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.022	U	0.50	0.022	mg/L		11/02/18 09:00	11/02/18 19:44	1
Barium	**0.19**	**J**	1.0	0.0040	mg/L		11/02/18 09:00	11/02/18 19:44	1
Cadmium	0.0020	U	0.10	0.0020	mg/L		11/02/18 09:00	11/02/18 19:44	1
Chromium	**0.0043**	**J**	0.50	0.0030	mg/L		11/02/18 09:00	11/02/18 19:44	1
Lead	**0.11**	**J**	0.50	0.014	mg/L		11/02/18 09:00	11/07/18 04:42	1
Selenium	0.032	U	0.10	0.032	mg/L		11/02/18 09:00	11/02/18 19:44	1
Silver	0.0050	U	0.50	0.0050	mg/L		11/02/18 09:00	11/02/18 19:44	1
Antimony	0.026	U	0.20	0.026	mg/L		11/02/18 09:00	11/02/18 19:44	1
Beryllium	0.0020	U	0.030	0.0020	mg/L		11/02/18 09:00	11/02/18 19:44	1
Thallium	0.025	U	0.10	0.025	mg/L		11/02/18 09:00	11/02/18 19:44	1
Nickel	0.013	U	0.40	0.013	mg/L		11/02/18 09:00	11/02/18 19:44	1
Copper	0.021	U	2.0	0.021	mg/L		11/02/18 09:00	11/02/18 19:44	1
Zinc	**0.091**	**J**	2.0	0.023	mg/L		11/02/18 09:00	11/02/18 19:44	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000030	U	0.0020	0.000030	mg/L		11/12/18 09:34	11/12/18 15:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**1.9**		0.1	0.1	%			10/31/18 16:11	1

Client Sample ID: SITG-18023-VCP-Prev-Impacted
Date Collected: 10/23/18 15:50
Date Received: 10/26/18 09:25

Lab Sample ID: 280-116232-2
Matrix: Solid
Percent Solids: 98.9

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dimethyl-3,4-Dinitrobenzene	28	U	170	28	ug/Kg	☼	11/01/18 17:05	11/07/18 22:06	1
1,2-Dimethyl-3,5-Dinitrobenzene	23	U	170	23	ug/Kg	☼	11/01/18 17:05	11/07/18 22:06	1
1,2-Dimethyl-3,6-Dinitrobenzene	25	U	170	25	ug/Kg	☼	11/01/18 17:05	11/07/18 22:06	1
1,2-Dimethyl-4,5-Dinitrobenzene	23	U	170	23	ug/Kg	☼	11/01/18 17:05	11/07/18 22:06	1
1,3-Dimethyl-2,4-Dinitrobenzene	17	U	170	17	ug/Kg	☼	11/01/18 17:05	11/07/18 22:06	1
1,3-Dimethyl-2,5-Dinitrobenzene	16	U	170	16	ug/Kg	☼	11/01/18 17:05	11/07/18 22:06	1
1,4-Dimethyl-2,3-Dinitrobenzene	27	U	170	27	ug/Kg	☼	11/01/18 17:05	11/07/18 22:06	1
1,4-Dimethyl-2,5-Dinitrobenzene	13	U	170	13	ug/Kg	☼	11/01/18 17:05	11/07/18 22:06	1
1,4-Dimethyl-2,6-Dinitrobenzene	18	U	170	18	ug/Kg	☼	11/01/18 17:05	11/07/18 22:06	1
1,5-Dimethyl-2,3-Dinitrobenzene	27	U	170	27	ug/Kg	☼	11/01/18 17:05	11/07/18 22:06	1
1,5-Dimethyl-2,4-Dinitrobenzene	23	U	170	23	ug/Kg	☼	11/01/18 17:05	11/07/18 22:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*20*	*X*	*24 - 135*	*11/01/18 17:05*	*11/07/18 22:06*	*1*
2-Fluorobiphenyl	*73*		*33 - 135*	*11/01/18 17:05*	*11/07/18 22:06*	*1*
2-Fluorophenol	*76*		*39 - 135*	*11/01/18 17:05*	*11/07/18 22:06*	*1*
Nitrobenzene-d5	*69*		*32 - 135*	*11/01/18 17:05*	*11/07/18 22:06*	*1*
Phenol-d5	*76*		*39 - 135*	*11/01/18 17:05*	*11/07/18 22:06*	*1*
Terphenyl-d14	*76*		*30 - 135*	*11/01/18 17:05*	*11/07/18 22:06*	*1*

Method: 8321A - Nitroaromatic and Nitramine Compounds (Explosives) (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3,5-Trinitrobenzene	**18**	**J**	96	12	ug/Kg	☼	11/06/18 21:30	11/10/18 21:38	1
1,3-Dinitrobenzene	6.8	U	96	6.8	ug/Kg	☼	11/06/18 21:30	11/10/18 21:38	1
2,3-Dinitrotoluene	5.7	U	96	5.7	ug/Kg	☼	11/06/18 21:30	11/10/18 21:38	1
2,4,6-Trinitro-3-xylene	3.9	U	96	3.9	ug/Kg	☼	11/06/18 21:30	11/10/18 21:38	1
2,4,6-Trinitrotoluene	**85**	**J**	96	4.8	ug/Kg	☼	11/06/18 21:30	11/10/18 21:38	1
2,4-Dinitrotoluene	7.8	U	96	7.8	ug/Kg	☼	11/06/18 21:30	11/10/18 21:38	1
2,5-Dinitrotoluene	11	U	96	11	ug/Kg	☼	11/06/18 21:30	11/10/18 21:38	1
2,6-Dinitrotoluene	19	U	96	19	ug/Kg	☼	11/06/18 21:30	11/10/18 21:38	1
2-Amino-4,6-dinitrotoluene	**31**	**J**	96	11	ug/Kg	☼	11/06/18 21:30	11/10/18 21:38	1
2-Nitrotoluene	5.5	U	96	5.5	ug/Kg	☼	11/06/18 21:30	11/10/18 21:38	1
3,4-Dinitrotoluene	9.6	U	96	9.6	ug/Kg	☼	11/06/18 21:30	11/10/18 21:38	1
3,5-Dinitrotoluene	20	U	96	20	ug/Kg	☼	11/06/18 21:30	11/10/18 21:38	1
3-Nitrotoluene	12	U	96	12	ug/Kg	☼	11/06/18 21:30	11/10/18 21:38	1
4-Amino-2,6-dinitrotoluene	**27**	**J**	96	4.9	ug/Kg	☼	11/06/18 21:30	11/10/18 21:38	1
4-Nitrotoluene	11	U	96	11	ug/Kg	☼	11/06/18 21:30	11/10/18 21:38	1
HMX	5.6	U	96	5.6	ug/Kg	☼	11/06/18 21:30	11/10/18 21:38	1
Nitrobenzene	10	U	96	10	ug/Kg	☼	11/06/18 21:30	11/10/18 21:38	1
Nitroglycerin	10	U	96	10	ug/Kg	☼	11/06/18 21:30	11/10/18 21:38	1
PETN	4.9	U	96	4.9	ug/Kg	☼	11/06/18 21:30	11/10/18 21:38	1
RDX	4.1	U	96	4.1	ug/Kg	☼	11/06/18 21:30	11/10/18 21:38	1
Tetryl	7.3	U	96	7.3	ug/Kg	☼	11/06/18 21:30	11/10/18 21:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*94*		*68 - 140*	*11/06/18 21:30*	*11/10/18 21:38*	*1*

Method: 8321A - Nitroaromatic and Nitramine Compounds (Explosives) (LC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3,5-Trinitrobenzene	**0.25**		0.11	0.019	ug/L		11/02/18 17:26	11/10/18 17:20	1

Client Sample ID: SITG-18023-VCP-Prev-Impacted — **Lab Sample ID: 280-116232-2**
Date Collected: 10/23/18 15:50 — **Matrix: Solid**
Date Received: 10/26/18 09:25 — **Percent Solids: 98.9**

Method: 8321A - Nitroaromatic and Nitramine Compounds (Explosives) (LC/MS) - TCLP (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dinitrobenzene	0.015	U	0.11	0.015	ug/L		11/02/18 17:26	11/10/18 17:20	1
2,3-Dinitrotoluene	0.016	U	0.11	0.016	ug/L		11/02/18 17:26	11/10/18 17:20	1
2,4,6-Trinitro-3-xylene	0.013	U	0.11	0.013	ug/L		11/02/18 17:26	11/10/18 17:20	1
2,4-Dinitrotoluene	**0.022**	**J**	0.11	0.021	ug/L		11/02/18 17:26	11/10/18 17:20	1
2,5-Dinitrotoluene	0.015	U	0.11	0.015	ug/L		11/02/18 17:26	11/10/18 17:20	1
2,6-Dinitrotoluene	0.024	U	0.11	0.024	ug/L		11/02/18 17:26	11/10/18 17:20	1
2-Amino-4,6-dinitrotoluene	**0.75**		0.11	0.023	ug/L		11/02/18 17:26	11/10/18 17:20	1
2-Nitrotoluene	0.024	U	0.11	0.024	ug/L		11/02/18 17:26	11/10/18 17:20	1
3,4-Dinitrotoluene	0.022	U	0.11	0.022	ug/L		11/02/18 17:26	11/10/18 17:20	1
3,5-Dinitrotoluene	0.037	U	0.11	0.037	ug/L		11/02/18 17:26	11/10/18 17:20	1
3-Nitrotoluene	0.027	U	0.11	0.027	ug/L		11/02/18 17:26	11/10/18 17:20	1
4-Amino-2,6-dinitrotoluene	**1.0**		0.11	0.021	ug/L		11/02/18 17:26	11/10/18 17:20	1
4-Nitrotoluene	0.028	U	0.11	0.028	ug/L		11/02/18 17:26	11/10/18 17:20	1
HMX	0.021	U	0.11	0.021	ug/L		11/02/18 17:26	11/10/18 17:20	1
Nitrobenzene	0.036	U	0.11	0.036	ug/L		11/02/18 17:26	11/10/18 17:20	1
Nitroglycerin	0.049	U	0.15	0.049	ug/L		11/02/18 17:26	11/10/18 17:20	1
PETN	0.020	U	0.11	0.020	ug/L		11/02/18 17:26	11/10/18 17:20	1
RDX	0.023	U	0.11	0.023	ug/L		11/02/18 17:26	11/10/18 17:20	1
Tetryl	0.023	U	0.11	0.023	ug/L		11/02/18 17:26	11/10/18 17:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*72*		*48 - 130*	*11/02/18 17:26*	*11/10/18 17:20*	*1*

Method: 8321A - Nitroaromatic and Nitramine Compounds (Explosives) (LC/MS) - TCLP - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trinitrotoluene	**2.5**		0.22	0.048	ug/L		11/02/18 17:26	11/10/18 17:53	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*84*	*D*	*48 - 130*	*11/02/18 17:26*	*11/10/18 17:53*	*2*

Method: 6010B - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.022	U	0.50	0.022	mg/L		11/02/18 09:00	11/02/18 19:48	1
Barium	**0.14**	**J**	1.0	0.0040	mg/L		11/02/18 09:00	11/02/18 19:48	1
Cadmium	0.0020	U	0.10	0.0020	mg/L		11/02/18 09:00	11/02/18 19:48	1
Chromium	0.0030	U	0.50	0.0030	mg/L		11/02/18 09:00	11/02/18 19:48	1
Lead	**0.039**	**J**	0.50	0.014	mg/L		11/02/18 09:00	11/07/18 04:45	1
Selenium	0.032	U	0.10	0.032	mg/L		11/02/18 09:00	11/02/18 19:48	1
Silver	0.0050	U	0.50	0.0050	mg/L		11/02/18 09:00	11/02/18 19:48	1
Antimony	0.026	U	0.20	0.026	mg/L		11/02/18 09:00	11/02/18 19:48	1
Beryllium	0.0020	U	0.030	0.0020	mg/L		11/02/18 09:00	11/02/18 19:48	1
Thallium	0.025	U	0.10	0.025	mg/L		11/02/18 09:00	11/02/18 19:48	1
Nickel	0.013	U	0.40	0.013	mg/L		11/02/18 09:00	11/02/18 19:48	1
Copper	**0.024**	**J**	2.0	0.021	mg/L		11/02/18 09:00	11/02/18 19:48	1
Zinc	**0.056**	**J**	2.0	0.023	mg/L		11/02/18 09:00	11/02/18 19:48	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000030	U	0.0020	0.000030	mg/L		11/12/18 09:34	11/12/18 16:00	1

Client Sample Results

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-116232-1

Client Sample ID: SITG-18023-VCP-Prev-Impacted
Date Collected: 10/23/18 15:50
Date Received: 10/26/18 09:25

Lab Sample ID: 280-116232-2
Matrix: Solid
Percent Solids: 98.9

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	1.1		0.1	0.1	%			10/31/18 16:11	1

Surrogate Summary

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-116232-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	FBP	2FP	NBZ	PHL	TPHL
Lab Sample ID	Client Sample ID	(24-135)	(33-135)	(39-135)	(32-135)	(39-135)	(30-135)
280-116232-1	SITG-18023-VCP-clean	22 X	65	67	62	67	76
280-116232-2	SITG-18023-VCP-Prev-Impacted	20 X	73	76	69	76	76
LCS 280-435936/2-A	Lab Control Sample	67	67	65	63	66	83
LCSD 280-435936/3-A	Lab Control Sample Dup	72	75	77	71	78	79
MB 280-435936/1-A	Method Blank	49	42	42	40	43	81

Surrogate Legend

TBP = 2,4,6-Tribromophenol
FBP = 2-Fluorobiphenyl
2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
PHL = Phenol-d5
TPHL = Terphenyl-d14

Method: 8321A - Nitroaromatic and Nitramine Compounds (Explosives) (LC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		NBZ
Lab Sample ID	Client Sample ID	(68-140)
280-116232-1	SITG-18023-VCP-clean	104
280-116232-1 MS	SITG-18023-VCP-clean	96
280-116232-1 MSD	SITG-18023-VCP-clean	99
280-116232-2	SITG-18023-VCP-Prev-Impacted	94
LCS 280-436589/2-A	Lab Control Sample	87
MB 280-436589/1-A	Method Blank	80

Surrogate Legend

NBZ = Nitrobenzene-d5

Method: 8321A - Nitroaromatic and Nitramine Compounds (Explosives) (LC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		NBZ
Lab Sample ID	Client Sample ID	(48-130)
LB 280-436109/1-A	Method Blank	79

Surrogate Legend

NBZ = Nitrobenzene-d5

Method: 8321A - Nitroaromatic and Nitramine Compounds (Explosives) (LC/MS)

Matrix: Solid **Prep Type: TCLP**

		Percent Surrogate Recovery (Acceptance Limits)
		NBZ
Lab Sample ID	Client Sample ID	(48-130)
280-116232-1	SITG-18023-VCP-clean	80

Surrogate Summary

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-116232-1

Method: 8321A - Nitroaromatic and Nitramine Compounds (Explosives) (LC/MS) (Continued)

Matrix: Solid **Prep Type: TCLP**

		Percent Surrogate Recovery (Acceptance Limits)
		NBZ
Lab Sample ID	Client Sample ID	(48-130)
280-116232-2	SITG-18023-VCP-Prev-Impacte	72
280-116232-2 - DL	SITG-18023-VCP-Prev-Impacte d	84 D
LCS 280-435948/2-B	Lab Control Sample	79
LCSD 280-435948/3-B	Lab Control Sample Dup	85

Surrogate Legend

NBZ = Nitrobenzene-d5

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-435936/1-A
Matrix: Solid
Analysis Batch: 436667

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435936

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dimethyl-3,4-Dinitrobenzene	27	U	160	27	ug/Kg		11/01/18 17:05	11/07/18 16:50	1
1,2-Dimethyl-3,5-Dinitrobenzene	22	U	160	22	ug/Kg		11/01/18 17:05	11/07/18 16:50	1
1,2-Dimethyl-3,6-Dinitrobenzene	24	U	160	24	ug/Kg		11/01/18 17:05	11/07/18 16:50	1
1,2-Dimethyl-4,5-Dinitrobenzene	22	U	160	22	ug/Kg		11/01/18 17:05	11/07/18 16:50	1
1,3-Dimethyl-2,4-Dinitrobenzene	16	U	160	16	ug/Kg		11/01/18 17:05	11/07/18 16:50	1
1,3-Dimethyl-2,5-Dinitrobenzene	15	U	160	15	ug/Kg		11/01/18 17:05	11/07/18 16:50	1
1,4-Dimethyl-2,3-Dinitrobenzene	26	U	160	26	ug/Kg		11/01/18 17:05	11/07/18 16:50	1
1,4-Dimethyl-2,5-Dinitrobenzene	13	U	160	13	ug/Kg		11/01/18 17:05	11/07/18 16:50	1
1,4-Dimethyl-2,6-Dinitrobenzene	17	U	160	17	ug/Kg		11/01/18 17:05	11/07/18 16:50	1
1,5-Dimethyl-2,3-Dinitrobenzene	26	U	160	26	ug/Kg		11/01/18 17:05	11/07/18 16:50	1
1,5-Dimethyl-2,4-Dinitrobenzene	22	U	160	22	ug/Kg		11/01/18 17:05	11/07/18 16:50	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*49*		*24 - 135*	*11/01/18 17:05*	*11/07/18 16:50*	*1*
2-Fluorobiphenyl	*42*		*33 - 135*	*11/01/18 17:05*	*11/07/18 16:50*	*1*
2-Fluorophenol	*42*		*39 - 135*	*11/01/18 17:05*	*11/07/18 16:50*	*1*
Nitrobenzene-d5	*40*		*32 - 135*	*11/01/18 17:05*	*11/07/18 16:50*	*1*
Phenol-d5	*43*		*39 - 135*	*11/01/18 17:05*	*11/07/18 16:50*	*1*
Terphenyl-d14	*81*		*30 - 135*	*11/01/18 17:05*	*11/07/18 16:50*	*1*

Lab Sample ID: LCS 280-435936/2-A
Matrix: Solid
Analysis Batch: 436667

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435936

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dimethyl-3,4-Dinitrobenzene	1640	1530		ug/Kg		93	50 - 135
1,2-Dimethyl-3,5-Dinitrobenzene	1640	1530		ug/Kg		93	50 - 135
1,2-Dimethyl-3,6-Dinitrobenzene	1640	1410		ug/Kg		86	50 - 135
1,2-Dimethyl-4,5-Dinitrobenzene	1640	1580		ug/Kg		96	50 - 135
1,3-Dimethyl-2,4-Dinitrobenzene	1640	1380		ug/Kg		84	50 - 135
1,3-Dimethyl-2,5-Dinitrobenzene	1640	1380		ug/Kg		84	50 - 135
1,4-Dimethyl-2,3-Dinitrobenzene	1640	1410		ug/Kg		86	50 - 135
1,4-Dimethyl-2,5-Dinitrobenzene	1640	1450		ug/Kg		88	50 - 135
1,4-Dimethyl-2,6-Dinitrobenzene	1640	1380		ug/Kg		84	50 - 135
1,5-Dimethyl-2,3-Dinitrobenzene	1640	1520		ug/Kg		92	50 - 135
1,5-Dimethyl-2,4-Dinitrobenzene	1640	1490		ug/Kg		91	50 - 135

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol	*67*		*24 - 135*
2-Fluorobiphenyl	*67*		*33 - 135*
2-Fluorophenol	*65*		*39 - 135*
Nitrobenzene-d5	*63*		*32 - 135*
Phenol-d5	*66*		*39 - 135*
Terphenyl-d14	*83*		*30 - 135*

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-435936/3-A
Matrix: Solid
Analysis Batch: 436667

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 435936

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dimethyl-3,4-Dinitrobenzene			1620	1520		ug/Kg		94	50 - 135	1	30
1,2-Dimethyl-3,5-Dinitrobenzene			1620	1520		ug/Kg		94	50 - 135	1	30
1,2-Dimethyl-3,6-Dinitrobenzene			1620	1460		ug/Kg		90	50 - 135	4	30
1,2-Dimethyl-4,5-Dinitrobenzene			1620	1550		ug/Kg		96	50 - 135	2	30
1,3-Dimethyl-2,4-Dinitrobenzene			1620	1480		ug/Kg		91	50 - 135	7	30
1,3-Dimethyl-2,5-Dinitrobenzene			1620	1440		ug/Kg		89	50 - 135	4	30
1,4-Dimethyl-2,3-Dinitrobenzene			1620	1480		ug/Kg		92	50 - 135	5	30
1,4-Dimethyl-2,5-Dinitrobenzene			1620	1480		ug/Kg		92	50 - 135	2	30
1,4-Dimethyl-2,6-Dinitrobenzene			1620	1440		ug/Kg		89	50 - 135	5	30
1,5-Dimethyl-2,3-Dinitrobenzene			1620	1490		ug/Kg		92	50 - 135	2	30
1,5-Dimethyl-2,4-Dinitrobenzene			1620	1510		ug/Kg		94	50 - 135	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*72*		*24 - 135*
2-Fluorobiphenyl	*75*		*33 - 135*
2-Fluorophenol	*77*		*39 - 135*
Nitrobenzene-d5	*71*		*32 - 135*
Phenol-d5	*78*		*39 - 135*
Terphenyl-d14	*79*		*30 - 135*

Method: 8321A - Nitroaromatic and Nitramine Compounds (Explosives) (LC/MS)

Lab Sample ID: LB 280-436109/1-A
Matrix: Solid
Analysis Batch: 437138

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436109

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3,5-Trinitrobenzene	0.017	U	0.10	0.017	ug/L		11/02/18 17:26	11/10/18 15:11	1
1,3-Dinitrobenzene	0.014	U	0.10	0.014	ug/L		11/02/18 17:26	11/10/18 15:11	1
2,3-Dinitrotoluene	0.015	U	0.10	0.015	ug/L		11/02/18 17:26	11/10/18 15:11	1
2,4,6-Trinitro-3-xylene	0.012	U	0.10	0.012	ug/L		11/02/18 17:26	11/10/18 15:11	1
2,4,6-Trinitrotoluene	0.022	U	0.10	0.022	ug/L		11/02/18 17:26	11/10/18 15:11	1
2,4-Dinitrotoluene	0.019	U	0.10	0.019	ug/L		11/02/18 17:26	11/10/18 15:11	1
2,5-Dinitrotoluene	0.014	U	0.10	0.014	ug/L		11/02/18 17:26	11/10/18 15:11	1
2,6-Dinitrotoluene	0.022	U	0.10	0.022	ug/L		11/02/18 17:26	11/10/18 15:11	1
2-Amino-4,6-dinitrotoluene	0.021	U	0.10	0.021	ug/L		11/02/18 17:26	11/10/18 15:11	1
2-Nitrotoluene	0.022	U	0.10	0.022	ug/L		11/02/18 17:26	11/10/18 15:11	1
3,4-Dinitrotoluene	0.020	U	0.10	0.020	ug/L		11/02/18 17:26	11/10/18 15:11	1
3,5-Dinitrotoluene	0.034	U	0.10	0.034	ug/L		11/02/18 17:26	11/10/18 15:11	1
3-Nitrotoluene	0.025	U	0.10	0.025	ug/L		11/02/18 17:26	11/10/18 15:11	1
4-Amino-2,6-dinitrotoluene	0.019	U	0.10	0.019	ug/L		11/02/18 17:26	11/10/18 15:11	1
4-Nitrotoluene	0.026	U	0.10	0.026	ug/L		11/02/18 17:26	11/10/18 15:11	1
HMX	0.019	U	0.10	0.019	ug/L		11/02/18 17:26	11/10/18 15:11	1
Nitrobenzene	0.033	U	0.10	0.033	ug/L		11/02/18 17:26	11/10/18 15:11	1
Nitroglycerin	0.045	U	0.14	0.045	ug/L		11/02/18 17:26	11/10/18 15:11	1
PETN	0.018	U	0.10	0.018	ug/L		11/02/18 17:26	11/10/18 15:11	1
RDX	0.021	U	0.10	0.021	ug/L		11/02/18 17:26	11/10/18 15:11	1

Method: 8321A - Nitroaromatic and Nitramine Compounds (Explosives) (LC/MS) (Continued)

Lab Sample ID: LB 280-436109/1-A
Matrix: Solid
Analysis Batch: 437138

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436109

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetryl	0.021	U	0.10	0.021	ug/L		11/02/18 17:26	11/10/18 15:11	1

Surrogate	*LB %Recovery*	*LB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*79*		*48 - 130*	*11/02/18 17:26*	*11/10/18 15:11*	*1*

Lab Sample ID: MB 280-436589/1-A
Matrix: Solid
Analysis Batch: 437139

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436589

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3,5-Trinitrobenzene	13	U	100	13	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
1,3-Dinitrobenzene	7.1	U	100	7.1	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
2,3-Dinitrotoluene	6.0	U	100	6.0	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
2,4,6-Trinitro-3-xylene	4.1	U	100	4.1	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
2,4,6-Trinitrotoluene	5.0	U	100	5.0	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
2,4-Dinitrotoluene	8.2	U	100	8.2	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
2,5-Dinitrotoluene	11	U	100	11	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
2,6-Dinitrotoluene	20	U	100	20	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
2-Amino-4,6-dinitrotoluene	12	U	100	12	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
2-Nitrotoluene	5.7	U	100	5.7	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
3,4-Dinitrotoluene	10	U	100	10	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
3,5-Dinitrotoluene	21	U	100	21	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
3-Nitrotoluene	13	U	100	13	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
4-Amino-2,6-dinitrotoluene	5.1	U	100	5.1	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
4-Nitrotoluene	11	U	100	11	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
HMX	5.8	U	100	5.8	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
Nitrobenzene	11	U	100	11	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
Nitroglycerin	11	U	100	11	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
PETN	5.2	U	100	5.2	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
RDX	4.3	U	100	4.3	ug/Kg		11/06/18 21:30	11/10/18 18:57	1
Tetryl	7.6	U	100	7.6	ug/Kg		11/06/18 21:30	11/10/18 18:57	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*80*		*68 - 140*	*11/06/18 21:30*	*11/10/18 18:57*	*1*

Lab Sample ID: LCS 280-436589/2-A
Matrix: Solid
Analysis Batch: 437139

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436589

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,3,5-Trinitrobenzene	400	407		ug/Kg		102	45 - 142
1,3-Dinitrobenzene	400	384		ug/Kg		96	74 - 130
2,3-Dinitrotoluene	400	306		ug/Kg		76	50 - 150
2,4,6-Trinitro-3-xylene	400	308		ug/Kg		77	50 - 150
2,4,6-Trinitrotoluene	400	332		ug/Kg		83	60 - 135
2,4-Dinitrotoluene	400	372		ug/Kg		93	63 - 130
2,5-Dinitrotoluene	400	417		ug/Kg		104	50 - 150
2,6-Dinitrotoluene	400	263		ug/Kg		66	65 - 133

Method: 8321A - Nitroaromatic and Nitramine Compounds (Explosives) (LC/MS) (Continued)

Lab Sample ID: LCS 280-436589/2-A
Matrix: Solid
Analysis Batch: 437139

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436589

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Amino-4,6-dinitrotoluene	400	406		ug/Kg		101	51 - 148
2-Nitrotoluene	400	348		ug/Kg		87	59 - 150
3,4-Dinitrotoluene	400	366		ug/Kg		91	50 - 150
3,5-Dinitrotoluene	400	364		ug/Kg		91	50 - 150
3-Nitrotoluene	400	314		ug/Kg		79	56 - 154
4-Amino-2,6-dinitrotoluene	400	397		ug/Kg		99	60 - 141
4-Nitrotoluene	400	365		ug/Kg		91	72 - 145
HMX	400	357		ug/Kg		89	48 - 131
Nitrobenzene	400	354		ug/Kg		88	70 - 140
Nitroglycerin	400	403		ug/Kg		101	27 - 146
PETN	400	361		ug/Kg		90	31 - 171
RDX	400	357		ug/Kg		89	69 - 130
Tetryl	400	414		ug/Kg		104	10 - 170

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5	*87*		*68 - 140*

Lab Sample ID: 280-116232-1 MS
Matrix: Solid
Analysis Batch: 437139

Client Sample ID: SITG-18023-VCP-clean
Prep Type: Total/NA
Prep Batch: 436589

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,3,5-Trinitrobenzene	12	U	407	383		ug/Kg	☼	94	45 - 142
1,3-Dinitrobenzene	7.0	U	407	433		ug/Kg	☼	106	74 - 130
2,3-Dinitrotoluene	5.9	U	407	317		ug/Kg	☼	78	50 - 150
2,4,6-Trinitro-3-xylene	4.5	J	407	472		ug/Kg	☼	115	50 - 150
2,4,6-Trinitrotoluene	50	J	407	493		ug/Kg	☼	109	60 - 135
2,4-Dinitrotoluene	8.1	U	407	441		ug/Kg	☼	108	63 - 130
2,5-Dinitrotoluene	11	U	407	422		ug/Kg	☼	104	50 - 150
2,6-Dinitrotoluene	20	U	407	415		ug/Kg	☼	102	65 - 133
2-Amino-4,6-dinitrotoluene	12	U	407	349		ug/Kg	☼	86	51 - 148
2-Nitrotoluene	5.7	U	407	434		ug/Kg	☼	106	59 - 150
3,4-Dinitrotoluene	9.8	U F2	408	529		ug/Kg	☼	130	50 - 150
3,5-Dinitrotoluene	21	U	407	483		ug/Kg	☼	119	50 - 150
3-Nitrotoluene	13	U F2	407	474		ug/Kg	☼	116	56 - 154
4-Amino-2,6-dinitrotoluene	26	J	407	324		ug/Kg	☼	73	60 - 141
4-Nitrotoluene	11	U F2	407	476		ug/Kg	☼	117	72 - 145
HMX	5.7	U	407	397		ug/Kg	☼	97	48 - 131
Nitrobenzene	11	U	407	401		ug/Kg	☼	98	70 - 140
Nitroglycerin	10	U	407	352		ug/Kg	☼	87	27 - 146
PETN	5.1	U	407	412		ug/Kg	☼	101	31 - 171
RDX	4.3	U	407	415		ug/Kg	☼	102	69 - 130
Tetryl	7.5	U	407	401		ug/Kg	☼	98	10 - 170

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Nitrobenzene-d5	*96*		*68 - 140*

Method: 8321A - Nitroaromatic and Nitramine Compounds (Explosives) (LC/MS) (Continued)

Lab Sample ID: 280-116232-1 MSD
Matrix: Solid
Analysis Batch: 437139

Client Sample ID: SITG-18023-VCP-clean
Prep Type: Total/NA
Prep Batch: 436589

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,3,5-Trinitrobenzene	12	U	390	426		ug/Kg	☼	109	45 - 142	11	70
1,3-Dinitrobenzene	7.0	U	390	390		ug/Kg	☼	100	74 - 130	10	25
2,3-Dinitrotoluene	5.9	U	390	324		ug/Kg	☼	83	50 - 150	2	30
2,4,6-Trinitro-3-xylene	4.5	J	390	380		ug/Kg	☼	96	50 - 150	22	30
2,4,6-Trinitrotoluene	50	J	390	416		ug/Kg	☼	94	60 - 135	17	25
2,4-Dinitrotoluene	8.1	U	390	389		ug/Kg	☼	100	63 - 130	13	25
2,5-Dinitrotoluene	11	U	390	409		ug/Kg	☼	105	50 - 150	3	30
2,6-Dinitrotoluene	20	U	390	342		ug/Kg	☼	88	65 - 133	19	25
2-Amino-4,6-dinitrotoluene	12	U	390	353		ug/Kg	☼	91	51 - 148	1	25
2-Nitrotoluene	5.7	U	390	387		ug/Kg	☼	99	59 - 150	11	45
3,4-Dinitrotoluene	9.8	U F2	390	360	F2	ug/Kg	☼	92	50 - 150	38	30
3,5-Dinitrotoluene	21	U	390	398		ug/Kg	☼	102	50 - 150	19	30
3-Nitrotoluene	13	U F2	390	364	F2	ug/Kg	☼	93	56 - 154	26	25
4-Amino-2,6-dinitrotoluene	26	J	390	438		ug/Kg	☼	106	60 - 141	30	48
4-Nitrotoluene	11	U F2	390	365	F2	ug/Kg	☼	94	72 - 145	26	25
HMX	5.7	U	390	361		ug/Kg	☼	93	48 - 131	9	25
Nitrobenzene	11	U	390	389		ug/Kg	☼	100	70 - 140	3	25
Nitroglycerin	10	U	390	330		ug/Kg	☼	85	27 - 146	7	92
PETN	5.1	U	390	392		ug/Kg	☼	101	31 - 171	5	40
RDX	4.3	U	390	378		ug/Kg	☼	97	69 - 130	9	25
Tetryl	7.5	U	390	408		ug/Kg	☼	105	10 - 170	2	50

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Nitrobenzene-d5	*99*		*68 - 140*

Lab Sample ID: LCS 280-435948/2-B
Matrix: Solid
Analysis Batch: 437138

Client Sample ID: Lab Control Sample
Prep Type: TCLP
Prep Batch: 436109

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,3,5-Trinitrobenzene	0.500	0.435		ug/L		87	48 - 135
1,3-Dinitrobenzene	0.500	0.512		ug/L		102	64 - 122
2,3-Dinitrotoluene	0.500	0.408		ug/L		82	50 - 150
2,4,6-Trinitro-3-xylene	0.500	0.464		ug/L		93	50 - 150
2,4,6-Trinitrotoluene	0.500	0.454		ug/L		91	10 - 145
2,4-Dinitrotoluene	0.500	0.472		ug/L		94	55 - 117
2,5-Dinitrotoluene	0.500	0.460		ug/L		92	50 - 150
2,6-Dinitrotoluene	0.500	0.458		ug/L		92	54 - 123
2-Amino-4,6-dinitrotoluene	0.500	0.462		ug/L		92	47 - 134
2-Nitrotoluene	0.500	0.383		ug/L		77	25 - 127
3,4-Dinitrotoluene	0.501	0.489		ug/L		98	50 - 150
3,5-Dinitrotoluene	0.500	0.498		ug/L		100	50 - 150
3-Nitrotoluene	0.500	0.352		ug/L		70	18 - 123
4-Amino-2,6-dinitrotoluene	0.500	0.452		ug/L		90	50 - 139
4-Nitrotoluene	0.500	0.390		ug/L		78	27 - 128
HMX	0.500	0.458		ug/L		92	63 - 119
Nitrobenzene	0.500	0.407		ug/L		81	39 - 131
Nitroglycerin	0.500	0.457		ug/L		91	60 - 121

Method: 8321A - Nitroaromatic and Nitramine Compounds (Explosives) (LC/MS) (Continued)

Lab Sample ID: LCS 280-435948/2-B
Matrix: Solid
Analysis Batch: 437138

Client Sample ID: Lab Control Sample
Prep Type: TCLP
Prep Batch: 436109

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
PETN			0.500	0.452		ug/L		90	46 - 151		
RDX			0.500	0.462		ug/L		92	71 - 127		
Tetryl			0.500	0.420		ug/L		84	15 - 134		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5	*79*		*48 - 130*

Lab Sample ID: LCSD 280-435948/3-B
Matrix: Solid
Analysis Batch: 437138

Client Sample ID: Lab Control Sample Dup
Prep Type: TCLP
Prep Batch: 436109

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,3,5-Trinitrobenzene			0.500	0.462		ug/L		92	48 - 135	6	57
1,3-Dinitrobenzene			0.500	0.468		ug/L		94	64 - 122	9	39
2,3-Dinitrotoluene			0.500	0.434		ug/L		87	50 - 150	6	30
2,4,6-Trinitro-3-xylene			0.500	0.405		ug/L		81	50 - 150	13	30
2,4,6-Trinitrotoluene			0.500	0.440		ug/L		88	10 - 145	3	68
2,4-Dinitrotoluene			0.500	0.522		ug/L		104	55 - 117	10	46
2,5-Dinitrotoluene			0.500	0.453		ug/L		91	50 - 150	2	50
2,6-Dinitrotoluene			0.500	0.467		ug/L		93	54 - 123	2	44
2-Amino-4,6-dinitrotoluene			0.500	0.497		ug/L		99	47 - 134	7	41
2-Nitrotoluene			0.500	0.361		ug/L		72	25 - 127	6	68
3,4-Dinitrotoluene			0.501	0.520		ug/L		104	50 - 150	6	30
3,5-Dinitrotoluene			0.500	0.482		ug/L		96	50 - 150	3	30
3-Nitrotoluene			0.500	0.333		ug/L		67	18 - 123	5	89
4-Amino-2,6-dinitrotoluene			0.500	0.439		ug/L		88	50 - 139	3	36
4-Nitrotoluene			0.500	0.377		ug/L		75	27 - 128	4	72
HMX			0.500	0.449		ug/L		90	63 - 119	2	34
Nitrobenzene			0.500	0.458		ug/L		92	39 - 131	12	58
Nitroglycerin			0.500	0.470		ug/L		94	60 - 121	3	71
PETN			0.500	0.440		ug/L		88	46 - 151	3	50
RDX			0.500	0.468		ug/L		94	71 - 127	1	25
Tetryl			0.500	0.391		ug/L		78	15 - 134	7	51

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Nitrobenzene-d5	*85*		*48 - 130*

Method: 6010B - Metals (ICP)

Lab Sample ID: LB 280-435905/1-A
Matrix: Solid
Analysis Batch: 436367

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435905

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.022	U	0.50	0.022	mg/L		11/02/18 09:00	11/02/18 19:17	1
Barium	0.0040	U	1.0	0.0040	mg/L		11/02/18 09:00	11/02/18 19:17	1
Cadmium	0.0020	U	0.10	0.0020	mg/L		11/02/18 09:00	11/02/18 19:17	1

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: LB 280-435905/1-A
Matrix: Solid
Analysis Batch: 436367

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435905

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	0.0030	U	0.50	0.0030	mg/L		11/02/18 09:00	11/02/18 19:17	1
Selenium	0.032	U	0.10	0.032	mg/L		11/02/18 09:00	11/02/18 19:17	1
Silver	0.0050	U	0.50	0.0050	mg/L		11/02/18 09:00	11/02/18 19:17	1
Antimony	0.026	U	0.20	0.026	mg/L		11/02/18 09:00	11/02/18 19:17	1
Beryllium	0.0020	U	0.030	0.0020	mg/L		11/02/18 09:00	11/02/18 19:17	1
Thallium	0.025	U	0.10	0.025	mg/L		11/02/18 09:00	11/02/18 19:17	1
Nickel	0.013	U	0.40	0.013	mg/L		11/02/18 09:00	11/02/18 19:17	1
Copper	0.021	U	2.0	0.021	mg/L		11/02/18 09:00	11/02/18 19:17	1
Zinc	0.023	U	2.0	0.023	mg/L		11/02/18 09:00	11/02/18 19:17	1

Lab Sample ID: LB 280-435905/1-A
Matrix: Solid
Analysis Batch: 436613

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435905

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.014	U	0.50	0.014	mg/L		11/02/18 09:00	11/07/18 04:12	1

Lab Sample ID: LCS 280-435905/2-A
Matrix: Solid
Analysis Batch: 436367

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435905

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	4.00	3.76		mg/L		94	88 - 110
Barium	12.0	11.3		mg/L		94	90 - 112
Cadmium	1.10	1.03		mg/L		94	88 - 111
Chromium	5.20	4.89		mg/L		94	90 - 113
Selenium	3.00	2.82		mg/L		94	85 - 112
Silver	1.05	1.00		mg/L		95	86 - 115
Antimony	0.500	0.455		mg/L		91	88 - 110
Beryllium	0.0500	0.0443		mg/L		89	89 - 113
Thallium	2.00	1.84		mg/L		92	88 - 110
Nickel	0.500	0.459		mg/L		92	89 - 111
Copper	2.25	2.20		mg/L		98	86 - 112
Zinc	2.50	2.39		mg/L		96	85 - 111

Lab Sample ID: LCS 280-435905/2-A
Matrix: Solid
Analysis Batch: 436613

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435905

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	5.50	5.53		mg/L		100	89 - 110

Lab Sample ID: LCSD 280-435905/3-A
Matrix: Solid
Analysis Batch: 436367

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 435905

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	4.00	3.78		mg/L		95	88 - 110	1	20
Barium	12.0	11.3		mg/L		94	90 - 112	0	20

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: LCSD 280-435905/3-A
Matrix: Solid
Analysis Batch: 436367

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 435905

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cadmium			1.10	1.03		mg/L		94	88 - 111	0	20
Chromium			5.20	4.90		mg/L		94	90 - 113	0	20
Selenium			3.00	2.82		mg/L		94	85 - 112	0	20
Silver			1.05	1.00		mg/L		95	86 - 115	0	20
Antimony			0.500	0.451		mg/L		90	88 - 110	1	20
Beryllium			0.0500	0.0445		mg/L		89	89 - 113	0	20
Thallium			2.00	1.84		mg/L		92	88 - 110	0	20
Nickel			0.500	0.458		mg/L		92	89 - 111	0	20
Copper			2.25	2.20		mg/L		98	86 - 112	0	20
Zinc			2.50	2.39		mg/L		96	85 - 111	0	20

Lab Sample ID: LCSD 280-435905/3-A
Matrix: Solid
Analysis Batch: 436613

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 435905

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead			5.50	5.51		mg/L		100	89 - 110	0	20

Lab Sample ID: 280-116219-E-1-C MS
Matrix: Solid
Analysis Batch: 436367

Client Sample ID: Matrix Spike
Prep Type: TCLP
Prep Batch: 435905

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.022	U	4.00	3.58		mg/L		89	84 - 124
Barium	0.12	J	12.0	10.8		mg/L		89	85 - 120
Cadmium	0.0020	U	1.10	0.978		mg/L		89	82 - 119
Chromium	0.0039	J	5.20	4.64		mg/L		89	75 - 125
Selenium	0.032	U	3.00	2.70		mg/L		90	75 - 125
Silver	0.0050	U	1.05	0.953		mg/L		91	75 - 125
Antimony	0.026	U	0.500	0.427		mg/L		85	81 - 124
Beryllium	0.0020	U	0.0500	0.0422		mg/L		84	79 - 121
Thallium	0.025	U F1	2.00	1.74	F1	mg/L		87	90 - 116
Nickel	0.013	U	0.500	0.432		mg/L		86	84 - 120
Copper	0.021	U	2.25	2.09		mg/L		93	82 - 125
Zinc	0.023	U	2.50	2.27		mg/L		91	75 - 125

Lab Sample ID: 280-116219-E-1-C MS
Matrix: Solid
Analysis Batch: 436613

Client Sample ID: Matrix Spike
Prep Type: TCLP
Prep Batch: 435905

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	0.044	J	5.50	5.25		mg/L		95	89 - 121

Lab Sample ID: 280-116219-E-1-D MSD
Matrix: Solid
Analysis Batch: 436367

Client Sample ID: Matrix Spike Duplicate
Prep Type: TCLP
Prep Batch: 435905

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	0.022	U	4.00	3.84		mg/L		96	84 - 124	7	20

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: 280-116219-E-1-D MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: TCLP**
Analysis Batch: 436367 — **Prep Batch: 435905**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Barium	0.12	J	12.0	11.6		mg/L		95	85 - 120	7	20
Cadmium	0.0020	U	1.10	1.05		mg/L		95	82 - 119	7	20
Chromium	0.0039	J	5.20	4.96		mg/L		95	75 - 125	7	20
Selenium	0.032	U	3.00	2.88		mg/L		96	75 - 125	7	20
Silver	0.0050	U	1.05	1.02		mg/L		97	75 - 125	7	20
Antimony	0.026	U	0.500	0.456		mg/L		91	81 - 124	6	20
Beryllium	0.0020	U	0.0500	0.0455		mg/L		91	79 - 121	7	20
Thallium	0.025	U F1	2.00	1.86		mg/L		93	90 - 116	7	20
Nickel	0.013	U	0.500	0.462		mg/L		92	84 - 120	7	20
Copper	0.021	U	2.25	2.23		mg/L		99	82 - 125	7	20
Zinc	0.023	U	2.50	2.42		mg/L		97	75 - 125	6	20

Lab Sample ID: 280-116219-E-1-D MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: TCLP**
Analysis Batch: 436613 — **Prep Batch: 435905**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	0.044	J	5.50	5.55		mg/L		100	89 - 121	6	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: LB 280-435602/1-C — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: TCLP**
Analysis Batch: 437317 — **Prep Batch: 437195**

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000030	U	0.0020	0.000030	mg/L		11/12/18 09:34	11/12/18 15:35	1

Lab Sample ID: LCS 280-435602/2-D — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: TCLP**
Analysis Batch: 437317 — **Prep Batch: 437195**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00500	0.00540		mg/L		108	90 - 116

Lab Sample ID: LCSD 280-435602/6-C — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: TCLP**
Analysis Batch: 437317 — **Prep Batch: 437195**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.00500	0.00536		mg/L		107	90 - 116	1	10

Lab Sample ID: 280-116219-E-1-F MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: TCLP**
Analysis Batch: 437317 — **Prep Batch: 437195**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.000030	U	0.00500	0.00542		mg/L		108	90 - 116

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: 280-116219-E-1-G MSD
Matrix: Solid
Analysis Batch: 437317

Client Sample ID: Matrix Spike Duplicate
Prep Type: TCLP
Prep Batch: 437195

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.000030	U	0.00500	0.00540		mg/L		108	90 - 116	0	10

Method: D 2216-90 - ASTM D 2216-90

Lab Sample ID: 280-116232-2 DU
Matrix: Solid
Analysis Batch: 435772

Client Sample ID: SITG-18023-VCP-Prev-Impacted
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	1.1			1.6	F3	%				37	20

GC/MS Semi VOA

Prep Batch: 435936

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116232-1	SITG-18023-VCP-clean	Total/NA	Solid	3550C	
280-116232-2	SITG-18023-VCP-Prev-Impacted	Total/NA	Solid	3550C	
MB 280-435936/1-A	Method Blank	Total/NA	Solid	3550C	
LCS 280-435936/2-A	Lab Control Sample	Total/NA	Solid	3550C	
LCSD 280-435936/3-A	Lab Control Sample Dup	Total/NA	Solid	3550C	

Analysis Batch: 436667

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116232-1	SITG-18023-VCP-clean	Total/NA	Solid	8270C	435936
280-116232-2	SITG-18023-VCP-Prev-Impacted	Total/NA	Solid	8270C	435936
MB 280-435936/1-A	Method Blank	Total/NA	Solid	8270C	435936
LCS 280-435936/2-A	Lab Control Sample	Total/NA	Solid	8270C	435936
LCSD 280-435936/3-A	Lab Control Sample Dup	Total/NA	Solid	8270C	435936

LCMS

ISM Prep Batch: 435414

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116232-1	SITG-18023-VCP-clean	Total/NA	Solid	Increment, prep	
280-116232-2	SITG-18023-VCP-Prev-Impacted	Total/NA	Solid	Increment, prep	
280-116232-1 MS	SITG-18023-VCP-clean	Total/NA	Solid	Increment, prep	
280-116232-1 MSD	SITG-18023-VCP-clean	Total/NA	Solid	Increment, prep	

Leach Batch: 435948

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116232-1	SITG-18023-VCP-clean	TCLP	Solid	1311	
280-116232-2	SITG-18023-VCP-Prev-Impacted	TCLP	Solid	1311	
280-116232-2 - DL	SITG-18023-VCP-Prev-Impacted	TCLP	Solid	1311	
LCS 280-435948/2-B	Lab Control Sample	TCLP	Solid	1311	
LCSD 280-435948/3-B	Lab Control Sample Dup	TCLP	Solid	1311	

Prep Batch: 436109

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116232-1	SITG-18023-VCP-clean	TCLP	Solid	3535	435948
280-116232-2	SITG-18023-VCP-Prev-Impacted	TCLP	Solid	3535	435948
280-116232-2 - DL	SITG-18023-VCP-Prev-Impacted	TCLP	Solid	3535	435948
LB 280-436109/1-A	Method Blank	Total/NA	Solid	3535	
LCS 280-435948/2-B	Lab Control Sample	TCLP	Solid	3535	435948
LCSD 280-435948/3-B	Lab Control Sample Dup	TCLP	Solid	3535	435948

Prep Batch: 436589

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116232-1	SITG-18023-VCP-clean	Total/NA	Solid	8330B	435414
280-116232-2	SITG-18023-VCP-Prev-Impacted	Total/NA	Solid	8330B	435414
MB 280-436589/1-A	Method Blank	Total/NA	Solid	8330B	
LCS 280-436589/2-A	Lab Control Sample	Total/NA	Solid	8330B	
280-116232-1 MS	SITG-18023-VCP-clean	Total/NA	Solid	8330B	435414
280-116232-1 MSD	SITG-18023-VCP-clean	Total/NA	Solid	8330B	435414

LCMS (Continued)

Analysis Batch: 437138

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116232-1	SITG-18023-VCP-clean	TCLP	Solid	8321A	436109
280-116232-2	SITG-18023-VCP-Prev-Impacted	TCLP	Solid	8321A	436109
280-116232-2 - DL	SITG-18023-VCP-Prev-Impacted	TCLP	Solid	8321A	436109
LB 280-436109/1-A	Method Blank	Total/NA	Solid	8321A	436109
LCS 280-435948/2-B	Lab Control Sample	TCLP	Solid	8321A	436109
LCSD 280-435948/3-B	Lab Control Sample Dup	TCLP	Solid	8321A	436109

Analysis Batch: 437139

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116232-1	SITG-18023-VCP-clean	Total/NA	Solid	8321A	436589
280-116232-2	SITG-18023-VCP-Prev-Impacted	Total/NA	Solid	8321A	436589
MB 280-436589/1-A	Method Blank	Total/NA	Solid	8321A	436589
LCS 280-436589/2-A	Lab Control Sample	Total/NA	Solid	8321A	436589
280-116232-1 MS	SITG-18023-VCP-clean	Total/NA	Solid	8321A	436589
280-116232-1 MSD	SITG-18023-VCP-clean	Total/NA	Solid	8321A	436589

Metals

Leach Batch: 435602

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116232-1	SITG-18023-VCP-clean	TCLP	Solid	1311	
280-116232-2	SITG-18023-VCP-Prev-Impacted	TCLP	Solid	1311	
LB 280-435602/1-C	Method Blank	TCLP	Solid	1311	
LCS 280-435602/2-D	Lab Control Sample	TCLP	Solid	1311	
LCSD 280-435602/6-C	Lab Control Sample Dup	TCLP	Solid	1311	
280-116219-E-1-C MS	Matrix Spike	TCLP	Solid	1311	
280-116219-E-1-D MSD	Matrix Spike Duplicate	TCLP	Solid	1311	
280-116219-E-1-F MS	Matrix Spike	TCLP	Solid	1311	
280-116219-E-1-G MSD	Matrix Spike Duplicate	TCLP	Solid	1311	

Prep Batch: 435905

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116232-1	SITG-18023-VCP-clean	TCLP	Solid	3010A	435602
280-116232-2	SITG-18023-VCP-Prev-Impacted	TCLP	Solid	3010A	435602
LB 280-435905/1-A	Method Blank	Total/NA	Solid	3010A	
LCS 280-435905/2-A	Lab Control Sample	Total/NA	Solid	3010A	
LCSD 280-435905/3-A	Lab Control Sample Dup	Total/NA	Solid	3010A	
280-116219-E-1-C MS	Matrix Spike	TCLP	Solid	3010A	435602
280-116219-E-1-D MSD	Matrix Spike Duplicate	TCLP	Solid	3010A	435602

Analysis Batch: 436367

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116232-1	SITG-18023-VCP-clean	TCLP	Solid	6010B	435905
280-116232-2	SITG-18023-VCP-Prev-Impacted	TCLP	Solid	6010B	435905
LB 280-435905/1-A	Method Blank	Total/NA	Solid	6010B	435905
LCS 280-435905/2-A	Lab Control Sample	Total/NA	Solid	6010B	435905
LCSD 280-435905/3-A	Lab Control Sample Dup	Total/NA	Solid	6010B	435905
280-116219-E-1-C MS	Matrix Spike	TCLP	Solid	6010B	435905
280-116219-E-1-D MSD	Matrix Spike Duplicate	TCLP	Solid	6010B	435905

Metals (Continued)

Analysis Batch: 436613

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116232-1	SITG-18023-VCP-clean	TCLP	Solid	6010B	435905
280-116232-2	SITG-18023-VCP-Prev-Impacted	TCLP	Solid	6010B	435905
LB 280-435905/1-A	Method Blank	Total/NA	Solid	6010B	435905
LCS 280-435905/2-A	Lab Control Sample	Total/NA	Solid	6010B	435905
LCSD 280-435905/3-A	Lab Control Sample Dup	Total/NA	Solid	6010B	435905
280-116219-E-1-C MS	Matrix Spike	TCLP	Solid	6010B	435905
280-116219-E-1-D MSD	Matrix Spike Duplicate	TCLP	Solid	6010B	435905

Prep Batch: 437195

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116232-1	SITG-18023-VCP-clean	TCLP	Solid	7470A	435602
280-116232-2	SITG-18023-VCP-Prev-Impacted	TCLP	Solid	7470A	435602
LB 280-435602/1-C	Method Blank	TCLP	Solid	7470A	435602
LCS 280-435602/2-D	Lab Control Sample	TCLP	Solid	7470A	435602
LCSD 280-435602/6-C	Lab Control Sample Dup	TCLP	Solid	7470A	435602
280-116219-E-1-F MS	Matrix Spike	TCLP	Solid	7470A	435602
280-116219-E-1-G MSD	Matrix Spike Duplicate	TCLP	Solid	7470A	435602

Analysis Batch: 437317

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116232-1	SITG-18023-VCP-clean	TCLP	Solid	7470A	437195
280-116232-2	SITG-18023-VCP-Prev-Impacted	TCLP	Solid	7470A	437195
LB 280-435602/1-C	Method Blank	TCLP	Solid	7470A	437195
LCS 280-435602/2-D	Lab Control Sample	TCLP	Solid	7470A	437195
LCSD 280-435602/6-C	Lab Control Sample Dup	TCLP	Solid	7470A	437195
280-116219-E-1-F MS	Matrix Spike	TCLP	Solid	7470A	437195
280-116219-E-1-G MSD	Matrix Spike Duplicate	TCLP	Solid	7470A	437195

General Chemistry

Analysis Batch: 435772

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116232-1	SITG-18023-VCP-clean	Total/NA	Solid	D 2216-90	
280-116232-2	SITG-18023-VCP-Prev-Impacted	Total/NA	Solid	D 2216-90	
280-116232-2 DU	SITG-18023-VCP-Prev-Impacted	Total/NA	Solid	D 2216-90	

Lab Chronicle

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-116232-1

Client Sample ID: SITG-18023-VCP-clean — Lab Sample ID: 280-116232-1

Date Collected: 10/23/18 15:30 — **Matrix: Solid**
Date Received: 10/26/18 09:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			1.0 g	1.0 mL	435948	11/01/18 17:22	DFB1	TAL DEN
TCLP	Prep	3535			1018.8 mL	5 mL	436109	11/02/18 17:26	KSA	TAL DEN
TCLP	Analysis	8321A		1			437138	11/10/18 16:48	AGCM	TAL DEN
TCLP	Leach	1311			1.0 g	1.0 mL	435602	10/30/18 17:02	DFB1	TAL DEN
TCLP	Prep	3010A			10 mL	50 mL	435905	11/02/18 09:00	DAL	TAL DEN
TCLP	Analysis	6010B		1			436367	11/02/18 19:44	CML	TAL DEN
TCLP	Leach	1311			1.0 g	1.0 mL	435602	10/30/18 17:02	DFB1	TAL DEN
TCLP	Prep	3010A			10 mL	50 mL	435905	11/02/18 09:00	DAL	TAL DEN
TCLP	Analysis	6010B		1			436613	11/07/18 04:42	CML	TAL DEN
TCLP	Leach	1311			1.0 g	1.0 mL	435602	10/30/18 17:02	DFB1	TAL DEN
TCLP	Prep	7470A			30 mL	50 mL	437195	11/12/18 09:34	MRJ	TAL DEN
TCLP	Analysis	7470A		1			437317	11/12/18 15:58	THP	TAL DEN
Total/NA	Analysis	D 2216-90		1			435772	10/31/18 16:11	LMD	TAL DEN

Client Sample ID: SITG-18023-VCP-clean — Lab Sample ID: 280-116232-1

Date Collected: 10/23/18 15:30 — **Matrix: Solid**
Date Received: 10/26/18 09:25 — **Percent Solids: 98.1**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			30.3 g	1 mL	435936	11/01/18 17:05	DWC	TAL DEN
Total/NA	Analysis	8270C		1			436667	11/07/18 21:42	AFH	TAL DEN
Total/NA	ISM Prep	Increment, prep					435414	10/29/18 20:32	RPC	TAL DEN
Total/NA	Prep	8330B			10.35 g	40 mL	436589	11/06/18 21:30	RPC	TAL DEN
Total/NA	Analysis	8321A		1			437139	11/10/18 20:01	AGCM	TAL DEN

Client Sample ID: SITG-18023-VCP-Prev-Impacted — Lab Sample ID: 280-116232-2

Date Collected: 10/23/18 15:50 — **Matrix: Solid**
Date Received: 10/26/18 09:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			1.0 g	1.0 mL	435948	11/01/18 17:22	DFB1	TAL DEN
TCLP	Prep	3535			912.6 mL	5 mL	436109	11/02/18 17:26	KSA	TAL DEN
TCLP	Analysis	8321A		1			437138	11/10/18 17:20	AGCM	TAL DEN
TCLP	Leach	1311	DL		1.0 g	1.0 mL	435948	11/01/18 17:22	DFB1	TAL DEN
TCLP	Prep	3535	DL		912.6 mL	5 mL	436109	11/02/18 17:26	KSA	TAL DEN
TCLP	Analysis	8321A	DL	2			437138	11/10/18 17:53	AGCM	TAL DEN
TCLP	Leach	1311			1.0 g	1.0 mL	435602	10/30/18 17:02	DFB1	TAL DEN
TCLP	Prep	3010A			10 mL	50 mL	435905	11/02/18 09:00	DAL	TAL DEN
TCLP	Analysis	6010B		1			436367	11/02/18 19:48	CML	TAL DEN
TCLP	Leach	1311			1.0 g	1.0 mL	435602	10/30/18 17:02	DFB1	TAL DEN
TCLP	Prep	3010A			10 mL	50 mL	435905	11/02/18 09:00	DAL	TAL DEN
TCLP	Analysis	6010B		1			436613	11/07/18 04:45	CML	TAL DEN
TCLP	Leach	1311			1.0 g	1.0 mL	435602	10/30/18 17:02	DFB1	TAL DEN
TCLP	Prep	7470A			30 mL	50 mL	437195	11/12/18 09:34	MRJ	TAL DEN

Lab Chronicle

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-116232-1

Client Sample ID: SITG-18023-VCP-Prev-Impacted

Lab Sample ID: 280-116232-2

Date Collected: 10/23/18 15:50

Matrix: Solid

Date Received: 10/26/18 09:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Analysis	7470A		1			437317	11/12/18 16:00	THP	TAL DEN
Total/NA	Analysis	D 2216-90		1			435772	10/31/18 16:11	LMD	TAL DEN

Client Sample ID: SITG-18023-VCP-Prev-Impacted

Lab Sample ID: 280-116232-2

Date Collected: 10/23/18 15:50

Matrix: Solid

Date Received: 10/26/18 09:25

Percent Solids: 98.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			30.0 g	1 mL	435936	11/01/18 17:05	DWC	TAL DEN
Total/NA	Analysis	8270C		1			436667	11/07/18 22:06	AFH	TAL DEN
Total/NA	ISM Prep	Increment, prep					435414	10/29/18 20:32	RPC	TAL DEN
Total/NA	Prep	8330B			10.58 g	40 mL	436589	11/06/18 21:30	RPC	TAL DEN
Total/NA	Analysis	8321A		1			437139	11/10/18 21:38	AGCM	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: Chemours Company FC, LLC The
Project/Site: BAR-Bio Pilot 2018

TestAmerica Job ID: 280-116232-1

Laboratory: TestAmerica Denver

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Wisconsin	State Program	5	999615430	08-31-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica Duluth SC
269

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: AECOM - Dan Barton	Lab PM: Johnston, Michelle A	Carrier Tracking No(s):	COC No:
Client Contact: Sharon Nordstrom	Phone:	E-Mail: michelle.johnston@testamericainc.com		Page: Page 1 of 1
Company: The Chemours Company FC, LLC				Job #:
Address: c/o AECOM Sabre Building, Suite 300 4051 Ogletown Road	Due Date Requested:			
City: Newark	TAT Requested (days): 15 Business Days			
State, Zip: DE, 19713				
Phone: 302-892-8947(Tel)	PO #: LBIO-67048/77201000-WH06-507911			
Email: sharon.nordstrom@aecom.com	WO #:			
Project Name: BAR-Bio Pilot 2017	Project #: 28003388			
Site: Barksdale	SSOW#:			

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8321 Barksdale list NVOCs	8270 DNX Isomers	TCLP Barksdale List NVOCs	TCLP DNX Isomers	TCLP metals	Total Number of containers	Special Instructions/Note:
			Preservation Code:										
SITG-181023-UCP-clean	10/23/18	1530	C	S	N	N	X	X	X	X	X	2	For metals analyze the following: Antimony, arsenic, barium, beryllium, Cadmium, chromium, Copper, Lead, mercury, Nickel, Selenium, silver, thallium, zinc
SITG-181023-UCP-Prev-Impacted	10/23/18	1550	C	S	N	N	X	X	X	X	X	2	
													TestAmerica Duluth SC 269

280-116232 Chain of Custody

Preservation Codes:	
A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)
Other:	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date: 9/25/17	Time: 0845	Method of Shipment:				
Relinquished by:	Date/Time: 10/24/18	Company AECOM	Received by: Wesley Schnell	Date/Time: 10-24-18/15:10	Company AECOM		
Relinquished by: Wesley Schnell	Date/Time: 10/24/18/16:30	Company AECOM	Received by:	Date/Time: 10/24/18 1630	Company TA Duluth		
Relinquished by:	Date/Time: 10/25/18 1300	Company TA Duluth	Received by:	Date/Time: 10/26/18 0925	Company TA Den		

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 3.1 + 0.1 by AP 10/26/18

Login Sample Receipt Checklist

Client: Chemours Company FC, LLC The

Job Number: 280-116232-1

Login Number: 116232
List Number: 1
Creator: Paul, Amanda E

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	