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May 29, 2020

Mr. Bradley S. Nave
Principal Remediation Project Manager
Chemours
C/O AECOM
500 West Jefferson Street
Suite 1600
Louisville, KY 40202

Re: Waste Management Progress Report No. 8
For Period May 19, 2019 to May 18, 2020
Bioremediation Pilot Test – 2019 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 2019 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, 18 additional cells have been constructed 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 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 2019 uncovered soil that contained varying concentrations of fine grained (i.e., sand sized or smaller) TNT. Cells C24 through C36 were constructed between 2015 and 2019 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 provided 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 duration 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 12,084 pounds (lbs) of COPCs in soil has 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 compared to Residual Contaminant Levels (RCLs) for direct contact as shown on Table 4. This comparison shows that the laboratory RLs are 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. Measures taken to address heterogeneity included changing the soil mixing technique to allow for on-going mixing of the soil in the cells and collecting composite soil samples for laboratory analysis. A mix head attached to an excavator was used to mix the contents of select cells in 2019. Prior to 2019, the soil was mixed with a rotovator attached to a tractor. This method required the tractor to enter the cell which caused access issues when the soil was wet.

2.1.3 Evaluation of System Effectiveness

In general, the BPTP results continually show that the approaches being tested show promise for remediation of affected site soil, but the evaluation is on-going 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 cells during the reporting period is as follows:

- Cells C01 to C05, C07 to C11, C13 to C15, C18, C19, C22, C23, C29, C30, C32 and C34 were not mixed or actively tested in 2019.
  - Control cells C01 to C04 were inactive in 2019 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 through C11, C13 through C15, and C18 through C20, were below site-specific recreational RCLs for direct contact on average. These cells were seeded prior to 2019 and observed for vegetation regrowth, which was successful.
  - Cell C22 has not yet been loaded with soil, with the exception of approximately 1 cubic yard of soil.
  - The soil tested in cell C23 was containerized at the close of the 2013 field 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.
  - Cells C29, C30, and C32 have not yet been loaded with soil.
  - Cell C34 was partially loaded and it is anticipated that lime addition, mixing and sampling will occur after the cell has been loaded to capacity.
  - Willow trees were planted in cell C09 prior to 2019 to evaluate the ability of the trees to control pore water. COPC concentrations fell below site-specific recreational RCLs for direct contact in 2010.
- Cells C06, C12, C16, C17, C21, C24 through C28, C31, C33, C35, and C36 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 were collected from the AH cells in 2019.
  - Soil from cell C25 was placed in C27 to make room for additional soil during the 2019 field season. However, C25 was not reloaded in 2019. Sampling of both C25 and C27 occurred prior to combination of the cells. For the purposes of this

report, they are represented on Table 1 as still containing their pre-combined soil/constituent volumes.

- o Cells C35 and C36 were constructed in 2019. Cells C33 (constructed in 2018), C35 and C36 were loaded in 2019 and the cells were mixed, following the application of lime. Approximately 1,190 yd^3 of soil was added to cells C33, C34, C35 and C36 in 2019. This includes 41 yd^3 in C33, 7 yd^3 in C34, 564 yd^3 in C35 and 578 yd^3 in C36.
- o Additional lime was added to cells C24, C26, and C33 in 2019 to raise the pH. Lime was initially added to the cells in previous field seasons. These cells were mixed following the application of the lime.
- o Cell C28 was mixed in 2019.

- − Willow trees were planted in cells C16 and C20 in 2019. Composite soil samples were collected from both cells prior to planting the trees. Many of the trees in cell C16 were removed due to subsequent site investigation excavations within and adjacent to cell C16 late in the 2019 field season.

With the completion of the 2019 field season, the total volume of soil currently being evaluated under the HWRV is 7,109 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 C36 (ex-situ, lime addition cells).

2.1.4 System Status and Recommended Future Work

The bioremediation project has treated approximately 12,084 lbs of site contaminants to date (Table 1). The initial quantity of contaminants placed in all cells was approximated at 14,313 lbs. With the addition of 2019 contaminated soils, the approximated quantity of COPCs in current treatment cells is estimated to be 2,228 lbs. A visual representation of the cell data is provided in Appendix C.

Work proposed for the 2020 field season includes:

- − Results of the vegetative regrowth in cells C05, C07, C08, C10, C11, C13 through C15, and C18 through C20 will continue to be evaluated in 2020, and re-seeding will be conducted if necessary.
- − Alkaline hydrolysis cells C06, C12, C17, C21, C24, C26 through C28, C31, C33, C35, and C36 will continue to receive monitoring.
- − Soil in the area of cell C16 will be excavated as part of on-going site investigation work in Use Area PAJ.
- − Cells C25, C29, C30, and C32 are currently empty and may be utilized as needed in 2020.
- − Cell C34 will continue to be loaded with soil, as needed.
- − Up to two new cells (C37 and C38) are proposed for construction in 2020. These cells will be built using the general design depicted in Figure 6. The cells will be constructed to contain soil generated during site investigation work. The specific locations of the new cells have not yet been determined.

The total volume of soil anticipated to be treated under the HWRV at the end of 2020 is between 7,109 to 9,000 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 in the reporting period. Table 3 lists the source and quantities of soil moved to cells in the reporting period. Table 4 provides a comparison of RCLs to laboratory reporting 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

Manifests for waste materials removed from site are attached in Appendix B. Scatter plots for contaminant trend monitoring are attached in Appendix C. Laboratory analytical reports are attached in Appendix D.

2.5 REPORTING FORM

A completed copy of WDNR Form 4400-194: “Remediation Site Operation, Maintenance, Monitoring & Optimization Report” is attached 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.

A total of 0.5 lbs of residual solid product (RSP)/soil mix (estimated RSP weight of 0.4 lbs) was removed from cells C24, C26, C28, and C33 on July 9, 2019. The material collected from the four cells was placed in a 5-gallon plastic bucket, wetted and stored in the on-site magazine for future treatment. The material remains stored in the on-site magazine as of the date of this report.

2.7 PRODUCT RESIDUALS AND DEBRIS REMOVED AS PART OF SITE INVESTIGATION WORK

Debris managed and/or removed by site investigation work during the current reporting period included metal, concrete, and RSP from historical operations within the AOC. Debris was screened in the field using an amplifying fluorescent polymer meter (FIDO®) and/or a colorimetric identification spray (Expray®). Debris removal locations are indicated on Figure 4. Table 2 provides a summary of debris handled on-site during the 2019 field season.

2.7.1 Residual Solid Product

RSP, identified by visual evidence and field screening, was encountered during the current reporting period at dispersed locations in 2019 (Table 2). RSP consisting of TNT was identified in Use Area PAJ in the area of the Refined Triton Screening House (RTSH), Refined Triton East and West Graining House drainages, and the Tank Storage Area. Approximately 103.5 lbs of RSP/soil mix (estimated 99.4 lbs of RSP not including soil) was removed from Use Area PAJ in 2019. The RSP/soil mix was containerized, wetted, and placed in the on-site magazine.

RSP was also collected from Use Areas PAB, PAD, and PAI to support on-going site-related testing at the USACE. Approximately 1.1 lbs of TNT was collected from Use Area PAB and 2.6 lbs of TNT was collected from Use Area PAD. Approximately 217.5 lbs of trinitroxylene (TNX)/soil mix (estimated 152.3 lbs of TNX not including soil) was collected from Use Area PAI. The RSP/soil was containerized and wetted after collection and placed in the on-site magazine. The TNX/soil mix and 2.5 lbs of the 3.7 lbs of the TNT was shipped to the USACE in Vicksburg, Mississippi. The remaining 1.2 lbs of RSP is currently being stored in the on-site magazine.

Total RSP remaining in the designated on-site magazine includes 101 lbs of TNT. The total weight of the RSP, soil, added water, and containers remaining in the magazine is 193 lbs.

2.7.2 Concrete

Concrete was removed from excavations in the area of the former RTSH in Use Area PAJ to access surrounding soil. The concrete moved during the investigation work was managed within the AOC. Concrete for which field screening did not indicate the presence of NNOCs was temporarily stockpiled near the RTSH and placed back in the excavation after completion of the investigation in the area. Concrete that screened positive for residual product was moved to cell C28 and cleaned. Additional information related to concrete handling is included in Section 2.9.

2.7.3 Metal

Metallic debris, including pipes, were encountered in the area of the former RTSH and Refined Triton East Graining House (RTEGH) in Use Area PAJ in 2019. The pipes excavated in the area of the RTSH had visible internal channels that allowed for field screening. Field screening did not indicate the presence of NNOCs on the metallic debris. The ends of three of the pipes contained lead solder with suspect asbestos containing packing material. Approximately 45 feet of pipe without suspect asbestos packing was transported to a metal stockpile area (PAK-SP01). The three pipe ends containing suspect asbestos were handled separately as described in Section 2.7.6. The approximately 20 linear feet of pipe encountered in the area of RTEGH was bent in places and was placed in cell C28 pending additional accumulation.

2.7.4 Wood

Approximately 135 lbs of impacted wood was encountered in Use Area PAJ excavations. The wood was scraped to remove adhered soil and sized to manageable sized pieces prior to being placed in the site-designated roll-off container (SAJ-WP01). The waste in the roll-off container will be shipped off-site for incineration following the accumulation of additional debris.

2.7.5 Vitrified Clay Pipes (VCP)

Approximately 20 linear feet of VCP was encountered in the area of the former RTSH in Use Area PAJ. Field screening did not indicate the presence of NNOCs on the VCP. The VCP was placed back into the RTSH excavation after screening.

2.7.6 Suspect Asbestos Containing Material

Suspect asbestos containing material was encountered in excavations in the area of the RTSH in Use Area PAJ. The material included cement tile and packings on pipe ends as indicated on Table 2. The material was removed from the excavation, bagged, containerized and labeled. The cement tile was shipped off-site to Veolia's waste disposal facility in Menomonee Falls, Wisconsin (EPA ID no: WID003967148) for disposal. The pipe ends with suspect asbestos containing packing material and lead solder are currently stored on-site pending additional accumulation.

2.7.7 Water

As part of site investigation work, approximately 1,000 gallons of decontamination water (e.g. hand and boot washes and equipment/tool decontamination) was applied to test cells. The water was used to hydrate soil in alkaline hydrolysis cells, including cells C28, C33, C35, and C36. The on-site wastewater treatment unit was not operated in 2019.

2.7.8 Other

An estimated 150 lbs of debris consisting of used personal protective equipment (PPE), plastic buckets, plastic sampling scoops, and used soil sample jars were consolidated into a site-designated roll-off container (SAJ-WP01) in 2019. The roll-off container was only partially full following the 2019 field season. The waste in the roll-off container will be shipped off-site for incineration following the accumulation of additional debris.

2.8 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.

A total of 1,190 cubic yards (yd^3) of soil was placed into test cells C33, C34, C35 and C36 in 2019. In addition, the soil in cell C25 (approximately 250 yd^3) was removed and placed into cell C27 in 2019. Table 3 lists the source areas and destinations of the soil managed during the current reporting period, and locations are provided on Figure 3.

2.9 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.

2.9.1 Alternative Treatment and Management of Metallic Debris

See Section 2.7.3.

2.9.2 Alternative Treatment and Management of Concrete Debris

In 2019, impacted concrete debris was decontaminated 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 2019.

2.9.3 Alternative Treatment and Management of Decontamination Water

See Section 2.7.7.

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,

Eric Schmidt, P.E.
Project Engineer

C. E. "Cary" Pooler, P.G.
Associate Vice President

Attachments:

Table 1: 2019 Contaminant Progress Summary
Table 2: 2019 Debris and Residuals Removed
Table 3: 2019 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: 2019 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 & Optimization Report

Appendix B: Shipping Documentation/Manifests
State of Wisconsin Annual Hazardous Waste Report

Appendix C: Barksdale Summary Graphs 2019 Year End

Appendix D: Biodegradation Evaluation Lab Data
- Pace Analytical Reports
  - A192405 Final 070219 1251 (June 2019 Cell Soil Samples)
  - A193320 Final 090319 1054 (August 2019 Cell Soil Samples)
  - A194211 Final 103119 1310 (September and October 2019 Cell Soil Samples)

Table 1
2019 Contaminant Progress Summary
Waste Management Progress Report No. 8
For Period May 19, 2019 to May 18, 2020
Hazardous Waste Remediation Variance Approval of May 22, 2012
Hazardous Waste Remediation Variance Renewal Approval of May 18, 2018
Former Barksdale Works
Bayfield County, Wisconsin

Analyte	Amount remaining (lbs) as of 2019	Initial Amount (lbs)	Amount Decreased from 2018 to 2019 (lbs)	Amount Decreased (lbs) to Date for all Cells
2,4,6-TNT	1184.53	4655.54	102.18	7725.14
2-A-4,6-DNT	9.73	60.20	(1.88)	50.47
4-A-2,6-DNT	37.98	71.26	(8.72)	33.28
2,3-DNT	0.84	102.41	0.01	101.57
2,4-DNT	7.72	2565.70	(1.25)	2557.98
2,5-DNT	0.33	0.51	0.00	0.17
2,6-DNT	4.81	908.18	(0.05)	903.38
3,4-DNT	1.45	136.00	0.02	134.55
3,5-DNT	0.11	2.80	0.00	2.69
Total DNT[1]	15.26	3716.90	0.54	3701.02
1,2-DM-3,4-DNB	39.37	92.77	(0.07)	53.40
1,2-DM-3,5-DNB	36.29	92.83	0.19	56.54
1,2-DM-3,6-DNB	9.22	23.49	0.09	14.27
1,2-DM-4,5-DNB	12.27	29.09	0.00	16.82
1,3-DM-2,4-DNB	98.82	255.03	(1.15)	156.22
1,3-DM-2,5-DNB	0.26	0.00	0.00	(0.26)
1,4-DM-2,3-DNB	60.55	145.03	2.71	84.48
1,4-DM-2,5-DNB	11.44	12.35	(3.49)	0.90
1,4-DM-2,6-DNB	28.73	25.32	(0.30)	(3.41)
1,5-DM-2,3-DNB	3.28	5.84	0.00	2.56
1,5-DM-2,4-DNB	178.86	349.84	(6.31)	170.98
Total DNX	479.10	1031.60	(7.72)	552.50
2,4,6-TNX	7.27	14.19	(0.91)	6.92
1,3,5-TNB	0.00	4.80	0.00	4.80
1,3-DNB	0.06	6.88	0.17	6.82
NB	0.00	0.56	0.00	0.56
3-NT	0.00	1.74	0.00	1.74
4-NT	0.00	0.39	0.04	0.39
2-NT	0.00	1.16	0.00	1.16
NG	0.00	0.00	NA	0.00
HMX	NA	0.00	NA	NA
3,5-Dinitroaniline	0.12	0.27	0.26	0.15
All Analyte Totals	**1,734.06**	**9,564.19**	**81.55**	**12,084.27**

NOTES:

[1]Total DNT calculated by adding 2,3-, 2,4-, 2,5-, 2,6-, 3,4-, and 3,5-DNT isomers.	
Red Data (#.#)	Denotes an increase over time. Many of the apparent increases are due to changes in detection limits within the duration of the project and heterogeneity effects. 2-A-4,6 DNT and 4-A-2,6 DNT increases may be associated with the anaerobic degradation of TNT.

Data Compilation Summary

If multiple samples were analyzed from a single cell during a single sampling event, the average concentration of the samples was calculated.
Results reported below the method detection limit (MDLs) have been rounded to zero to compare varying/changing MDLs: over multiple years, using different laboratories, concentration dilutions, etc.

To calculate analyte weights, the following formula was used:

Analyte Concentration (mg/kg)	X	Volume of Soil in Cell (cuyd)	X	Estimated 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)

Table 1
2019 Contaminant Progress Summary
Waste Management Progress Report No. 8
For Period May 19, 2019 to May 18, 2020
Hazardous Waste Remediation Variance Approval of May 22, 2012
Hazardous Waste Remediation Variance Renewal Approval of May 18, 2018
Former Barksdale Works
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	C35	C36	Total for All Cells
Sampled in 2019	No	No	No	No	No	Yes	No	No	No	No	No	Yes	No	No	No	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	No	Yes	No	Yes	Yes	--
Mixed in 2019	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	Yes	No	Yes	No	Yes	No	No	Yes	No	Yes	No	Yes	Yes	--
pH Adjustment Cell	No	No	No	No	No	Yes	No	No	No	No	No	Yes	No	No	No	Yes	Yes	No	No	No	Yes	No	No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	No	Yes	No	Yes	Yes	--
Hydrated Lime Added in 2019	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	Yes	No	Yes	No	No	No	No	No	No	Yes	No	Yes	Yes	--
Debris Removed 2019 (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	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.5
Soil Added to Cell 2019 (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	0.0	0.0	0.0	0.0	0.0	**41.5**	**6.6**	**564.0**	**577.8**	1189.9
Soil Volume 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	292.0	66.6	564.0	577.8	7109.2

Analytes remaining (lbs) 2019 (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	C35	C36	Total for All Cells
2,4,6-TNT	5.0	1.2	0.2	0.3	0.3	22.2	0.7	0.0	0.0	0.2	0.0	146.2	0.2	2.2	2.4	0.3	0.2	0.0	0.4	0.0	53.3	NA	NA	27.7	0.2	3.2	24.7	23.0	NA	NA	1.0	NA	11.5	NA	198.0	1154.4	1184.5
2-A-4,6-DNT	0.5	0.1	0.1	0.1	0.0	0.3	0.2	0.0	0.0	0.0	0.0	1.3	0.0	0.1	0.5	0.2	0.1	0.0	0.1	0.0	0.6	NA	NA	0.4	0.0	0.2	0.3	1.8	NA	NA	0.0	NA	0.0	NA	1.0	1.6	9.7
4-A-2,6-DNT	0.4	0.1	0.1	0.1	0.3	2.2	0.3	0.0	0.0	0.2	0.0	2.7	0.0	0.6	4.3	0.4	0.6	0.0	0.5	0.1	2.7	NA	NA	3.0	0.2	0.9	0.9	9.2	NA	NA	0.0	NA	0.4	NA	3.4	4.5	38.0
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	0.0	0.0	0.8
2,4-DNT	0.3	0.0	0.1	0.1	0.9	0.5	0.5	0.2	0.0	0.3	0.0	2.7	0.2	0.4	0.3	0.0	0.2	0.0	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	0.3	0.4	7.7
2,5-DNT	0.0	0.0	0.0	0.0	0.2	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	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	0.0	0.0	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	0.0	0.0	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	0.0	0.0	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	0.0	0.0	0.1
Total DNT[1]	0.7	0.1	0.2	0.3	3.6	0.8	1.5	0.2	0.0	0.6	0.2	3.1	0.5	2.0	0.3	0.0	0.3	0.1	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	0.3	0.4	15.3
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	0.5	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	0.0	0.0	39.4
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	0.0	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	0.0	36.3
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	0.0	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	0.0	9.2
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	0.0	0.0	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	3.3	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	0.0	0.0	98.8
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	0.0	0.0	0.3
1,4-DM-2,3-DNB	30.8	5.5	8.8	14.3	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.0	0.5	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	0.0	60.6
1,4-DM-2,5-DNB	4.6	0.6	0.7	2.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	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	0.0	0.0	11.4
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	1.0	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	0.0	28.7
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	0.0	0.0	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	9.2	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	0.0	0.0	178.9
Total DNX	247.0	39.9	60.6	106.7	0.3	0.2	0.0	0.0	0.0	2.2	2.3	0.0	2.5	0.0	0.0	0.0	17.4	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	0.0	0.0	479.1
2,4,6-TNX	2.0	0.4	0.4	0.9	0.2	0.3	0.0	0.0	0.0	0.0	0.6	1.5	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	0.1	NA	0.0	NA	0.9	0.0	7.3
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	0.0	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	0.0	NA	0.0	0.0	0.1
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	0.0	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	0.0	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	0.0	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	0.0	0.0
NG	NA	NA	NA	NA	NA	NA	NA	0.0	0.0	0.0	0.0	NA	0.0	0.0	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0
HMX	NA	NA	NA	NA	NA	NA	NA	0.0	0.0	0.0	0.0	NA	0.0	0.0	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0
3,5-Dinitroaniline	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	0.0	0.0	0.1
																																					2228.4

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: The constituent was not detected above the Method Detection Limit (MDL) and was rounded down to zero.
NA: Not analyzed/applicable
Gray cells with numbers (#.#): These cells were not sampled in 2019. Most recent data for each cell is shown.
C23: Was emptied in 2014. The remaining contents from the C23 stored soils were placed in cells C12, C17, and C22 in 2017.
C25: Was emptied in 2019. Contents of C25 (approximately 250 cubic yards of soil) placed in C27 late in the 2019 field season.

Table 1

2019 Contaminant Progress Summary

Waste Management Progress Report No. 8

For Period May 19, 2019 to May 18, 2020

Hazardous Waste Remediation Variance Approval of May 22, 2012

Hazardous Waste Remediation Variance Renewal Approval of May 18, 2018

Former Barksdale Works

Bayfield County, Wisconsin

Analytes, Initial readings starting in 2007 (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	C35	C36	Total for All Cells 2007 to 2019
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	198.0	1154.4	4655.5
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	1.0	1.6	60.2
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	3.4	4.5	71.3
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	0.0	0.0	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	0.3	0.4	2565.7
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	0.0	0.0	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	0.0	0.0	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	0.0	0.0	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	0.0	0.0	2.8
Total DNT	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	0.6	0.7	3716.9
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	0.0	0.0	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	0.0	0.0	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	0.0	0.0	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	0.0	0.0	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	0.0	0.0	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	0.0	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	0.0	0.0	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	0.0	0.0	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	0.0	0.0	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	0.0	0.0	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	0.0	0.0	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	0.0	0.0	1031.6
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	0.9	0.0	14.2
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	0.4	NA	0.0	NA	0.0	0.0	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	0.0	0.0	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	0.0	0.0	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	0.0	0.0	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	0.0	0.0	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	0.0	0.0	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	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	NA	NA	0.0
PETN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	NA	NA	0.0
RDX	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	NA	NA	0.0
Tetryl	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	NA	NA	0.0
3,5-Dinitroaniline	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.1	0.0	0.0	0.0	0.0	NA	NA	0.1	NA	0.0	NA	0.0	0.0	0.3
																																					14312.7

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, some DNX & DNT isomers and 3,5-Dinitroaniline were added to the sampling program at later dates. The initial reading for each analyte included on this table are from the earliest recorded data set for each analyte.

0.0 Values: The constituent was not detected above the Method Detection Limit (MDL) and was rounded down to zero.

NA: Not analyzed/applicable

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
2019 Contaminant Progress Summary
Waste Management Progress Report No. 8
For Period May 19, 2019 to May 18, 2020
Hazardous Waste Remediation Variance Approval of May 22, 2012
Hazardous Waste Remediation Variance Renewal Approval of May 18, 2018
Former Barksdale Works
Bayfield County, Wisconsin

Analytes decrease (lbs) 2018 to 2019 (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	C35	C36	Total for All Cells
2,4,6-TNT	NA	NA	NA	NA	NA	(16.1)	NA	NA	NA	NA	NA	(120.2)	NA	NA	NA	(0.1)	(0.1)	NA	NA	NA	(34.4)	NA	NA	149.8	0.6	20.8	(12.0)	(16.3)	NA	NA	(0.8)	NA	123.8	NA	NA	NA	102.2
2-A-4,6-DNT	NA	NA	NA	NA	NA	(0.1)	NA	NA	NA	NA	NA	(0.9)	NA	NA	NA	(0.1)	(0.0)	NA	NA	NA	(0.4)	NA	NA	0.5	0.0	0.1	(0.1)	(1.2)	NA	NA	(0.0)	NA	0.5	NA	NA	NA	(1.9)
4-A-2,6-DNT	NA	NA	NA	NA	NA	(0.2)	NA	NA	NA	NA	NA	(0.9)	NA	NA	NA	(0.2)	(0.2)	NA	NA	NA	(1.0)	NA	NA	0.4	0.1	0.2	(0.2)	(6.9)	NA	NA	0.0	NA	0.2	NA	NA	NA	(8.7)
2,3-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	0.0	NA	NA	0.0	NA	0.0	NA	NA	NA	0.0
2,4-DNT	NA	NA	NA	NA	NA	(0.0)	NA	NA	NA	NA	NA	(1.5)	NA	NA	NA	0.0	(0.0)	NA	NA	NA	(0.0)	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.3	NA	NA	NA	(1.2)
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	0.0	NA	NA	0.0	NA	0.0	NA	NA	NA	0.0
2,6-DNT	NA	NA	NA	NA	NA	(0.1)	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	0.0	NA	NA	0.0	NA	0.0	NA	NA	NA	(0.0)
3,4-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	0.0	NA	NA	0.0	NA	0.0	NA	NA	NA	0.0
3,5-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	0.0	NA	NA	0.0	NA	0.0	NA	NA	NA	0.0
Total DNT	NA	NA	NA	NA	NA	0.0	NA	NA	NA	NA	NA	(0.8)	NA	NA	NA	0.0	0.3	NA	NA	NA	0.1	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	1.0	NA	NA	NA	0.5
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	(0.1)	NA	NA	NA	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	NA	NA	(0.1)
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	0.2	NA	NA	NA	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	NA	NA	0.2
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	0.1	NA	NA	NA	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	NA	NA	0.1
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	0.0	NA	NA	NA	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	NA	NA	0.0
1,3-DM-2,4-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	0.0	NA	NA	0.0	NA	0.0	NA	NA	NA	(1.1)
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	0.0	NA	NA	0.0	NA	0.0	NA	NA	NA	0.0
1,4-DM-2,3-DNB	NA	NA	NA	NA	NA	0.1	NA	NA	NA	NA	NA	0.0	NA	NA	NA	0.0	2.7	NA	NA	NA	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	NA	NA	2.7
1,4-DM-2,5-DNB	NA	NA	NA	NA	NA	(0.1)	NA	NA	NA	NA	NA	0.0	NA	NA	NA	0.0	(3.4)	NA	NA	NA	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	NA	NA	(3.5)
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	(0.3)	NA	NA	NA	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	NA	NA	(0.3)
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	0.0	NA	NA	NA	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	NA	NA	0.0
1,5-DM-2,4-DNB	NA	NA	NA	NA	NA	0.1	NA	NA	NA	NA	NA	0.0	NA	NA	NA	0.0	(6.4)	NA	NA	NA	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	NA	NA	(6.3)
Total DNX	NA	NA	NA	NA	NA	0.4	NA	NA	NA	NA	NA	0.0	NA	NA	NA	0.0	(8.1)	NA	NA	NA	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	NA	NA	(7.7)
2,4,6-TNX	NA	NA	NA	NA	NA	(0.2)	NA	NA	NA	NA	NA	(1.2)	NA	NA	NA	0.0	0.6	NA	NA	NA	0.0	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	(0.1)	NA	0.0	NA	NA	NA	(0.9)
1,3,5-TNB	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	0.0	NA	NA	0.0	NA	0.0	NA	NA	NA	0.0
1,3-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	0.0	NA	NA	0.0	NA	0.2	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	0.0	NA	NA	0.0	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	0.0	NA	NA	0.0	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	0.0	NA	NA	0.0	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	0.0	NA	NA	0.0	NA	0.0	NA	NA	NA	0.0
NG	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HMX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,5-Dinitroaniline	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	0.3	0.0	0.0	0.0	0.0	NA	NA	0.0	NA	0.0	NA	NA	NA	0.3
																																					81.6

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: The constituent was not detected above the Method Detection Limit (MDL) and was rounded down to zero.

Red Data (#.#): Denotes an increase over time. Many of the apparent increases are due to changes in detection limits within the duration of the project and heterogeneity effects. 2-A-4,6 DNT and 4-A-2,6 DNT increases may be associated with the anaerobic degradation of TNT.

NA: Not analyzed in 2018 and/or 2019

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
2019 Contaminant Progress Summary
Waste Management Progress Report No. 8
For Period May 19, 2019 to May 18, 2020
Hazardous Waste Remediation Variance Approval of May 22, 2012
Hazardous Waste Remediation Variance Renewal Approval of May 18, 2018
Former Barksdale Works
Bayfield County, Wisconsin

Analytes decrease (lbs) Initial to 2019 (Averages of subcells)	C01	C02	C03	C04	C05	C06	C07	C08	C09	C10	C11	C12	C13	C14	C15	C16	C17	C18
2,4,6-TNT	10.8	4.3	0.5	0.3	2.9	968.8	170.3	0.5	0.3	8.8	0.7	1326.5	9.2	142.7	1551.5	294.3	46.8	0.0
2-A-4,6-DNT	(0.3)	(0.1)	(0.1)	(0.1)	0.0	1.4	6.0	0.0	0.0	0.5	0.1	(1.3)	0.9	0.7	4.9	14.6	1.6	0.0
4-A-2,6-DNT	(0.1)	(0.0)	(0.1)	(0.1)	(0.3)	(1.9)	5.6	0.1	0.0	0.5	0.1	(2.7)	0.5	0.2	2.1	11.0	0.5	0.0
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
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	786.8	56.1	17.1	39.0	0.4	132.7	0.2
2,5-DNT	0.0	0.0	(0.0)	0.0	(0.2)	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
2,6-DNT	0.4	0.9	0.5	0.7	446.0	20.6	53.5	1.7	0.0	147.1	(0.0)	31.8	21.7	79.0	1.5	0.0	95.7	0.1
3,4-DNT	0.2	0.1	0.0	0.1	55.0	2.4	3.8	0.1	0.0	21.3	0.0	6.2	14.1	12.9	0.4	0.0	17.8	0.0
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
Total DNT	1.4	2.1	1.0	1.2	1404.1	153.7	119.6	15.4	0.3	611.4	0.5	827.5	102.4	118.2	41.1	0.4	257.8	0.3
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	35.8	0.0
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	37.4	0.1
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	12.5	0.0
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
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	90.7	0.3
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
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	47.1	0.2
1,4-DM-2,5-DNB	1.4	1.1	1.5	(2.0)	0.0	(0.1)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(1.0)	0.0
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	9.8	0.0
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
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	108.1	0.3
Total DNX	(16.9)	125.1	14.5	72.9	4.6	0.1	0.1	0.2	0.0	(1.7)	(2.3)	1.2	(1.1)	(0.0)	0.0	0.0	355.0	0.9
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	1.0	0.1	0.0	0.0	0.1	1.3	0.0
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
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
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
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
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
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
NG	NA	NA	NA	NA	NA	NA	NA	0.0	0.0	0.0	0.0	NA	0.0	0.0	0.0	NA	NA	NA
HMX	NA	NA	NA	NA	NA	NA	NA	0.0	0.0	0.0	0.0	NA	0.0	0.0	0.0	NA	NA	NA
3,5-Dinitroaniline	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	0.0	0.0	0.0	0.0	0.0

Analytes decrease (lbs) Initial to 2019 (Averages of subcells)	C19	C20	C21	C22	C23	C24	C25	C26	C27	C28	C29	C30	C31	C32	C33	C34	C35	C36	Total for All Cells
2,4,6-TNT	130.0	24.8	1279.1	NA	NA	846.6	118.9	134.6	227.0	(16.3)	NA	NA	317.5	NA	123.8	NA	NA	NA	7725.1
2-A-4,6-DNT	0.6	0.2	2.1	NA	NA	3.6	3.1	2.0	9.8	(1.2)	NA	NA	1.2	NA	0.5	NA	NA	NA	50.5
4-A-2,6-DNT	1.4	0.2	3.7	NA	NA	3.4	2.9	2.7	9.2	(6.9)	NA	NA	1.1	NA	0.2	NA	NA	NA	33.3
2,3-DNT	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	NA	NA	101.6
2,4-DNT	0.6	5.0	1.1	NA	NA	0.5	29.5	1.5	0.0	0.0	NA	NA	0.7	NA	0.3	NA	NA	NA	2558.0
2,5-DNT	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	NA	NA	0.2
2,6-DNT	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	NA	NA	903.4
3,4-DNT	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	NA	NA	134.6
3,5-DNT	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	NA	NA	2.7
Total DNT	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	NA	NA	3701.0
1,2-DM-3,4-DNB	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	NA	NA	53.4
1,2-DM-3,5-DNB	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	NA	NA	56.5
1,2-DM-3,6-DNB	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	NA	NA	14.3
1,2-DM-4,5-DNB	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	NA	NA	16.8
1,3-DM-2,4-DNB	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	NA	NA	156.2
1,3-DM-2,5-DNB	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	NA	NA	(0.3)
1,4-DM-2,3-DNB	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	NA	NA	84.5
1,4-DM-2,5-DNB	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	NA	NA	0.9
1,4-DM-2,6-DNB	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	NA	NA	(3.4)
1,5-DM-2,3-DNB	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	NA	NA	2.6
1,5-DM-2,4-DNB	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	NA	NA	171.0
Total DNX	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	NA	NA	552.5
2,4,6-TNX	0.0	0.5	0.4	NA	NA	0.0	0.2	0.0	0.0	0.0	NA	NA	(0.1)	NA	0.0	NA	NA	NA	6.9
1,3,5-TNB	0.2	0.0	0.3	NA	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	0.4	NA	0.0	NA	NA	NA	4.8
1,3-DNB	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	NA	NA	6.8
NB	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	NA	NA	0.6
3-NT	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	NA	NA	1.7
4-NT	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	NA	NA	0.4
2-NT	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	NA	NA	1.2
NG	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0
HMX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0
3,5-Dinitroaniline	0.0	0.0	(0.1)	NA	NA	0.1	0.0	0.0	0.0	0.0	NA	NA	0.1	NA	0.0	NA	NA	NA	0.1
																			12,084.3

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: The constituent was not detected above the Method Detection Limit (MDL) and was rounded down to zero.
Red Data (#.#): Denotes an increase over time. Many of the apparent increases are due to changes in detection limits within the duration of the project and heterogeneity effects. 2-A-4,6 DNT and 4-A-2,6 DNT increases may be associated with the anaerobic degradation of TNT.
NA: Not analyzed/applicable
Gray cells with numbers (#.#): These cells were not sampled in 2019. Decreases shown are from initial reading to the most recent data available for each cell.
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
2019 Debris and Residuals Removed
Waste Management Progress Report No. 8
For Period May 19, 2019 to May 18, 2020
Hazardous Waste Remediation Variance Approval of May 22, 2012
Hazardous Waste Remediation Variance Renewal Approval of May 18, 2017
Former Barksdale Works
Bayfield County, Wisconsin

Items For Off-Site Removal						
Source	**Material Description**	**Approximate Quantity (cf)**	**Approximate Weight (lbs.)**	**On-Site Holding Location**	**Off-Site Destination**	**Shipping Number/Manifest**
RSP						
PAJ investigation areas	TNT / soil mix	2	103.5 (weight including added water and storage containers = 173.4 lbs)	Magazine	NA (currently stored onsite)	--
Cells C24, C26, C28 and C33	TNT / soil mix	<1	0.5 (weight including added water and storage container = 18.5 lbs)	Magazine	NA (currently stored onsite)	--
PAI TNX03 Tri-Nitration House area	TNX / soil mix	3	217.5 (shipping weight including added water and containers = 362 lbs)	Magazine	US Army Corp of Engineers Vicksburg, MS	XPOLogistics 874-547774
PAD TNT02 drainage ditch (PADD0001/0003) and PAB bare spot just south of cell C06 within the footprint of the TNT04 production line (PABB0050)	TNT	<1	3.7 (weight including added water and storage containers = 15.7 lbs)	Magazine	2.5 lbs RSP (shipping weight including added water and containers = 106 lbs) sent to US Army Corp of Engineers in Vicksburg, MS, remaining 1.2 lbs of RSP is currently stored on site	XPOLogistics 874-481742
Wood						
East of PAJ RTEGH	8" x 2" planks, 8' x 4' plywood sheets, other various sized pieces	9	135	Lined and covered roll-off container (SAJ-WP01)	NA (currently stored onsite)	--
Pipe, Metal						
PAJ RTSH (PAJB0004)	6 inch diameter pipes (screened below background)	9	--	PAR-SP01	NA (currently stored onsite)	--
	Three pipe ends containing lead solder and suspect asbestos packing (screened below background)	1	--	PAR-SP01	NA (currently stored onsite)	--
PAJ RTEGH (PAJB008)	2 to 6 inch diameter pipes (with bends)	3	--	Cell C28	NA (currently stored onsite)	--
Other						
Introduced materials	Sample scoops, used PPE (i.e. gloves, coveralls) used sample jars	--	150	Lined and covered roll-off container (SAJ-WP01)	NA (currently stored onsite)	--
PAJ RTSH (PAJB0004 and PAJD0023)	Suspect asbestos cement tile pieces, 1/4 inch thick, varying length and width	--	20	Lined and covered drum stored in building (SAJ-WP01)	Veolia, Menomonee Falls, WI	Veolia Shipping Document No. ZZ00854625
On-site equipment/tools	Universal Waste - batteries (lithium ion, lithium metal, and NiCAD)	--	12	Field office trailer	Veolia, Port Washington, WI	Veolia Shipping Document No. ZZ00854626
On-site equipment	Non-Regulated Material - used oil (hydraulic and lubricating oil)	--	30	55-gallon drum stored inside cow shed (SAJ-WP01)	Veolia, Menomonee Falls, WI	Veolia Shipping Document No. ZZ00854626
Field office trailer	Universal Waste - fluorescent light tubes	--	10	Field office trailer	Veolia, Port Washington, WI	Veolia Shipping Document No. ZZ00854625
Field office trailer	Non-Regulated Material - fluorescent light ballasts (non-PCB)	--	5	Field office trailer	Veolia, Port Washington, WI	Veolia Shipping Document No. ZZ00854625

Items Not Requiring Off-Site Disposal						
Source	**Material Description**	**Approximate Quantity (cf)**	**Approximate Weight (lbs.)**	**On-Site Holding Location**	**Off-Site Destination**	**Manifest**
Concrete						
PAJ RTSH (PAJB0004 and PAJD0023)	concrete (screened above background)	900	--	Decontaminated at cell C28 and returned to source	--	--
PAJ RTSH (PAJB0004 and PAJD0023)	concrete (screened above background)	2	--	Cell C28 (used to extend pad)	--	--
PAJ RTSH (PAJB0004 and PAJD0023)	concrete (screened below background	1400	--	Returned to source location	--	--
Other						
PAJ RTSH (PAJB0004 and PAJD0023)	20 linear ft of clay pipe, screened below background	3	--	Returned to source location	--	--
PAJ investigation area east of RTEGH	2 tree stumps	8	--	Cell C28	--	--

Notes:

--: not applicable or not measured
cf: cubic feet
ft: feet
lbs: pounds
PAB: Use Area PAB
PAD: Use Area PAD
PAI: Use Area PAI
PAJ: Use Area PAJ
RSP: Residual Solid Product
RTEGH: Refined Triton East Graining House
RTSH: Refined Triton Screening House
RTWGH: Refined Triton West Graining House
TNT: trinitrotoluene
TNX: trinitroxylene

Table 3
2019 Soil Moved to Test Cells

Waste Management Progress Report No. 8
For Period May 19, 2019 to May 18, 2020
Hazardous Waste Remediation Variance Approval of May 22, 2012
Hazardous Waste Remediation Variance Renewal Approval of May 18, 2017
Former Barksdale Works
Bayfield County, Wisconsin

Source	Destination	Volume (CY)	Date
RTSH area including the former building (PAJB0004), barricade berms, and associated ditches (PAJD0023)	C33	41.5	8/2/2019
Total C33	**C33**	**41.50**	**2019**
Cell C36 Construction Excavation	C34	1.0	6/18/2019
RTSH area including the former building (PAJB0004), barricade berms, and associated ditches (PAJD0023)	C34	5.6	8/6/2019
Total C34	**C34**	**6.60**	**2019**
RTSH area ditch (PAJD0023)	C35	116.6	8/15/2019
Area between the RTEGH and RTWGH, including drainage ditches (PAJD0018, PAJD0019, PAJD0020), a catch box area, and rail grades (PAJR0001 and PAJR0003)	C35	423.7	8/28/2019
Refined Triton Tank Storage buildings (PAJB0003 and PAJB0005) and adjacent drainage ditch (PAJD0005)	C35	20.74	10/8/2019
Area adjacent and east of the RTEGH, including drainage ditches (PAJD0029, PAJD0030 and PAJD0031), and rail grades (PAJR0001 and PAJR0003)	C35	3.0	10/15/2019
Total C35	**C35**	**563.98**	**2019**
RTSH Area including the former building (PAJB0004), barricade berms, and associated ditches (PAJD0023)	C36	5.9	9/9/2019
Area between the RTEGH and RTWGH, including drainage ditches (PAJD0018, PAJD0019, PAJD0020), a catch box area, and rail grades (PAJR0001 and PAJR0003)	C36	417.8	9/12/2019
Area adjacent and east of RTEGH, including drainage ditches (PAJD0029, PAJD0030 and PAJD0031), overflow area, and rail grades (PAJR0001 and PAJR0003)	C36	88.9	9/24/2019
Refined Triton Tank Storage buildings (PAJB0003 and PAJB0005) and adjacent drainage ditch (PAJD0005)	C36	65.2	10/9/2019
Total C36	**C36**	**577.80**	**2019**
Soil removed from Cell C25	C27	-250.0	9/17/2019
Total C25	**C25**	**-250.00**	**2019**
Soil placed in Cell C27 from C25	C27	250.0	9/17/2019
Total C27	**C27**	**250.00**	**2019**
Total for 2019	**ALL**	**1189.9**	**2019**

Notes:

RTEGH: Refined Triton East Graining House

RTSH: Refined Triton Screening House

RTWGH: Refined Triton West Graining House

Table 4
Comparison of Pace Analytical Reporting Limits to RCLs
Waste Management Progress Report No. 8
For Period May 19, 2019 to May 18, 2020
Hazardous Waste Remediation Variance Approval of May 22, 2012
Hazardous Waste Remediation Variance Renewal Approval of May 18, 2017
Former Barksdale Works
Bayfield County, Wisconsin

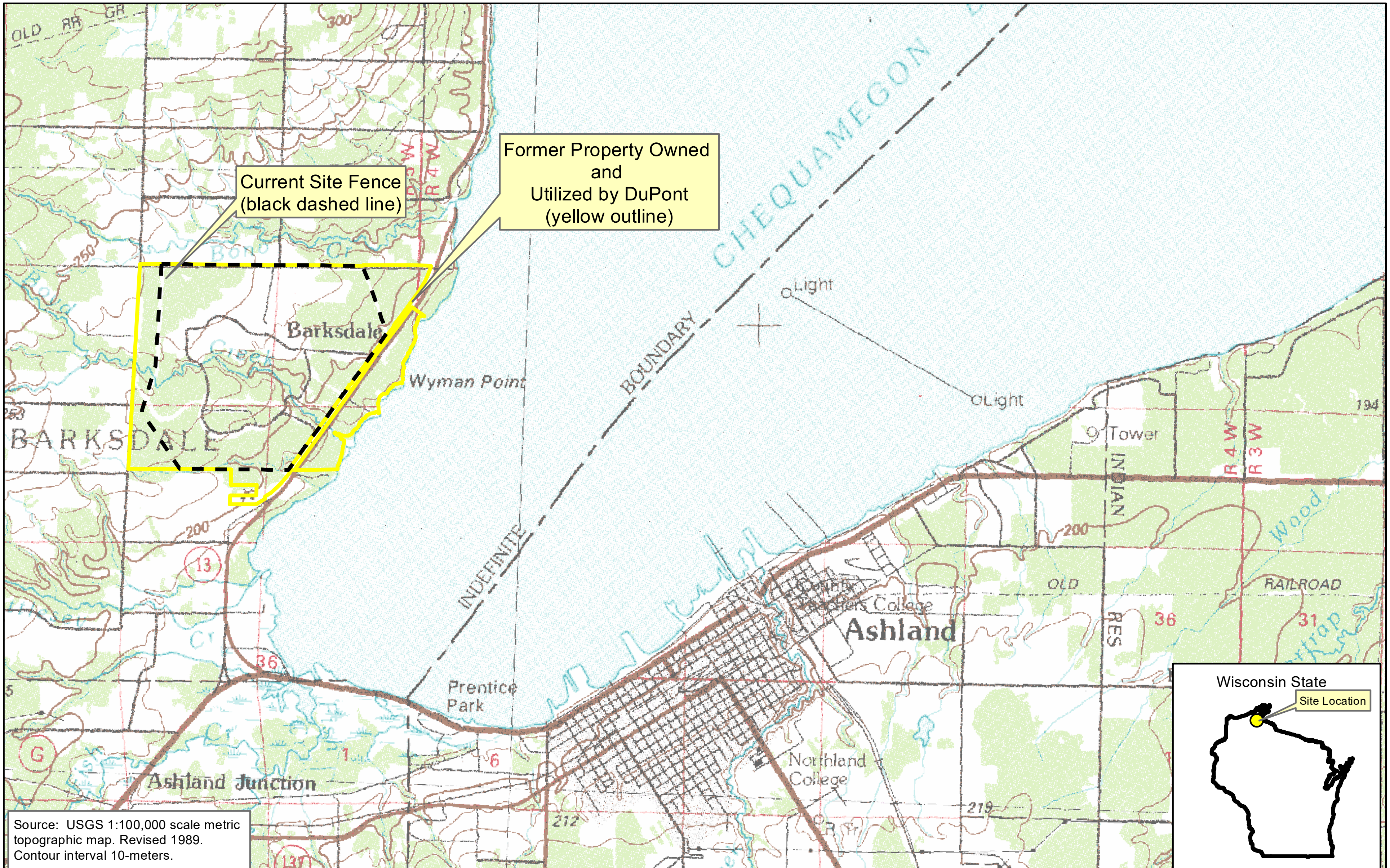
CAS Number	Chemical Constituent	Non-Industrial RCL (mg/kg)	Industrial RCL (mg/kg)	Site-Specific Recreational RCL (mg/kg)	2019 Pace Analytical Laboratory Reporting Limit (mg/kg)[1]
99-35-4	1,3,5-Trinitrobenzene	2,250	32,400	**13,100**	0.2
99-65-0	1,3-Dinitrobenzene	6.32	82.1	**36.9**	0.2
118-96-7	2,4,6-Trinitrotoluene	21.3	96	**124**	0.2
121-14-2	2,4-Dinitrotoluene	1.21	5.11	**7.03**	0.2
606-20-2	2,6-Dinitrotoluene	1.21	5.11	**7.03**	0.2
35572-78-2	2-Amino-4,6-Dinitrotoluene	154	2,280	**900**	0.2
88-72-2	2-Nitrotoluene	3.16	14.9	**18.4**	0.2
99-08-1	3-Nitrotoluene	6.32	82.1	**36.9**	0.2
19406-51-0	4-Amino-2,6-Dinitrotoluene	153	2,250	**893**	0.2
99-99-0	4-Nitrotoluene	33.9	144	**198**	0.2
98-95-3	Nitrobenzene	7.41	32.4	**43.2**	0.2
2691-41-0	HMX	3,860	57,000	**22,500**	Not analyzed
78-11-5	PETN	126	574	**737**	Not analyzed
121-82-4	RDX	8.34	38.4	**48.6**	Not analyzed
479-45-8	Tetryl	156	2,330	**911**	Not analyzed
55-63-0	Nitroglycerin	6.32	82.1	**36.9**	Not analyzed
602-01-7	2,3-Dinitrotoluene	1.21	5.11	**7.03**	0.2
618-85-9	3,5-Dinitrotoluene	1.21	5.11	**7.03**	0.2
610-39-9	3,4-Dinitrotoluene	1.21	5.11	**7.03**	0.2
619-15-8	2,5-Dinitrotoluene	1.21	5.11	**7.03**	0.2
632-92-8	2,4,6-Trinitro-3-Xylene	21.3	96	**124**	0.2
616-69-3	1,2-Dimethyl-3,5-Dinitrobenzene	19	247	**111**	0.2
603-02-1	1,3-Dimethyl-2,4-Dinitrobenzene	19	247	**111**	0.2
711-41-1	1,4-Dimethyl-2,6-Dinitrobenzene	19	247	**111**	0.2
65151-56-6	1,5-Dimethyl-2,3-Dinitrobenzene	19	247	**111**	0.2
616-72-8	1,5-Dimethyl-2,4-Dinitrobenzene	19	247	**111**	0.2
EVS0672	1,2-Dimethyl-3,4-Dinitrobenzene	19	247	**111**	0.2
EVS0709	1,2-Dimethyl-3,6-Dinitrobenzene	19	247	**111**	0.2
EVS0670	1,2-Dimethyl-4,5-Dinitrobenzene	19	247	**111**	0.2
EVS0708	1,3-Dimethyl-2,5-Dinitrobenzene	19	247	**111**	0.2
EVS0671	1,4-Dimethyl-2,3-Dinitrobenzene	19	247	**111**	0.2

Notes:

[1]: Reporting limits ranged from 0.20 to 0.22 mg/kg when laboratory dilution was equal to 1. Reporting limits were higher where dilution was required.

Not analyzed = With the exception of nitroglycerin, the compounds listed as not analyzed were not used or manufactured on-site. This is supported by historical analytical sampling for these compounds. 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.

RCL = Residual Contaminant Level for direct contact



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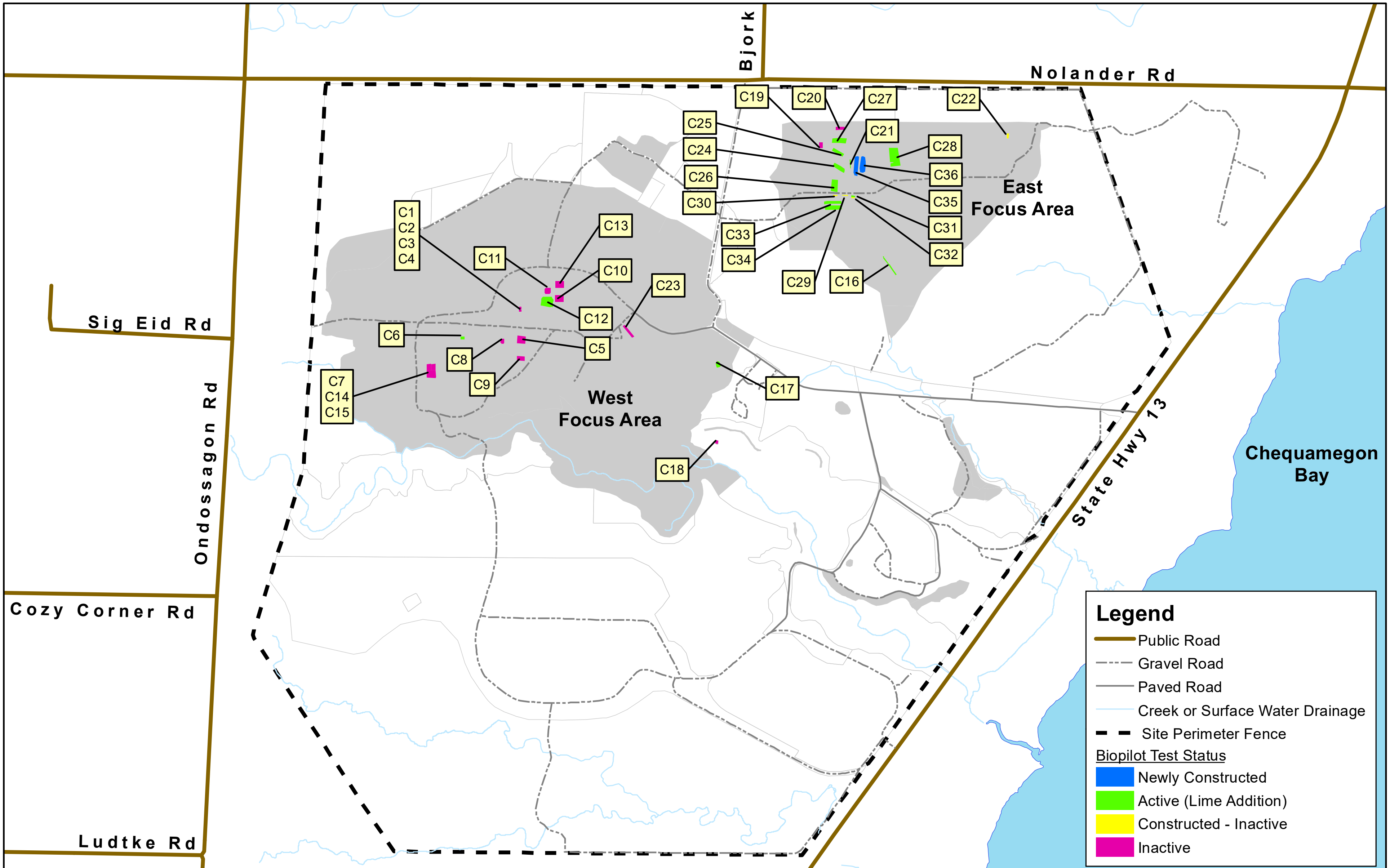
Area Map (Optional)	0 0.5 1 2 Miles 1:63,000 MAP FORMATTED FOR "A" (8.5" X 11") SIZE SHEET. SCALE NOT VALID FOR DIFFERENT PAGE SIZE.	FILE NUMBER:	AECOM 500 West Jefferson Street Suite 1600 Louisville, Kentucky 40202	Regional Site Location	PROJECT NUMBER: 60525839
		DESIGNED BY: NS		Waste Management Progress Report No. 8 2019 Field Season Former DuPont Barksdale Works Barksdale, Wisconsin 54806	DATE: May 2020
		DRAWN BY: VN			FIGURE NUMBER: 1
		DATA QUALITY CHECK BY: ES			



Area Map (Optional)

N W E S

0 700 1,400 2,800

Feet

1:16,800

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FILE NUMBER:

DESIGNED BY: NS

DRAWN BY: VN

DATA QUALITY CHECK BY: ES

AECOM

AECOM
500 West Jefferson Street
Suite 1600
Louisville, Kentucky 40202

Site Layout and Cell Locations

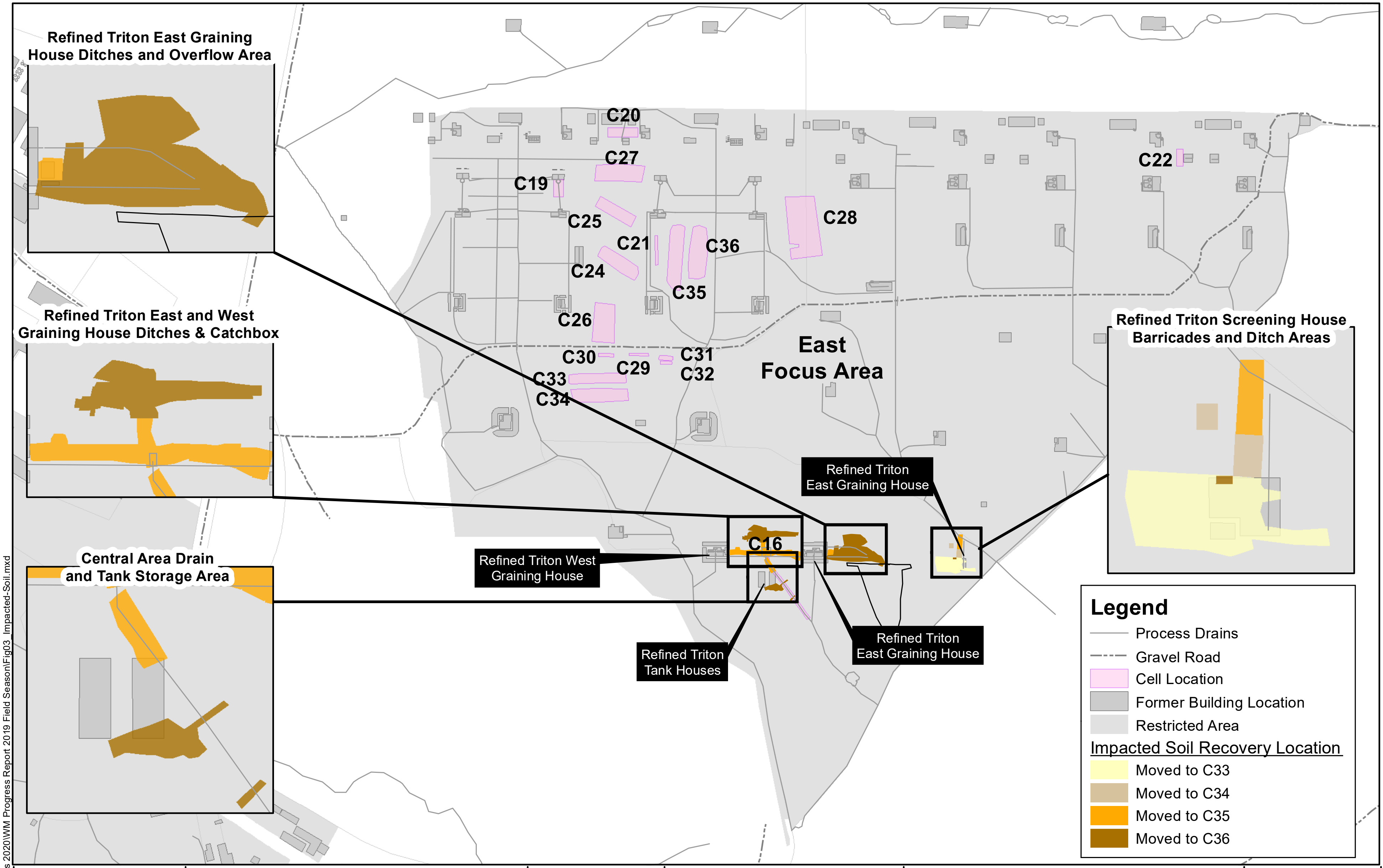
Waste Management Progress Report No. 8
2019 Field Season
Former DuPont Barksdale Works
Barksdale, Wisconsin 54806

PROJECT NUMBER: 60525839

DATE: May 2020

FIGURE NUMBER: 2

G:\Projects\Barksdale\GIS\Maps\Maps 2020\WM Progress Report 2019 Field Season\Fig02_Bio_Pilot_Cells.mxd



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Area Map (Optional)

0 125 250 500 750

Feet

1:5,000

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SCALE NOT VALID FOR DIFFERENT PAGE SIZE.

FILE NUMBER:

DESIGNED BY: NS

DRAWN BY: VN

DATA QUALITY CHECK BY: ES

AECOM

AECOM
500 West Jefferson Street
Suite 1600
Louisville, Kentucky 40202

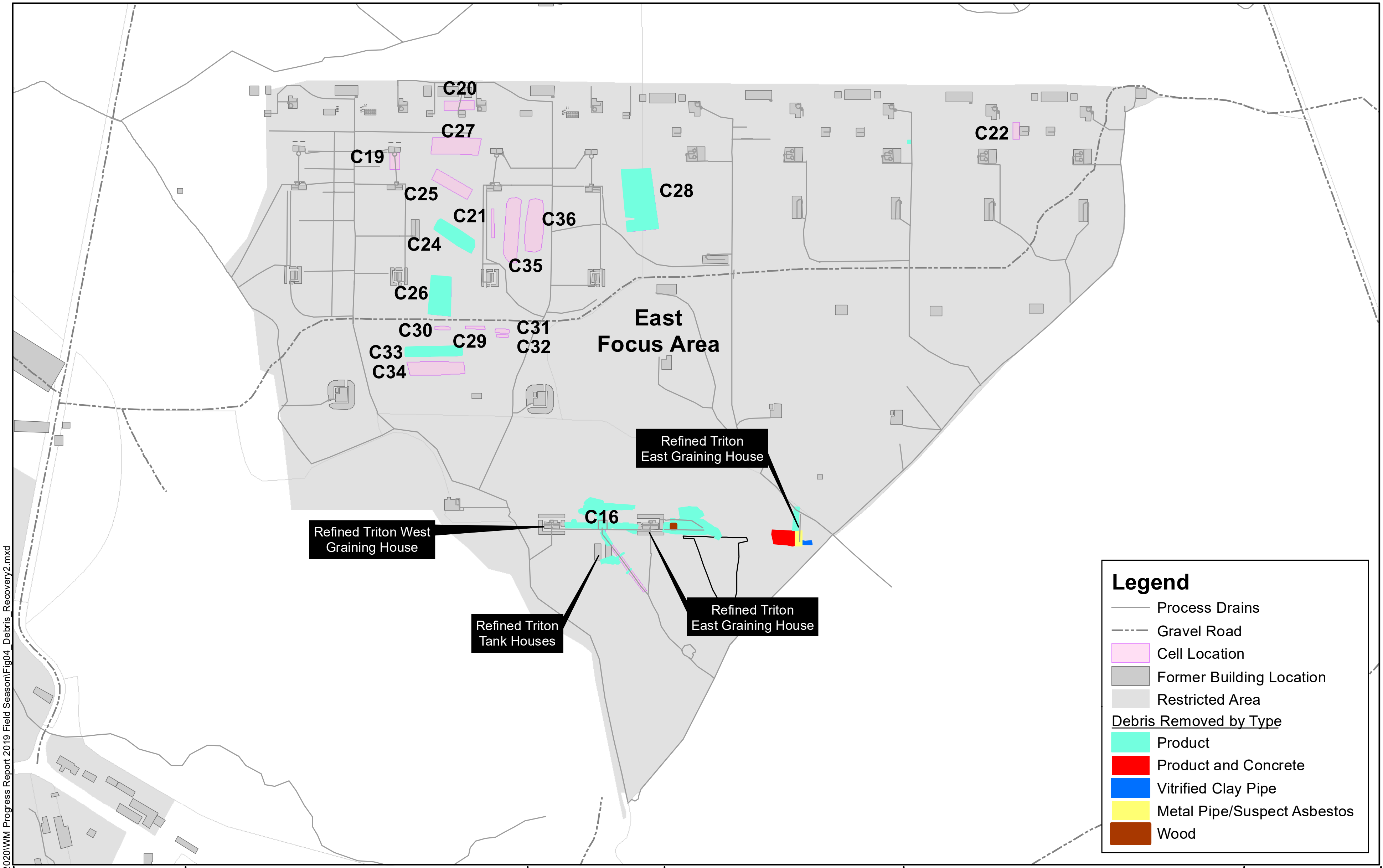
2019 Impacted Soil Recovery Locations

Waste Management Progress Report No. 8
2019 Field Season
Former DuPont Barksdale Works
Barksdale, Wisconsin 54806

PROJECT NUMBER: 60525839

DATE: May 2020

FIGURE NUMBER: 3



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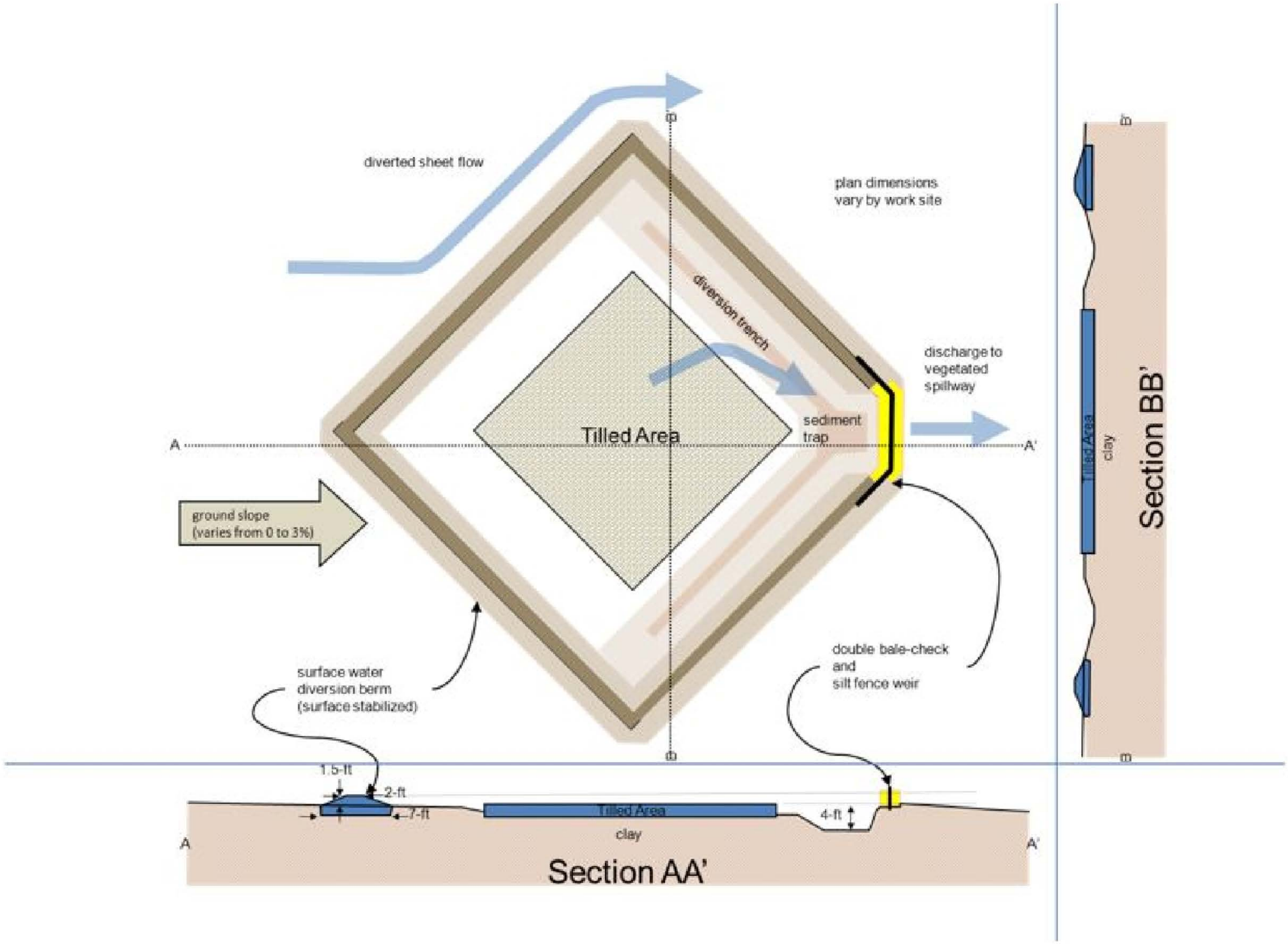
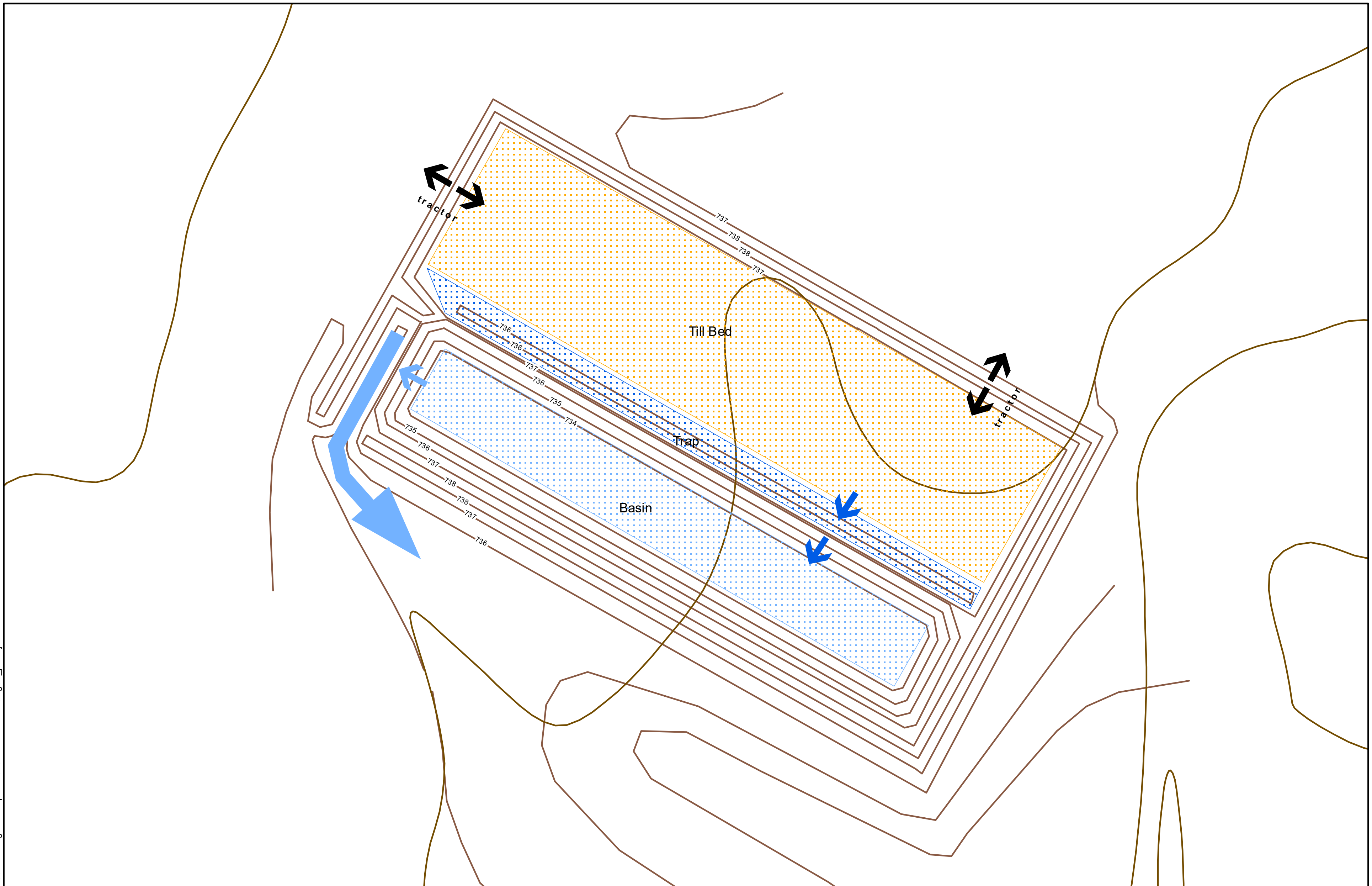
Area Map (Optional)	N W E S 0 125 250 500 750 Feet 1:5,000 MAP FORMATTED FOR "A" (8.5" X 11") SIZE SHEET. SCALE NOT VALID FOR DIFFERENT PAGE SIZE.	FILE NUMBER: DESIGNED BY: NS DRAWN BY: VN DATA QUALITY CHECK BY: ES	AECOM AECOM 500 West Jefferson Street Suite 1600 Louisville, Kentucky 40202	2019 Debris Removal Locations Waste Management Progress Report No. 8 2019 Field Season Former DuPont Barksdale Works Barksdale, Wisconsin 54806	PROJECT NUMBER: 60525839 DATE: May 2020 FIGURE NUMBER: 4



G:\Projects\Barksdale\GIS\Maps\Maps 2020\WM Progress Report 2019 Field Season\Fig05_Typical_Cells.mxd

Area Map (Optional)	FILE NUMBER:	AECOM	Typical Biopilot Sites Operational Stage 2007-2010	PROJECT NUMBER: 60525839
	DESIGNED BY: NS	AECOM 500 West Jefferson Street Suite 1600 Louisville, Kentucky 40202	Waste Management Progress Report No. 8 2019 Field Season Former DuPont Barksdale Works Barksdale, Wisconsin 54806	DATE: May 2020
	DRAWN BY: VN			FIGURE NUMBER: 5
	DATA QUALITY CHECK BY: ES			



Area Map (Optional)

FILE NUMBER:

DESIGNED BY: NS

DRAWN BY: VN

DATA QUALITY CHECK BY: ES

AECOM

AECOM
500 West Jefferson Street
Suite 1600
Louisville, Kentucky 40202

General pH Adjustment Cell Configuration

Waste Management Progress Report No. 8
2019 Field Season
Former DuPont Barksdale Works
Barksdale, Wisconsin 54806

PROJECT NUMBER: 60525839

DATE: May 2020

FIGURE NUMBER: 6

G:\Projects\Barksdale\GIS\Maps\Maps 2020\WM Progress Report 2019 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

Form 4400-194 (R 07/19)

GENERAL INSTRUCTIONS, PURPOSE AND APPLICABILITY OF THIS FORM:

Completion of the applicable portions of this form is required under Wis. Admin. Code § NR 724.13(3). Failure to submit this form as required is a violation of that rule section and is subject to the penalties in Wis. Stats. § 292.99. This form must be submitted every six months for remediation projects that report operation and maintenance progress, in accordance with Wis. Admin. Code §. NR 724.13(3). A narrative report or letter containing the equivalent information required in this form may be submitted in lieu of the actual form. Submittal of this form is not a substitute for reporting required by department programs such as Waste Water or Air Management.

Notes:

1. Long-term monitoring results submitted in accordance with Wis. Admin. Code § NR 724.17(3) 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 that section of code.
2. Responsible parties should check with the department 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 response.
3. Responsible parties should check with the department Project Manager assigned to the site to determine if any of the information required in this form may be omitted or changed and should obtain prior written approval for any omissions or changes.
4. Responsible parties are required to report separately on a semi-annual basis under Wis. Admin. Code § NR 700.11(1). Reporting under that provision is through an internet-based form. More information can be found at: http://dnr.wi.gov/topic/Brownfields/documents/regs/NR700progreport.pdf.
5. Personally identifiable information on this form is not intended to be used for any other purpose than tracking progress of the

Section GI - General Site Information

A. General Information

1. Site name
Former DuPont Barksdale Works

2. Reporting period from: 05/22/2019 | To: 05/21/2020 | Days in period: 365

3. Regulatory agency (enter DNR, DATCP and/or other): WDNR

4. BRRTS ID No. (2 digit program-2 digit county-6 digit site specific): 02-04-000156

5. Site location

Region	County	Address
NO	4	72315 Highway 13

Municipality name ○ City ○ Town ○ Village	Township	Range ○E ◉W	Section	¼	¼ ¼
Town of Barksdale	48 N	5	24	NW	

6. Responsible party
Name: Mr. Bradley S. Nave, Project Director, Chemours
Mailing address: 7204 Overlook Cove, Georgetown, IN 47122
Phone number: (812) 923-1136

7. Consultant
☐ Select if the following information has changed since the last submittal
Company name: AECOM - Attention: Cary Pooler
Mailing address: 500 W. Jefferson St., Suite 1600 Louisville, KY 40202
Phone number: (502) 252-5878

8. Contaminants
Nitramine and Nitroaromatic Organic Compounds (NNOCs) including TNT, DNT, DNX, TNX, NT

9. Soil types (USCS or USDA)
CL / SM-ML / SC

10. Hydraulic conductivity(cm/sec): NA

11. Average linear velocity of groundwater (ft/yr): NA

Site name: Former DuPont Barksdale Works

Reporting period from: 05/22/2019 To: 05/21/2020

Days in period: 365

Remediation Site Operation, Maintenance, Monitoring & Optimization Report

Form 4400-194 (R 07/19)

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:

Site name: Former DuPont Barksdale Works

Reporting period from: 05/22/2019 To: 05/21/2020

Days in period: 365

Remediation Site Operation, Maintenance, Monitoring & Optimization Report

Form 4400-194 (R 07/19)

D. Economic and Cost Data to Date

1. Total investigation cost: ____________

2. Implementation costs (design, capital and installation costs, excluding investigation costs: ____________

3. Total costs during the previous reporting period: ____________

4. Total costs during this reporting period: ____________

5. Total anticipated costs for the next reporting period: ____________

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: ____________

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
Eric C. Schmidt	Project Engineer, P.E. 38842-6
Signature: E C Schmidt	Date: May 28, 2020

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: C.E. Cay Pooler, III	Date: May 28, 2020

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
Signature	Date

Other Persons:

Print name	Title
Signature	Date

Site name: Former DuPont Barksdale Works

Reporting period from: 05/22/2019 To: 05/21/2020

Days in period: 365

Remediation Site Operation, Maintenance, Monitoring & Optimization Report

Form 4400-194 (R 07/19)

Professional Seal(s), if applicable:

Site name: Former DuPont Barksdale Works

Reporting period from: 05/22/2019 To: 05/21/2020

Days in period: 365

Remediation Site Operation, Maintenance, Monitoring & Optimization Report

Form 4400-194 (R 07/19)

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 singlecontaminant that requires the greatest percent reductionto achieve ch. NR 140 ES and PAL. Perform this calculation for all contaminantsthat were present at thesite that have ch. NR 140 standards. Use the highestcontaminant 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.

Site name: Former DuPont Barksdale Works

Reporting period from: 05/22/2019 To: 05/21/2020

Days in period: 365

Remediation Site Operation, Maintenance, Monitoring & Optimization Report

Form 4400-194 (R 07/19)

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.

Site name: Former DuPont Barksdale Works

Reporting period from: 05/22/2019 To: 05/21/2020

Days in period: 365

Remediation Site Operation, Maintenance, Monitoring & Optimization Report

Form 4400-194 (R 07/19)

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.

Site name: Former DuPont Barksdale Works

Reporting period from: 05/22/2019 To: 05/21/2020

Days in period: 365

Remediation Site Operation, Maintenance, Monitoring & Optimization Report

Form 4400-194 (R 07/19)

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.

Site name: Former DuPont Barksdale Works

Reporting period from: 05/22/2019 To: 05/21/2020

Days in period: 365

Remediation Site Operation, Maintenance, Monitoring & Optimization Report

Form 4400-194 (R 07/19)

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.

Site name: Former DuPont Barksdale Works

Reporting period from: 05/22/2019 To: 05/21/2020

Days in period: 365

Remediation Site Operation, Maintenance, Monitoring & Optimization Report

Form 4400-194 (R 07/19)

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.

Site name: Former DuPont Barksdale Works

Reporting period from: 05/22/2019 To: 05/21/2020

Days in period: 365

Remediation Site Operation, Maintenance, Monitoring & Optimization Report

Form 4400-194 (R 07/19)

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 mixing 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 form is attached to a Waste Management Progress Report, which required to support the Remediation Variance issued by WDNR for the Bioremediation PilotTest 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

Multiple pilot cells have been constructed at the site. Detailed information regarding the cells is included in the annual Waste Management Progress Report.

B. Additional Attachments

Attach the following to this form:

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

Site name: Former DuPont Barksdale Works

Reporting period from: 05/22/2019 To: 05/21/2020

Days in period: 365

Remediation Site Operation, Maintenance, Monitoring & Optimization Report

Form 4400-194 (R 07/19)

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.

Site name: Former DuPont Barksdale Works

Reporting period from: 05/22/2019 To: 05/21/2020

Days in period: 365

Remediation Site Operation, Maintenance, Monitoring & Optimization Report

Form 4400-194 (R 07/19)

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.

Site name: Former DuPont Barksdale Works

Reporting period from: 05/22/2019 To: 05/21/2020

Days in period: 365

Remediation Site Operation, Maintenance, Monitoring & Optimization Report

Form 4400-194 (R 07/19)

Section ES-3, 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:

Site name: Former DuPont Barksdale Works

Reporting period from: 05/22/2019 To: 05/21/2020

Days in period: 365

Remediation Site Operation, Maintenance, Monitoring & Optimization Report

Form 4400-194 (R 07/19)

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.

Remediation Site Operation, Maintenance, Monitoring & Optimization Report

Form 4400-194 (R 07/19)

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.

-- 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.

Remediation Site Operation, Maintenance, Monitoring & Optimization Report
Form 4400-194 (R 07/19)

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.

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.

Site name: Former DuPont Barksdale Works

Reporting period from: 05/22/2019 To: 05/21/2020

Days in period: 365

Remediation Site Operation, Maintenance, Monitoring & Optimization Report

Form 4400-194 (R 07/19)

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:

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.

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_vor 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:

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: WIR000133447	2. Page 1 of 1	3. Emergency Response Phone: (877) 818-0087	4. Shipping Document Tracking Number: ZZ 00854626

5. Generator's Name and Mailing Address
BETSY BISHOP, BETSY BISHOP
CHEMOURS BARKSDALE WORKS C/O HELOM
~~1722I W 17TH PL~~ 500 W. Jefferson Str. 1600
~~GOLDEN, CO 80401-2508~~ Louisville, KY 40202
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
VEOLIA ES TECHNICAL SOLUTIONS,
W124 N9451 BOUNDARY
MENOMONEE FALLS, WI 53051
Facility's Phone: 262 255-6655
U.S. EPA ID Number: WID003967148

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
X	1. NA2212, ASBESTOS, 9, III, RQ (ASBESTOS)	1	DF ~~DM~~	20 lbs	P	NONE
	2. NON-REGULATED MATERIAL, NON-RCRA, NON-DOT., (USED OIL)	1	DM	30 lbs	P	NONE
	3.					
	4.					

14. Special Handling Instructions and Additional Information
ER Service Contracted by VESTS + OU36190 + Contract retained by generator confers agency authority on initial transporter to add or substitute additional transporters on generator's behalf. +
1) ERG:171 W:166397 A:CWDASBESTOS1 2) W:685212 A:SRRDUP101

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 11 Day 20 Year 19

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

17. Transporter Acknowledgment of Receipt of Shipment
Transporter 1 Printed/Typed Name: James Reisetter — Signature: [signature] — Month 11 Day 20 Year 19
Transporter 2 Printed/Typed Name: — Signature: — Month Day Year

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. H141 2. H141 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of shipment except as noted in Item 18a
Printed/Typed Name: Jasmine Allen — Signature: [signature] — Month 12 Day 03 Year 19

DESIGNATED FACILITY TO GENERATOR

GENERATOR | INT'L | TRANSPORTER | DESIGNATED FACILITY

081-120319

VEOLIA ENVIRONMENTAL SERVICES

SHIPPING DOCUMENT

1. Generator ID Number: WIR000133447
2. Page 1 of 2
3. Emergency Response Phone: (877) 818-0087
4. Shipping Document Tracking Number: ZZ 00854625

5. Generator's Name and Mailing Address: BETSY BISHOP, BETSY BISHOP
CHEMOURS BARKSDALE WORKS c/o Ahcom
~~17221 W 17TH PL~~ 500 Jefferson street #600
~~GOLDEN, CO 80401-2508~~ Louisville, KY 40202
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: VEOLIA ES TECHNICAL SOLUTIONS, 1275 MINERAL SPRINGS DRIVE, PORT WASHINGTON, WI 53074 — U.S. EPA ID Number: WID988566543
Facility's Phone: 262 243-8900

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	Type	11. Total Quantity	12. Unit Wt./Vol.	13. Codes
X	1. UN3480, LITHIUM ION BATTERIES, 9 UNIVERSAL WASTE	1	DF	1 lb	P	NONE
X	2. UN3090, LITHIUM METAL BATTERIES, 9 UNIVERSAL WASTE	1	DF	1 lb	P	NONE
	3. UNIVERSAL WASTE-LAMPS	2 (GW)	CF	(GW) 80 lb	P	NONE
	4. NON-REGULATED MATERIAL, NON-RCRA, NON-DOT. (Ballast)	1	DF	5 lb	P	NONE

14. Special Handling Instructions and Additional Information: ER Service Contracted by VESTS + OU36190 + Contract retained by generator confers agency authority on initial transporter to add or substitute additional transporters on generator's behalf. + 1) ERG:147 W:679236 A:SSSLITHIUM 2) ERG:138 W:679238 A:SSSLITHIUM 3) W:679242 A:SSSLAMPS BULB COUNT REQUIRED 4) W:679246 A:SUPBALLAST
D12363609

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~~ Elizabeth Bishop — Signature: [signature] (on behalf of Chemours) — Month 11 Day 19 Year 19

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

17. Transporter Acknowledgment of Receipt of Shipment
Transporter 1 Printed/Typed Name: J Gengler — Signature: [signature] — Month 11 Day 19 Year 19
Transporter 2 Printed/Typed Name: — Signature: — Month Day Year

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. H141 2. H141 3. H010 4. H141

20. Designated Facility Owner or Operator: Certification of receipt of shipment except as noted in Item 18a
Printed/Typed Name: Michael Gattheo — Signature: [signature] — Month 12 Day 16 Year 19

DESIGNATED FACILITY TO GENERATOR

VEOLIA
ENVIRONMENTAL SERVICES

SHIPPING DOCUMENT (Continuation Sheet)	21. Generator ID Number: WIR000133447	22. Page: 2 of 2	23. Shipping Document Tracking Number: ZZ00854625

24. Generator's Name: CHEMOURS BARKSDALE WORKS

25. Transporter ______ Company Name | U.S. EPA ID Number

26. Transporter ______ Company Name | U.S. EPA ID Number

27a. HM	27b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28. Containers No.	28. Containers Type	29. Total Quantity	30. Unit Wt./Vol.	31. Codes
	5. BATTERIES, DRY, SEALED, n.o.s., (NICAD BATTERIES) UNIVERSAL WASTE	1	DF	10 lbs	P	NONE

32. Special Handling Instructions and Additional Information: OU36190 + 5) W:679235 A:888NICAD

GENERATOR

33. Transporter ______ Acknowledgment of Receipt of Shipment
Printed/Typed Name | Signature | Month Day Year

34. Transporter ______ Acknowledgment of Receipt of Shipment
Printed/Typed Name | Signature | Month Day Year

TRANSPORTER

35. Discrepancy

36. Report Management Method Codes (i.e., codes for treatment, disposal, and recycling systems)
5. H141

DESIGNATED FACILITY

DESIGNATED FACILITY TO GENERATOR

Date: 6-20-2019

BILL OF LADING

SHIP FROM

Name: Chemours Barksdale Works
Address: 72315 Highway 13 South
City/State/Zip: Washburn, WI 54806
SID#: FOB: ☐

Bill of Lading Number: 2019-01

BAR CODE SPACE

SHIP TO

Name: US Army Corps of Eng. - S. Larson Location #:
Address: 3909 Halls Ferry Road
City/State/Zip: Vicksburg, MS 39180
CID#: FOB: ☐

CARRIER NAME: XPO
Trailer number: 311 1705
Seal number(s):
SCAC:
Pro number: 77201000-WH06-507987

Driver's signature acknowledges receipt of freight only. Received shipment is subject to terms of a written contract, if any, otherwise subject to the terms, conditions and limitations of liability set forth in XPO Logistics Freight, Inc. rules tariff. (see www.xpo.com)

874-481742

XPOLogistics

THIRD PARTY FREIGHT CHARGES BILL TO:

Name: Chemours- c/o Cass Information Systems
Address: PO Box 17628
City/State/Zip: St. Louis, MO 63178

Freight Charge Terms:
Prepaid ______ Collect ______ 3rd Party X

SPECIAL INSTRUCTIONS:

Pay against Chemours sourcing & logistics, special services

☐ (check box) Master Bill of Lading: with attached underlying Bills of Lading

CUSTOMER ORDER INFORMATION

CUSTOMER ORDER NUMBER	# PKGS	WEIGHT	PALLET/SLIP Y	PALLET/SLIP N	ADDITIONAL SHIPPER INFO
					Non-Emergency Number: (303) 216-2558
					24-hour Emergency Contact: 800-424-9300
GRAND TOTAL					

CARRIER INFORMATION

HANDLING UNIT QTY	HANDLING UNIT TYPE	PACKAGE QTY	PACKAGE TYPE	WEIGHT	H.M. (X)	COMMODITY DESCRIPTION (Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation with ordinary care. See Section 2(e) of NMFC Item 360)	LTL ONLY NMFC #	LTL ONLY CLASS
1	5 g	1	PP	2.5p	X	UN1354 Trinitrotoluene, wetted,		4.1
						(with not less than 30%water),4.1,I		
						(8) 16 oz plastic jars		
1	1A2	1	DM	103.5 p		55-gallon 1A1 steel drum Overpack	RECEIVING	
						Overpack of interior packages above	STAMP SPACE	
						all inner packages comply		
1		1		106p		**GRAND TOTAL**		

Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property as follows:

"The agreed or declared value of the property is specifically stated by the shipper to be not exceeding ______ per ______."

COD Amount: $ ______

Fee Terms: Collect: ☐ Prepaid: ☐
Customer check acceptable: ☐

NOTE Liability Limitation for loss or damage in this shipment may be applicable. See 49 U.S.C. - 14706(c)(1)(A) and (B).

RECEIVED, subject to individually determined rates or contracts that have been agreed upon in writing between the carrier and shipper, if applicable, otherwise to the rates, classifications and rules that have been established by the carrier and are available to the shipper, on request, and to all applicable state and federal regulations.

The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

[signature] Shipper Signature

SHIPPER SIGNATURE / DATE

This is to certify that the above named materials are properly classified, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the DOT. All cargo tendered for transport is subject to inspection. By tendering cargo to carrier, shipper grants consent to such an inspection.

[signature] 6/20/2019

Trailer Loaded:
☐ By Shipper
☑ By Driver

Freight Counted:
☑ By Shipper
☐ By Driver/pallets said to contain
☐ By Driver/Pieces

CARRIER SIGNATURE / PICKUP DATE

Carrier acknowledges receipt of packages and required placards. Carrier certifies emergency response information was made available and/or carrier has the DOT emergency response guidebook or equivalent documentation in the vehicle.

[signature] 6-20-19

Date: 10-21-2019

BILL OF LADING

SHIP FROM

Name: Chemours Barksdale Works
Address: 72315 Highway 13
City/State/Zip: Ashland, WI 54806
SID#:
FOB: ☐

Bill of Lading Number: 2019-001

BAR CODE SPACE

SHIP TO

Name: US Army Corps of Eng. - S. Larson
Location #:
Address: 3909 Halls Ferry Road
City/State/Zip: Vicksburg, MS 39180
CID#:
FOB: ☐

CARRIER NAME: XPO
Trailer number:
Seal number(s):
SCAC:
Pro number: 77201000-WH06-507987

Driver's signature acknowledges receipt of freight only. Received shipment is subject to terms of a written contract, if any, otherwise subject to the terms, conditions and limitations of liability set forth in XPO Logistics Freight, Inc. rules tariff. (see www.xpo.com)
874-547774
XPOLogistics

THIRD PARTY FREIGHT CHARGES BILL TO:

Name: Chemours- c/o Cass Information Systems
Address: PO Box 17628
City/State/Zip: St. Louis, MO 63178

Freight Charge Terms:
Prepaid ______ Collect ______ 3rd Party X

☐ (check box) Master Bill of Lading: with attached underlying Bills of Lading

SPECIAL INSTRUCTIONS:
Pay against Chemours sourcing & logistics, special services .
Chemours charge code: 507987

CUSTOMER ORDER INFORMATION

CUSTOMER ORDER NUMBER	# PKGS	WEIGHT	PALLET/SLIP Y	PALLET/SLIP N	ADDITIONAL SHIPPER INFO
					24 hour emergency contact #
					800-424-9300
GRAND TOTAL					

CARRIER INFORMATION

HANDLING UNIT QTY	HANDLING UNIT TYPE	PACKAGE QTY	PACKAGE TYPE	WEIGHT	H.M. (X)	COMMODITY DESCRIPTION Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation with ordinary care. See Section 2(e) of NMFC Item 360	LTL ONLY NMFC #	LTL ONLY CLASS
1	5 g	04	PP	312 p	X	UN1354 Trinitrotoluene, wetted,		4.1
						(with not less than 30%water),4.1,I		
2	1A2	02	DM	50 p		Overpack of interior packages above		
						all inner packages comply		
							RECEIVING	
							STAMP SPACE	
				362 p				
1		1				GRAND TOTAL		

Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property as follows:

"The agreed or declared value of the property is specifically stated by the shipper to be not exceeding ______ per ______."

COD Amount: $ ______

Fee Terms: Collect: ☐ Prepaid: ☐
Customer check acceptable: ☐

NOTE Liability Limitation for loss or damage in this shipment may be applicable. See 49 U.S.C. - 14706(c)(1)(A) and (B).

RECEIVED, subject to individually determined rates or contracts that have been agreed upon in writing between the carrier and shipper, if applicable, otherwise to the rates, classifications and rules that have been established by the carrier and are available to the shipper, on request, and to all applicable state and federal regulations.

The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

______ Shipper Signature

SHIPPER SIGNATURE / DATE

This is to certify that the above named materials are properly classified, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the DOT. All cargo tendered for transport is subject to inspection. By tendering cargo to carrier, shipper grants consent to such an inspection.

[signature] / 10-21-19
(On behalf of Chemours)

Trailer Loaded:
☐ By Shipper
☑ By Driver

Freight Counted:
☑ By Shipper
☐ By Driver/pallets said to contain
☐ By Driver/Pieces

CARRIER SIGNATURE / PICKUP DATE

Carrier acknowledges receipt of packages and required placards. Carrier certifies emergency response information was made available and/or carrier has the DOT emergency response guidebook or equivalent documentation in the vehicle.

[signature] 10-21-19

POTENTIAL HAZARDS

FIRE OR EXPLOSION

- Flammable/combustible material.
- May be ignited by heat, sparks or flames.
- **DRIED OUT material may explode if exposed to heat, flame, friction or shock; Treat as an explosive (GUIDE 112).**
- **Keep material wet with water or treat as an explosive (GUIDE 112).**
- Runoff to sewer may create fire or explosion hazard.

HEALTH

- Some are toxic and may be fatal if inhaled, swallowed or absorbed through skin.
- Contact may cause burns to skin and eyes.
- Fire may produce irritating, corrosive and/or toxic gases.
- Runoff from fire control or dilution water may cause pollution.

PUBLIC SAFETY

- **CALL Emergency Response Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.**
- Isolate spill or leak area immediately for at least 100 meters (330 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind.
- Ventilate closed spaces before entering.

PROTECTIVE CLOTHING

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Structural firefighters' protective clothing will only provide limited protection.

EVACUATION

Large Spill

- **Consider initial evacuation for 500 meters (1/3 mile) in all directions.**

Fire

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

EMERGENCY RESPONSE

FIRE

CARGO Fires

- **DO NOT fight fire when fire reaches cargo! Cargo may EXPLODE!**
- Stop all traffic and clear the area for at least 800 meters (1/2 mile) in all directions and let burn.
- **Do not move cargo or vehicle if cargo has been exposed to heat.**

TIRE or VEHICLE Fires

- **Use plenty of water - FLOOD it! If water is not available, use CO_2, dry chemical or dirt.**
- If possible, and WITHOUT RISK, use unmanned hose holders or monitor nozzles from maximum distance to prevent fire from spreading to cargo area.
- Pay special attention to tire fires as re-ignition may occur. **Stand by with extinguisher ready.**

SPILL OR LEAK

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- All equipment used when handling the product must be grounded.
- Do not touch or walk through spilled material.

Small Spills

- Flush area with flooding quantities of water.

Large Spills

- Wet down with water and dike for later disposal.
- KEEP "WETTED" PRODUCT WET BY SLOWLY ADDING FLOODING QUANTITIES OF WATER.

FIRST AID

- Move victim to fresh air. • Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Hazardous Waste Annual Report 2019

Facility Name : FORMER DUPONT BARKSDALE WORKS
Facility ID : 804009140
EPA ID : WIR000133447

DNR Contact : Megan Ballweg
e-mail: MeganM.Ballweg@wisconsin.gov
Tel : (715) 839-3770

Form Instructions

Submittal and Signature Instructions

Click "Submit" at the top of the form when you have completed and validated your report
Report Preparers cannot submit the form unless they additionally have the Signatory-Certifier roleIf you do not see the "Submit" button, you do not have signatory/certifier credentials. See the Facility Reporting Contacts section below for more information
You will receive an email verification of submittal from WDNR Hazardous Waste reporting sent to the address associated with your facility contact information
The email will include a PDF copy of your report and certification page
If the DNR has a copy of your Switchboard signature page on file, you will see a notification at the bottom with the email address where your Digital Signature information was sent (the email associated with your WAMS ID)
Digitally Signing your Certification
proceed to your email inbox that the verification message indicated your digital signature information was sent and locate the message from DNRSignature@wisconsin.gov
If you do not see the Digital Signature email in your inbox, please check the spam/junk folder
Copy the code provided in the Digital Signature email, and follow the link provided to paste in your code and complete the digital signature process
This code (referred to in the Digital Signature Service as a "Temporary PIN code") is valid for signing the document for 72 hours after you submit the report
If you do not see information about where the digital signature was sent in the verification email, you do not have a signature on file
Print and sign the Hazardous Waste Signature PDF from the verification email
send a copy of the signed PDF as an email attachment to DNRHazardousWasteReporting@Wisconsin.gov

Welcome to Wisconsin DNR 2019 Hazardous Waste Annual Reporting.

Tips for Using the Web Reporting System
Save your work frequently with the "Save" button at the top of the form
If you are not able to complete the report in one session, you may return at another time. The data you saved will be presented to you at the new session.
The program will disconnect from your computer if it detects no key action over a 15 minute period. You may prevent this by keeping your session alive when prompted.
This report contains help links at the bottom of the form. Additionally there are help icons which, when clicked, will display information on the corresponding topic.

Instructions and Help for Completing the Report
The DNR’s Hazardous waste reporting Web page has general and specific information on completing the hazardous waste annual report for your facility.
Please view Web page help and download written instructions on each component of the Web reporting system.
dnr.wi.gov/topic/Waste/ReportForms.html
For questions and assistance in completing the hazardous waste annual report, contact your regional Environmental Program Associate.
dnr.wi.gov/topic/Waste/EPAs.html
If you need a WAMS ID, go to dnr.wi.gov/topic/Switchboard/.
For step-by-step detailed instructions and managing reporting roles, go to dnr.wi.gov/topic/Switchboard/documents/signuphelp.pdf.

Site Details

Site Name : FORMER DUPONT BARKSDALE WORKS
Site Land Type : Private
Location Address : 72315 STH 13 BARKSDALE WI
Mailing Address :
Owner :
Operator : THE CHEMOURS COMPANY FC LLC 500 WEST JEFFERSON STREET, SUITE 1600 LOUISVILLE, KY Bradley.S.Nave@chemours.com 715-373-2100
HW Contact : BRADLEY NAVE 500 W JEFFERSON ST STE 1600 LOUISVILLE, KY BRADLEY.S.NAVE@CHEMOURS.COM 812-923-1136

This information has been provided by the Federal EPA’s RCRAInfo System. If any of this information is incorrect, please update it at RCRAInfo

Environmental Management System

An EMS is a tool to help your organization understand its environmental impacts and systematically operate more efficiently by reducing energy usage, minimizing waste and reducing pollution. Proactively addressing environmental impacts helps your organization protect public health and Wisconsin's natural resources, find and utilize the most cost effective corrective measures and avoid costly noncompliance fees.
DNR website for more EMS info: dnr.wi.gov/topic/greentier/ems.html
US EPA for more EMS info: www.epa.gov/ems

Do you have a formal environmental management system (EMS)? ◯ Yes ◉ No

North American Industry Classification System (NAICS)

Enter all NAICS codes (One code must be designated as primary)
US EPA - Introduction to NAICS www.census.gov/eos/www/naics/

NAICS Code	Name	Primary
562910	Remediation Services	True

Facility Reporting Contacts

Signatory/Certifier Contact: ELIZABETH BISHOP 17221 W. 17TH PLACE GOLDEN, CO elizabeth.bishop@aecom.com 303-216-2558

Secondary/Preparer Contact: (a list of current secondary contacts is available through the Switchboard App listed below)

Primary (Hazardous Waste), Owner, and Operator Contacts: These contact types are related to facility identification and do not supply reporting roles. Please see the Site Details section above to review and update these records.

You can review and update facility Signatory and Secondary contacts through the DNR's Switchboard System at:
dnrx.wisconsin.gov/switchboard/capture.do

Type of Regulated Waste Activity

The DNR database indicates you are a Small Quantity Generator

Does FORMER DUPONT BARKSDALE WORKS generate hazardous waste? ◉ Yes ◯ No

Please identify the amount of hazardous waste generated at your facility OR the higher generator status your facility chooses to operate under for the reporting year

◯ Large Quantity Generator - Generate in any calendar month 1,000 kg(2,205 lbs) or more of hazardous waste; or Generate in any calendar month, or Accumulate at any time, more than 1 kg(2.2 lbs) of acute hazardous waste or more than 100 kg(220 lbs) of acute hazardous waste spill cleanup material.

◯ Small Quantity Generator - Generate in every calendar month less than 1,000 kg(2,205 lbs) of hazardous waste; and Accumulate at all times no more than 6,000 kg(13,320 lbs) of hazardous waste; and Generate in every calendar month, and Accumulate at all times, no more than 1 kg(2.2 lbs) of acute hazardous waste and no more than 100 kg(220lbs) of acute hazardous waste spill cleanup material.

◉ Very Small Quantity Generator - Generate in every calendar month no more than 100 kg (220 lbs) of hazardous waste; and Accumulate at all times no more than 1, 000 kg(2, 205 lbs) of hazardous waste; and Generate in every calendar month, and Accumulate at all times, no more than 1 kg(2.2 lbs) of acute hazardous waste and no more than 100 kg(220 lbs) of acute hazardous waste spill cleanup material.

Short-Term Generator (generates from a short-term or one-time event and not from on-going processes). ◉ Yes ◯ No

Short Term Comment

in 2019 the Barksdale site only had one waste shipment comprised of: used oil, asbestos and a universal waste annual pick up

Treater, Storer or Disposer of Hazardous Waste—Note: Part B of a hazardous waste permit is required for these activities) ◯ Yes ◉ No

Receives Hazardous from Off-site ◯ Yes ◉ No

Recycler of Hazardous Waste ◯ Yes ◉ No

Exempt Boiler and/or Industrial Furnace ◯ Yes ◉ No

Publicly Owned (Wastewater) Treatment Works (POTW) that accepts hazardous waste (via truck, rail, or dedicated pipe) for treatment, and complies with s. NR 670.001(3)(b)9. ◯ Yes ◉ No

Permanent Household and Very Small Quantity Generator Hazardous Waste Collection Facility that ships hazardous waste off-site to a licensed or permitted hazardous waste treatment, storage or disposal facility, or to a recycling facility	○ Yes	● No

Waste Codes for Federally Regulated Hazardous Wastes

Please list the waste codes of the federal hazardous wastes handled at your site.

Additional Regulated Waste Activities

Other Waste Activites

Transporter of Hazardous Waste	○ Yes	● No
Under Ground Injection Control	○ Yes	● No
United States Importer of Hazardous Waste	○ Yes	● No
Recognized Trader	○ Yes	● No
Importer/Exporter of Spent Lead□Acid Batteries (SLABs) under 40 CFR 266 Subpart G	○ Yes	● No

Universal Waste Activites

Large Quantity Handler of Universal Waste (you accumulate 5,000 kg or more)	○ Yes	● No
Destination Facility for Universal Waste	○ Yes	● No

Used Oil Activities

Used Oil Transporter	○ Yes	● No
Used Oil Processor and/or Re-refiner	○ Yes	● No
Off-specification Used Oil Burner	○ Yes	● No
Used Oil Fuel Marketer	○ Yes	● No

Eligible Academic Entities with Laboratories-Notification for opting into or withdrawing from managing laboratory hazardous wastes per NR 662 Subchapter K

Opting into or currently operating under NR 662 Subchapter K for the management of hazardous wastes in laboratories	○ Yes	● No
Withdrawing from 40 CFR 262 Subpart K for the management of hazardous wastes in laboratories	○ Yes	● No

Electronic Manifest Broker

Are you notifying as a person, as defined in 40 CFR 260.10, electing to use the EPA electronic manifest system to obtain, complete, and transmit an electronic manifest under a contractual relationship with a hazardous waste generator?	○ Yes	● No

To find out more information about the US EPA e-Manifest data system that will be implemented in June 2018 go to www.epa.gov/e-manifest/learn-about-hazardous-waste-electronic-manifest-system-e-manifest

Regulated Waste Activity Comments

Comment

Only one shipment of Used Oil, asbestos and Universal waste in 2019.

Exemption Details

Reason for not generating (Check all that apply)

Never Generated	☐
Periodic or Occasional Generator	☒
Out of Business	☐
Waste Minimization Activity	☒
Only Excluded or De-listed Waste	☐
Only Non-Hazardous Waste	☐
Other Reason (Specify in Comments}	☐

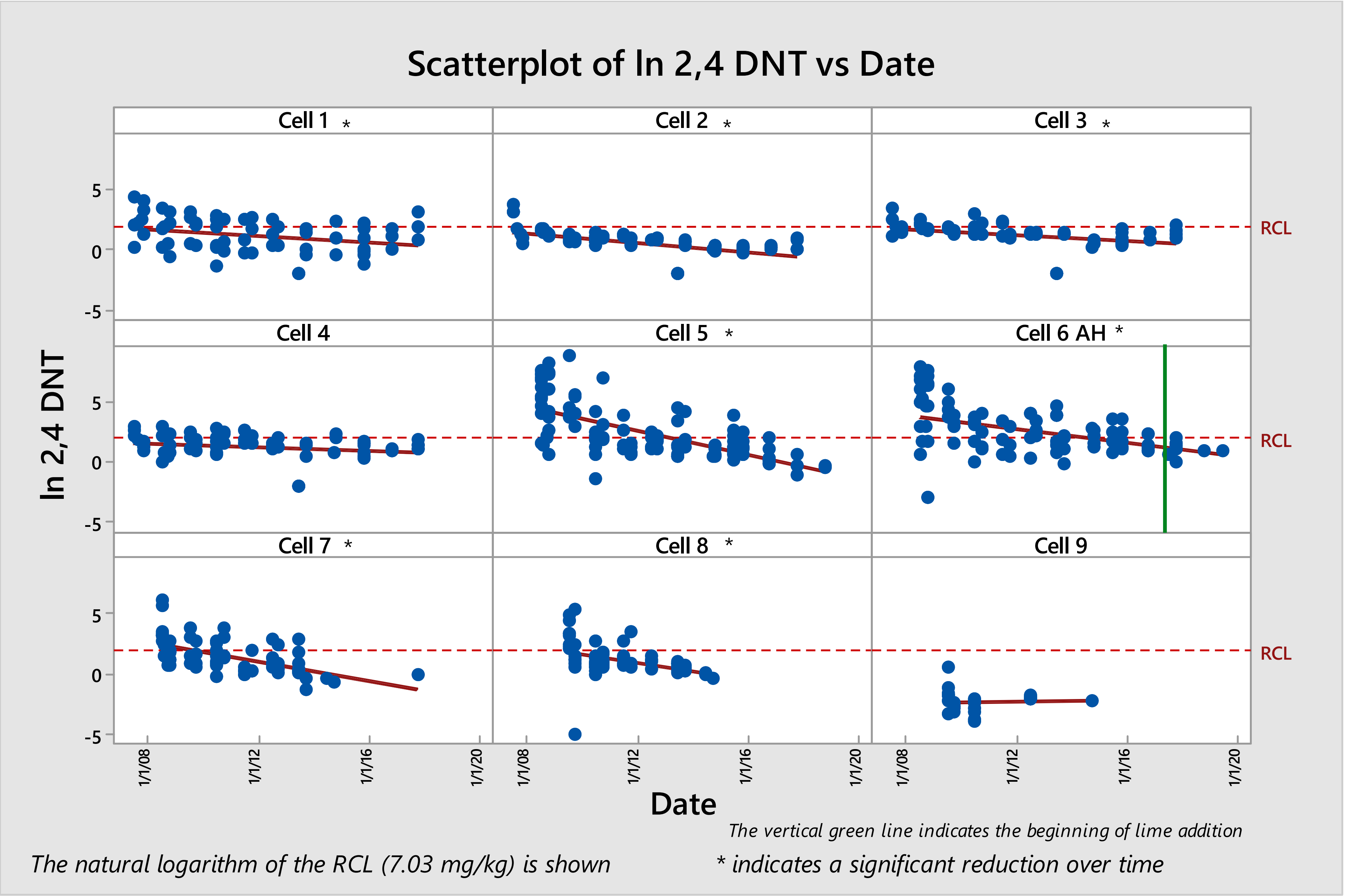
Exemption Comments

Chemours Barksdale continues pilot treatment of environmental media under a WDNR-approved Hazardous Waste Variance (approval May 22, 2012). This has reduced the amount of hazardous waste shipped off-site for treatment and disposal.

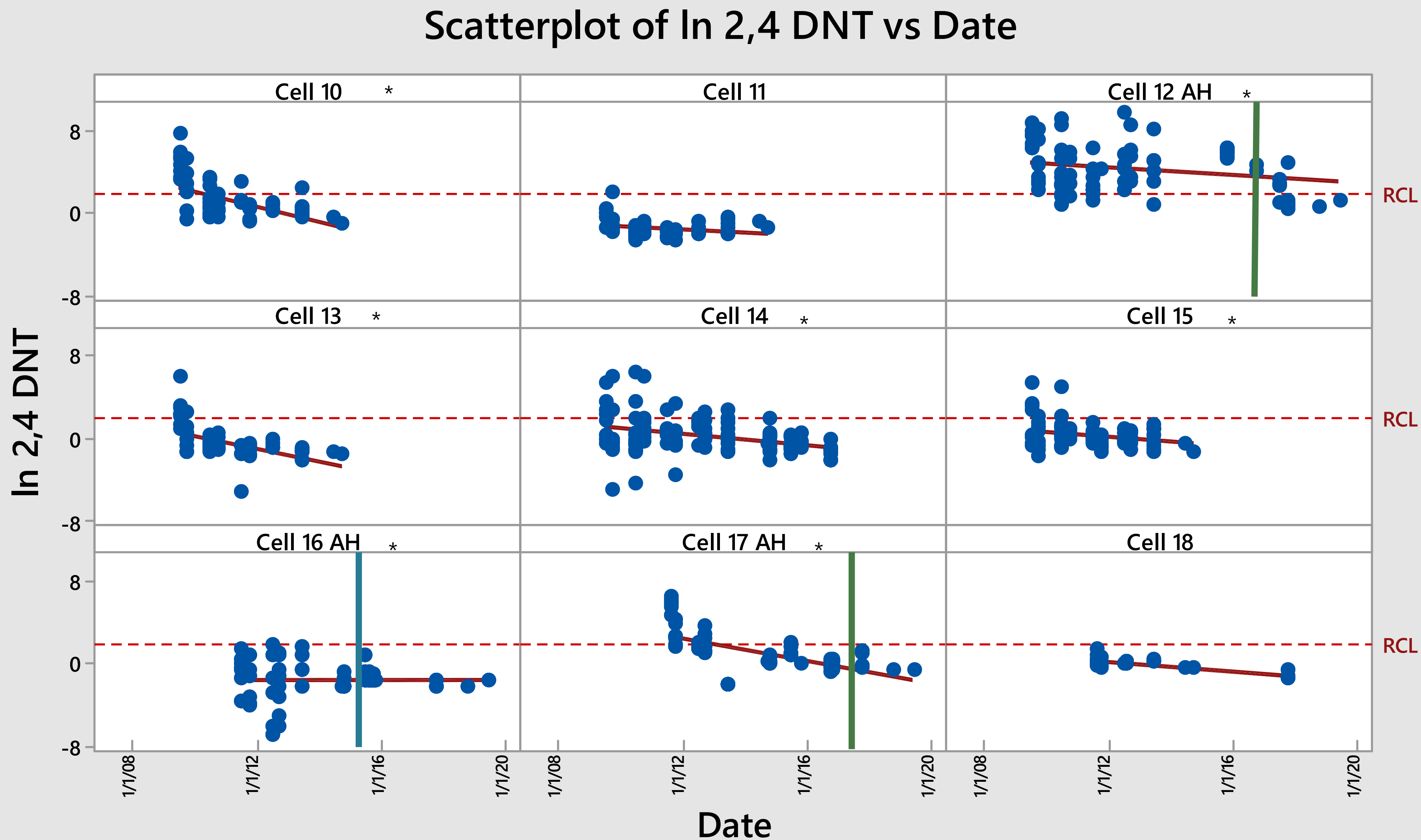
Barksdale Summary Graphs 2019 Year End

DNT, TNT, DNX, TNX,

NB, Amino DNT



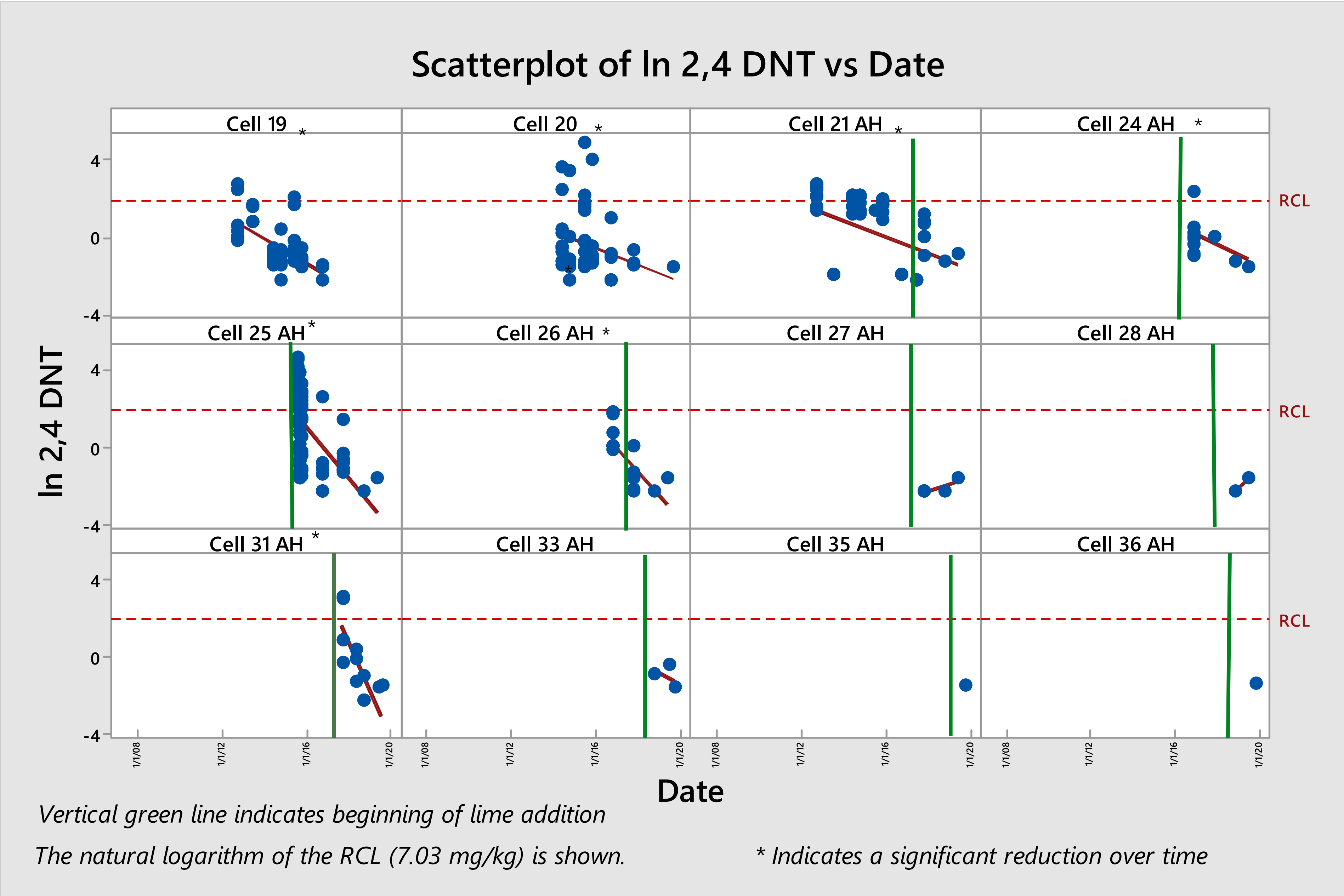
Scatterplot of ln 2,4 DNT vs Date
Cell 1 *
Cell 2 *
Cell 3 *
Cell 4
Cell 5 *
Cell 6 AH *
Cell 7 *
Cell 8 *
Cell 9
RCL
ln 2,4 DNT
5
0
-5
1/1/08
1/1/12
1/1/16
1/1/20
Date
The vertical green line indicates the beginning of lime addition
The natural logarithm of the RCL (7.03 mg/kg) is shown
* indicates a significant reduction over time



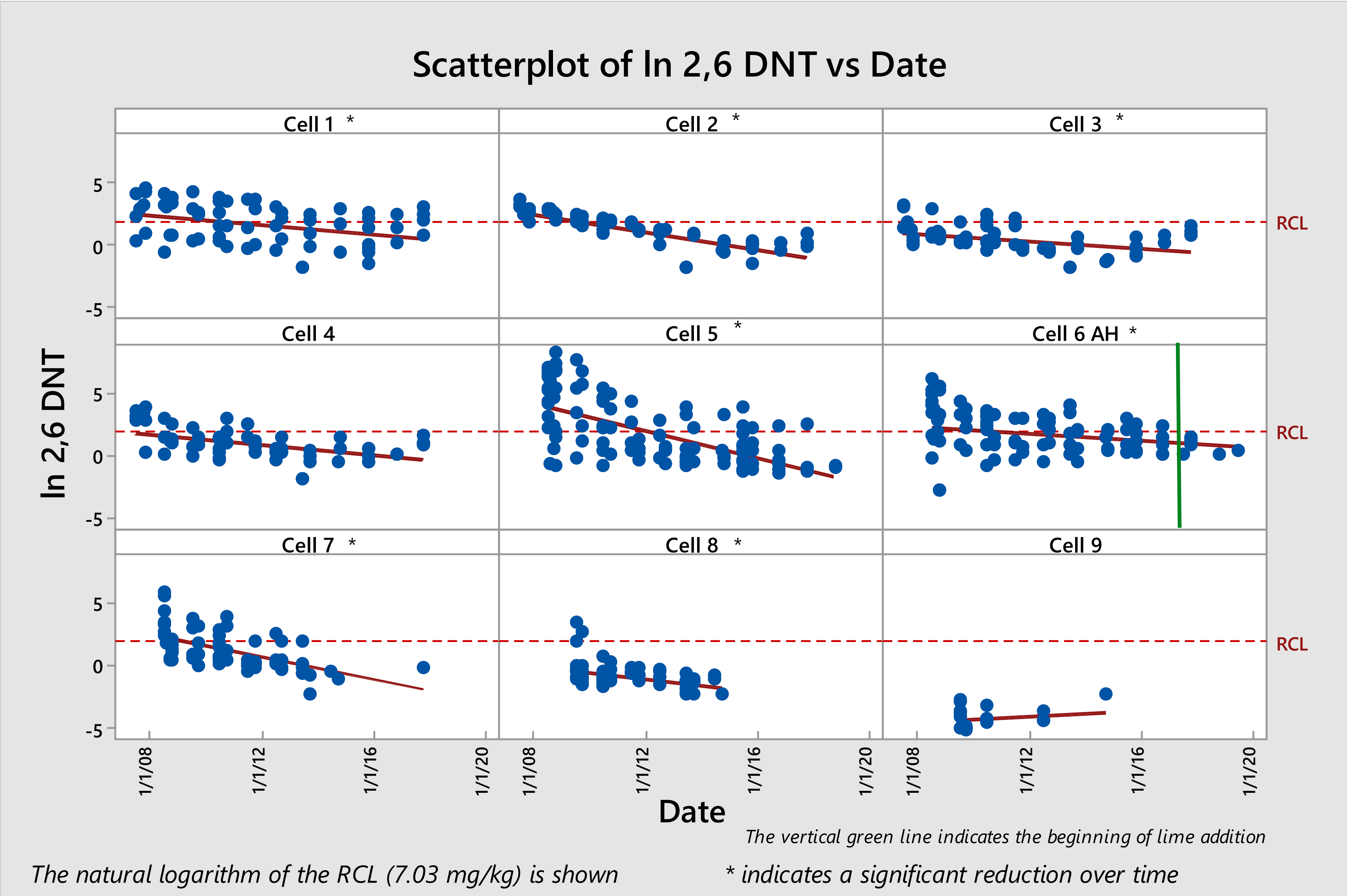
Vertical green line indicates the beginning of lime addition

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

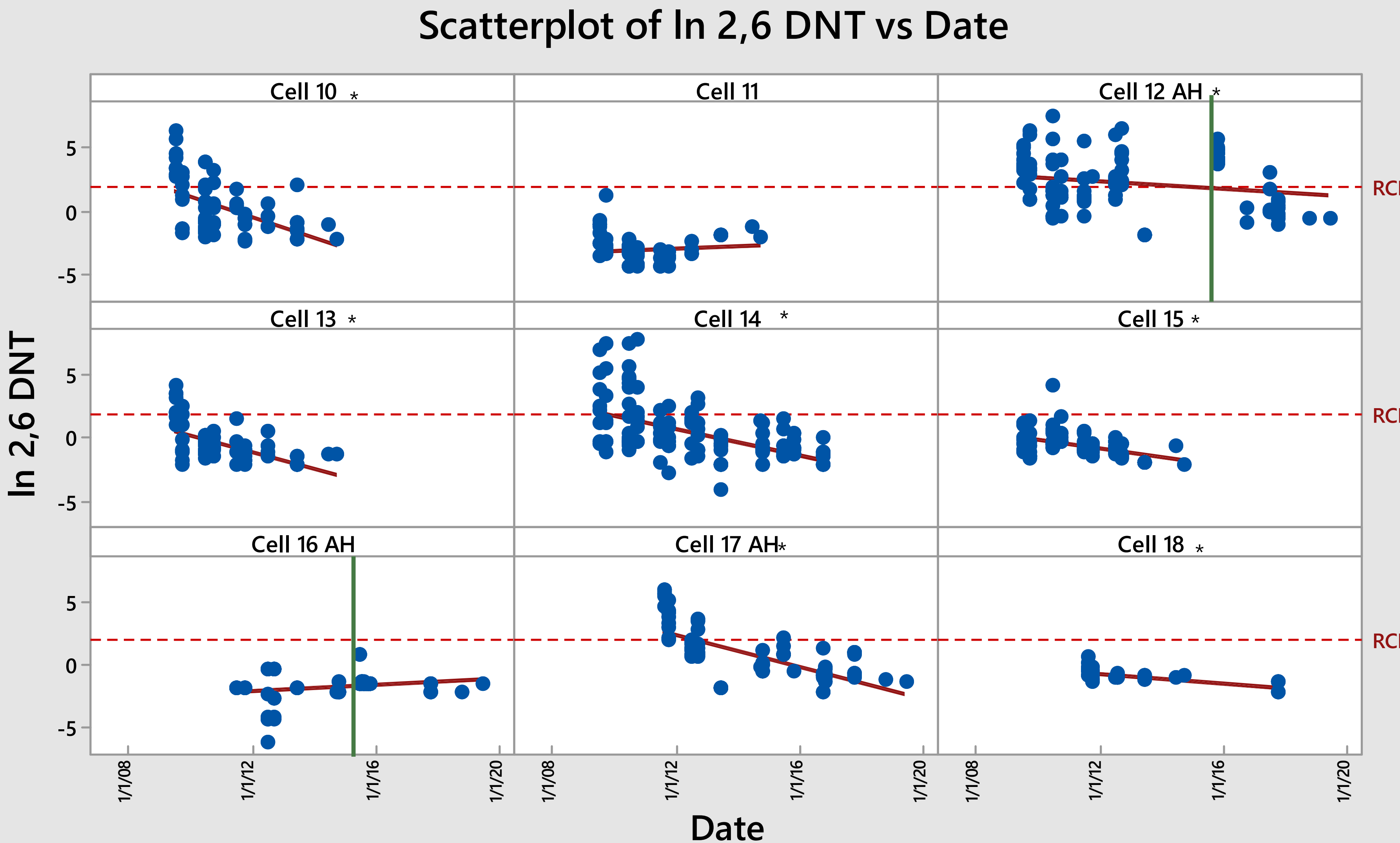
** Indicates a significant reduction over time*



Scatterplot of ln 2,4 DNT vs Date
Cell 19 *
Cell 20 *
Cell 21 AH *
Cell 24 AH *
Cell 25 AH *
Cell 26 AH *
Cell 27 AH
Cell 28 AH
Cell 31 AH *
Cell 33 AH
Cell 35 AH
Cell 36 AH
RCL
RCL
RCL
4
0
-4
1/1/08
1/1/12
1/1/16
1/1/20
ln 2,4 DNT
Date
Vertical green line indicates 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
RCL
RCL
5
0
-5
ln 2,6 DNT
1/1/08
1/1/12
1/1/16
1/1/20
Date
The 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

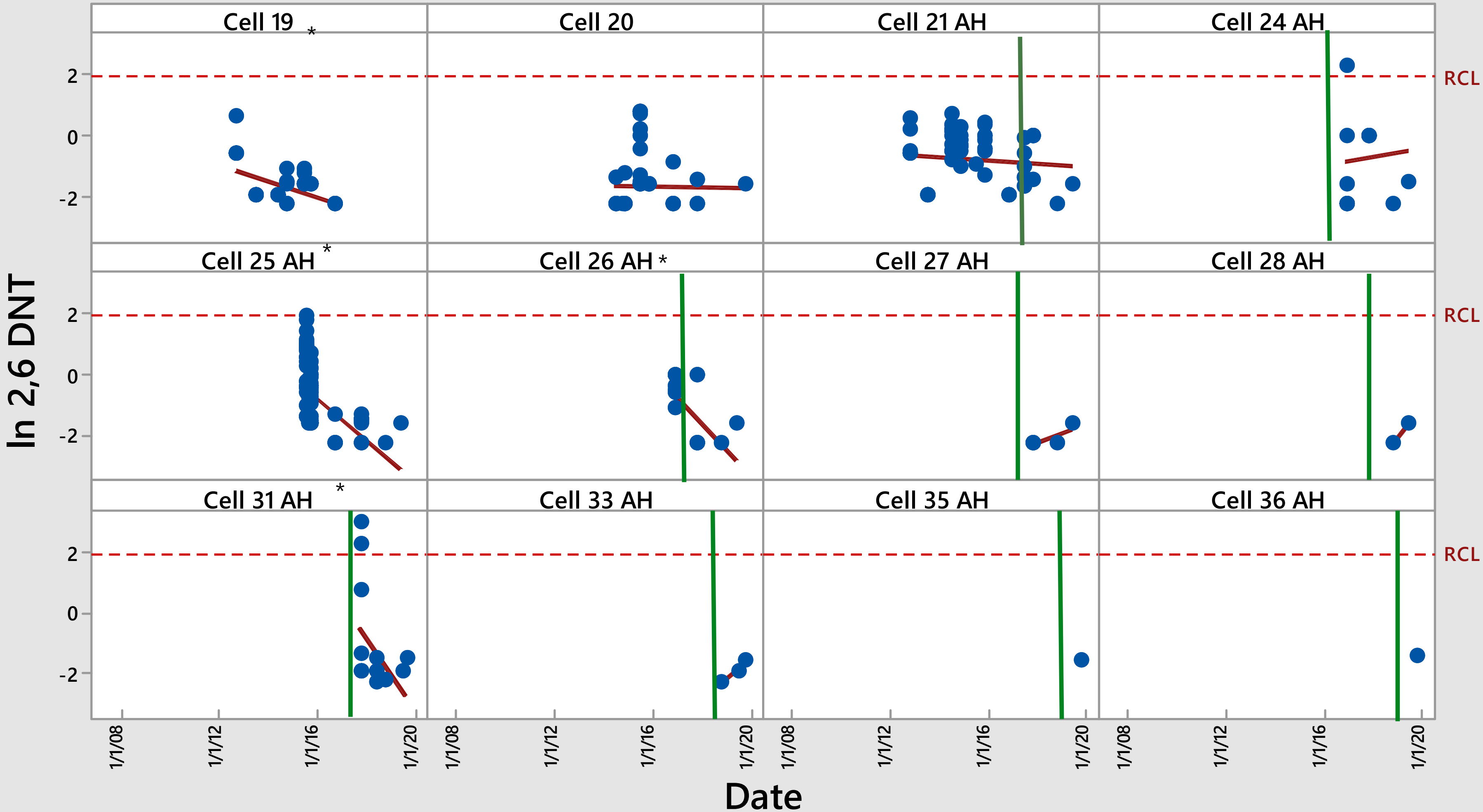


Vertical green line indicates beginning of lime addition

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

** Indicates a significant reduction over time*

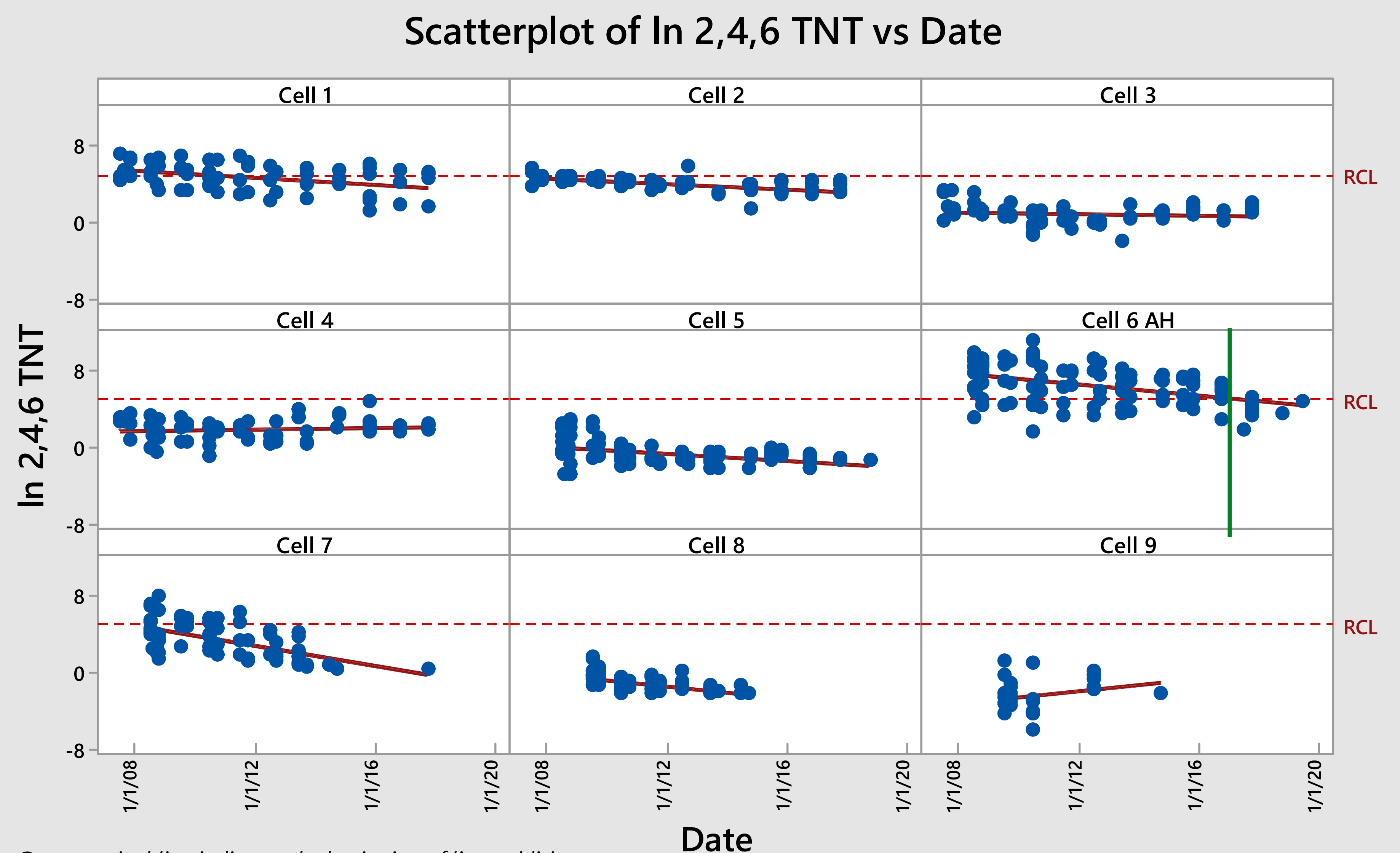
Scatterplot of ln 2,6 DNT vs Date



Vertical green line indicates beginning of lime addition

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

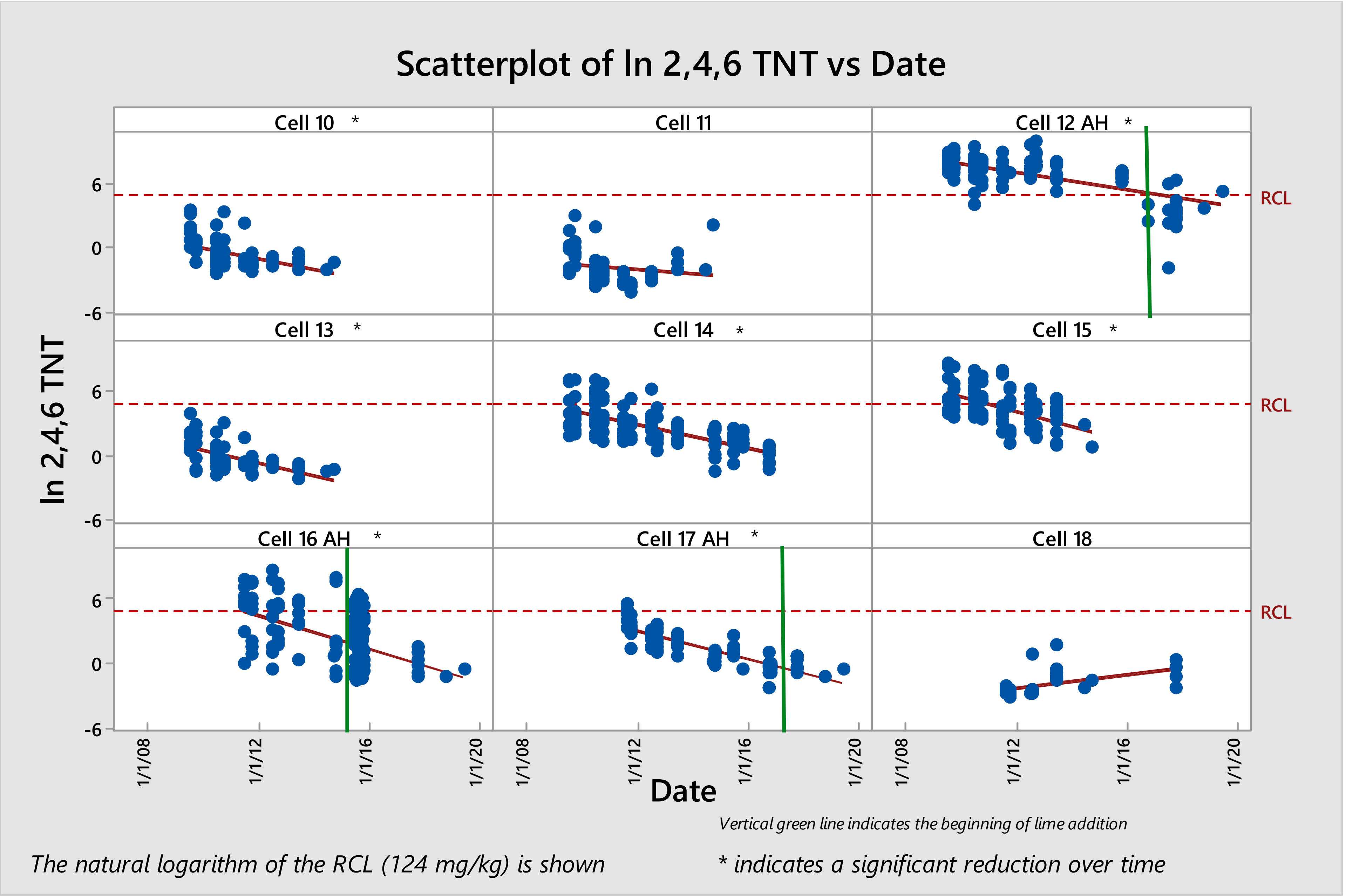
** Indicates a significant reduction over time*



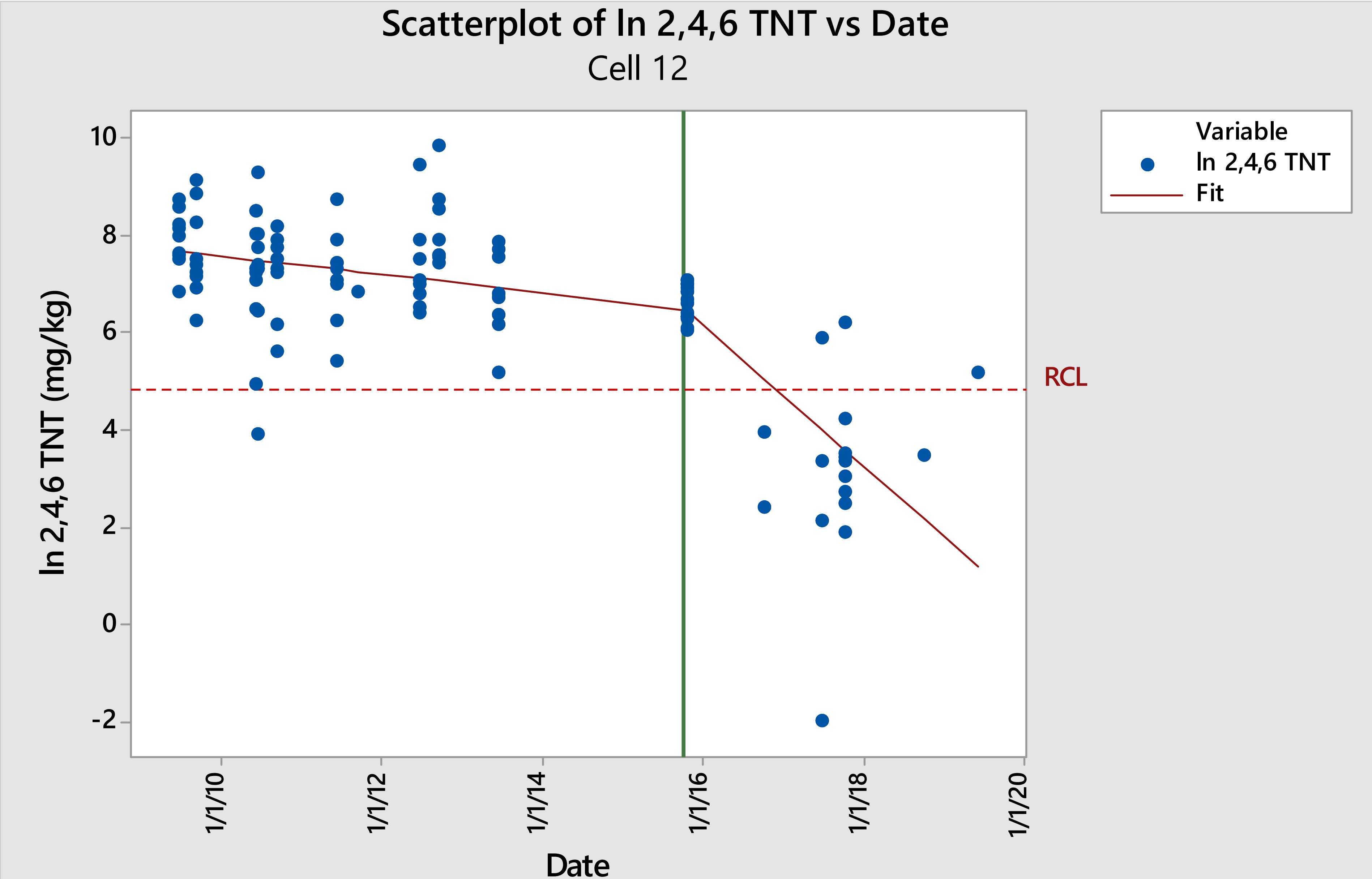
Green vertical line indicates the beginning of lime addition

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

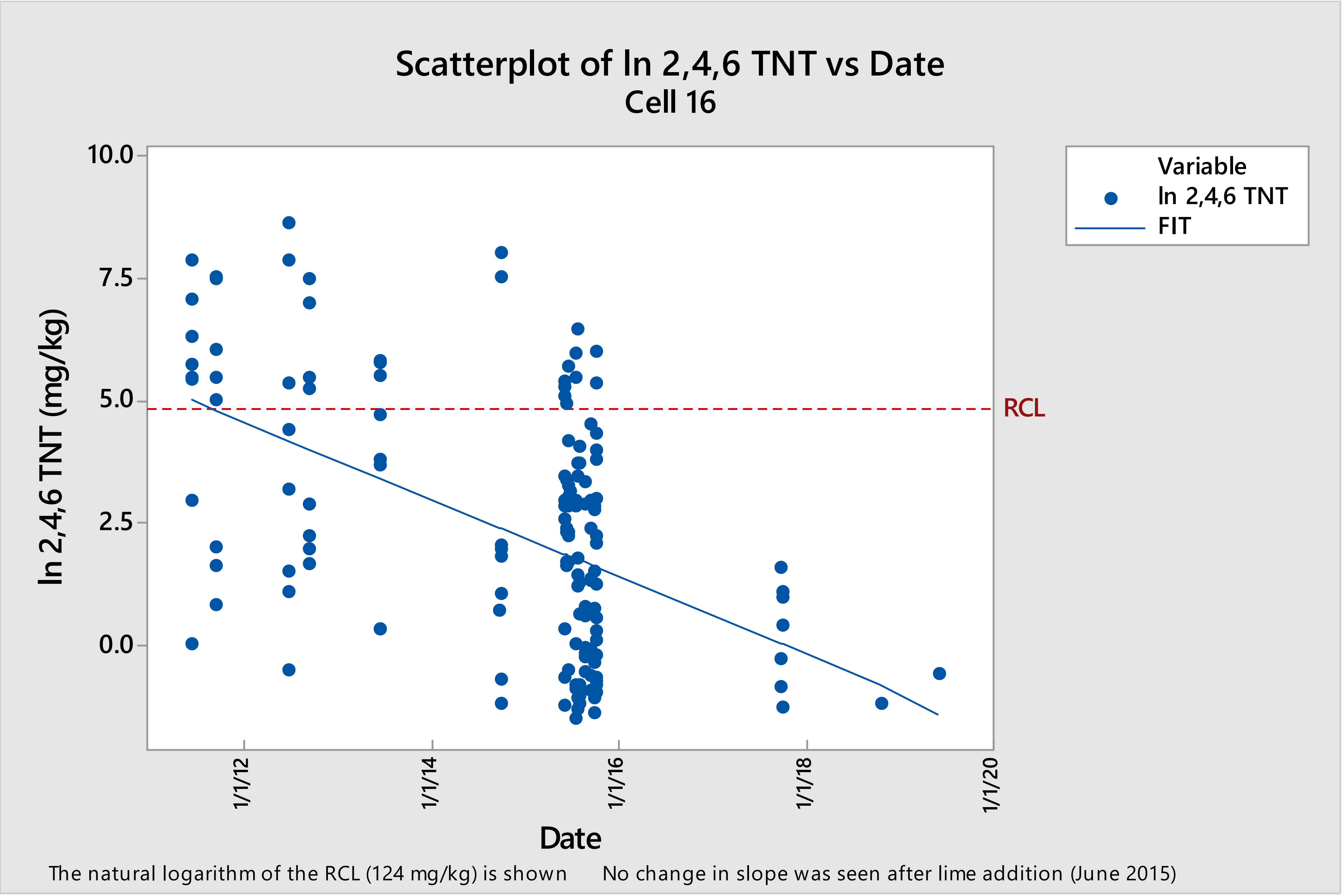
** Indicates a significant reduction over time*



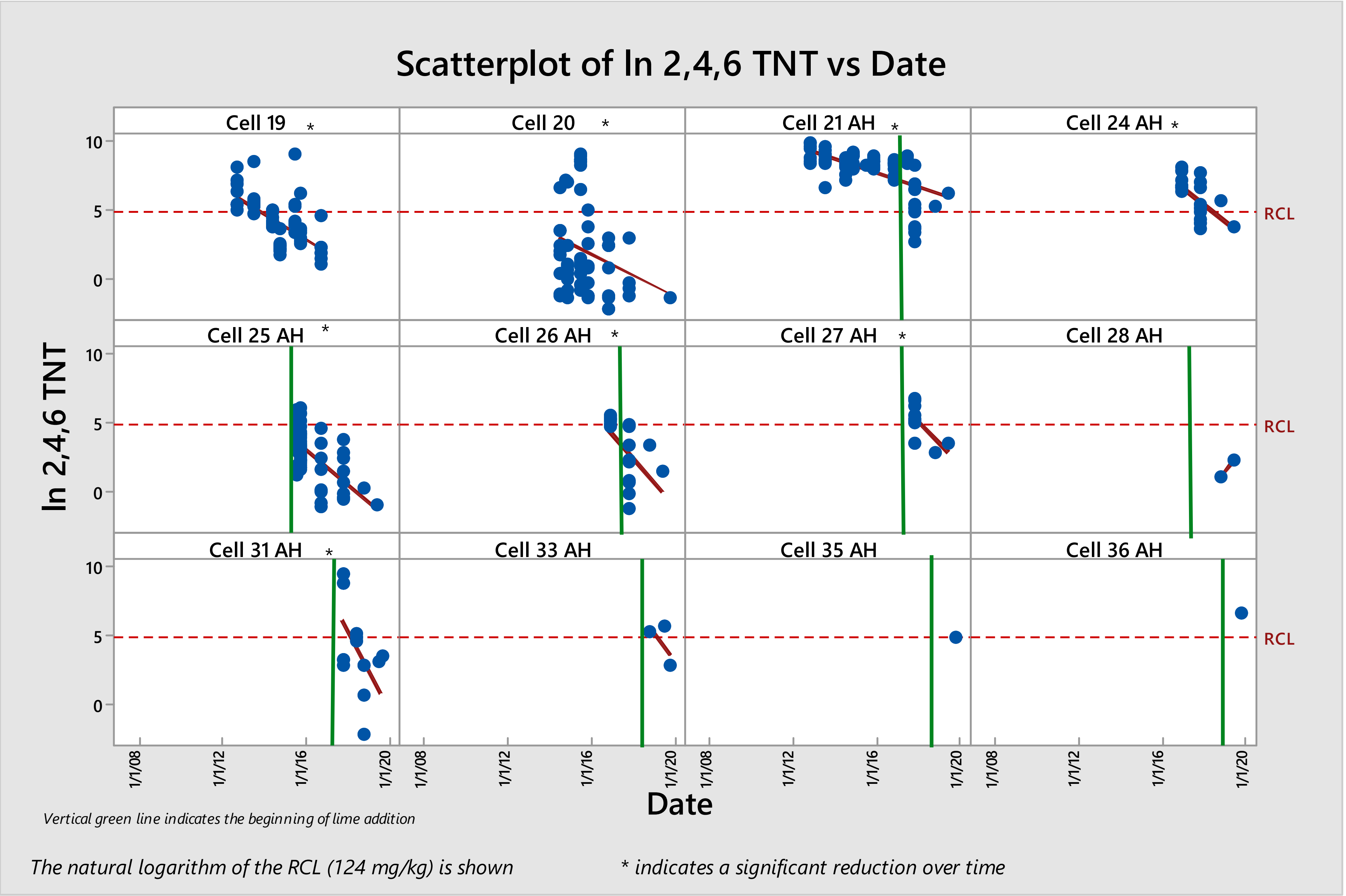
Scatterplot of ln 2,4,6 TNT vs Date
Cell 10 *
Cell 11
Cell 12 AH *
Cell 13 *
Cell 14 *
Cell 15 *
Cell 16 AH *
Cell 17 AH *
Cell 18
RCL
ln 2,4,6 TNT
6
0
-6
1/1/08
1/1/12
1/1/16
1/1/20
Date
Vertical green line indicates the beginning of lime addition
The natural logarithm of the RCL (124 mg/kg) is shown
* indicates a significant reduction over time



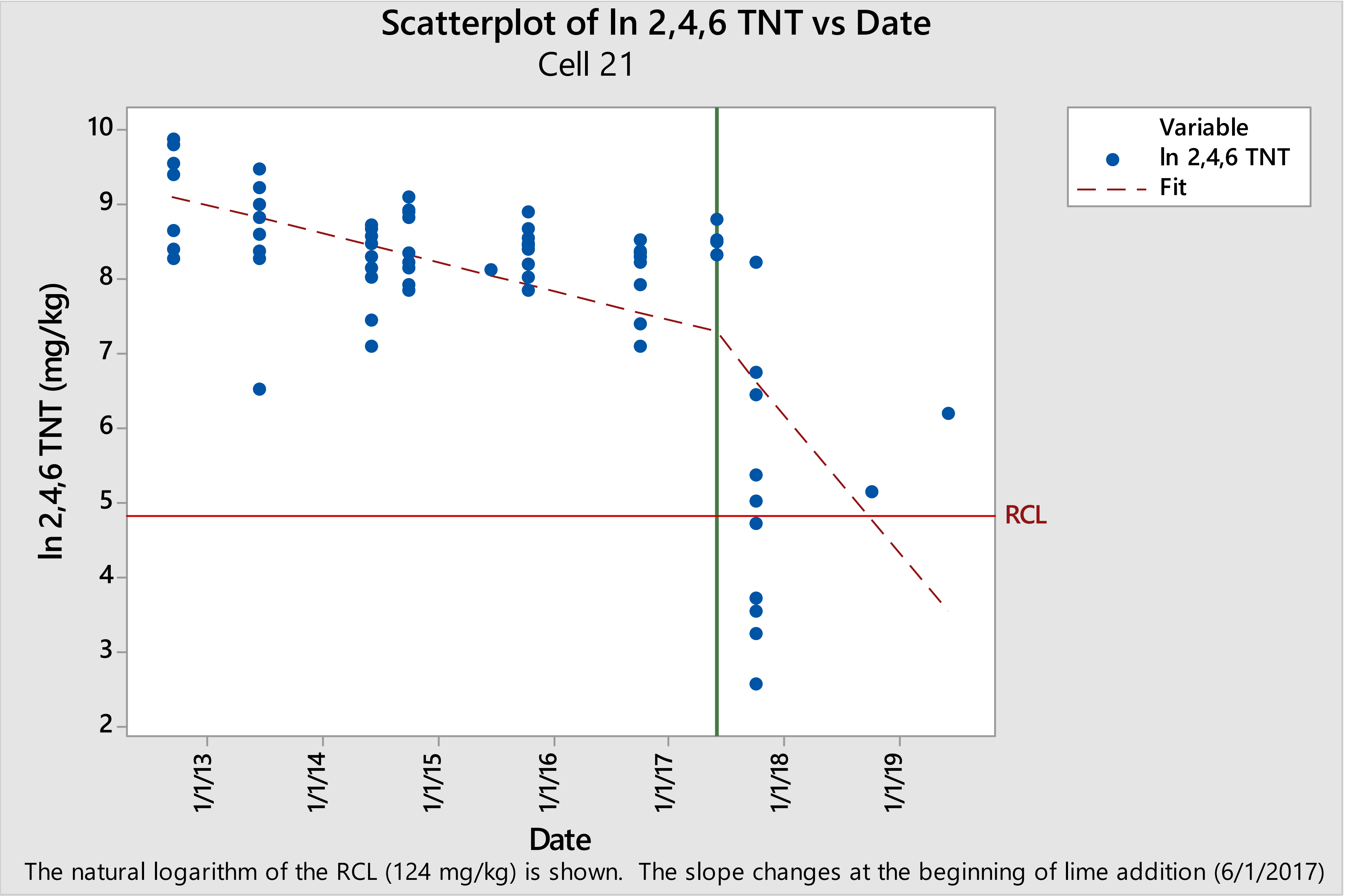
The natural logarithm of the RCL (124 mg/kg) is shown. The slope changes at the beginning of lime addition (10/1/2015)



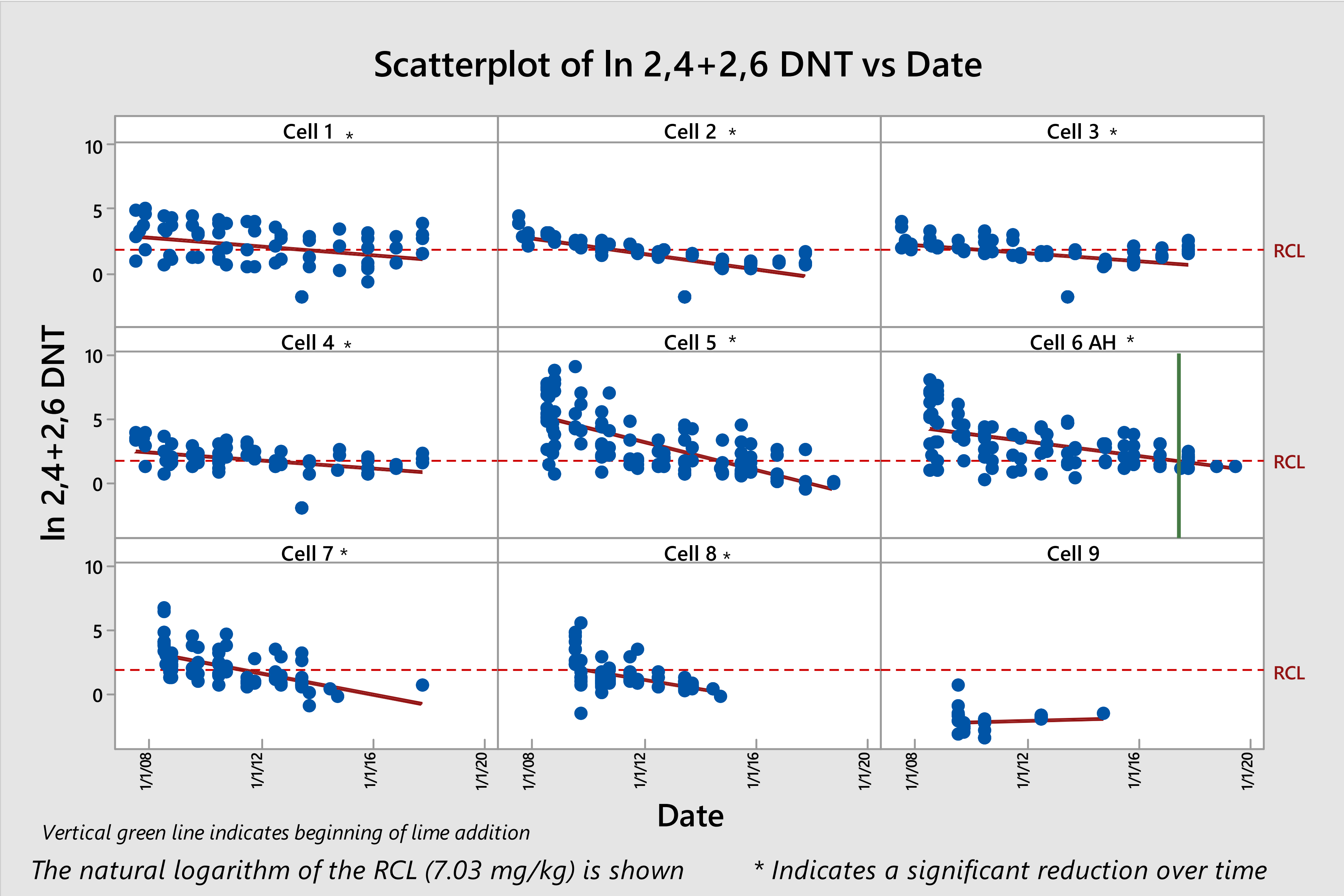
Scatterplot of ln 2,4,6 TNT vs Date
Cell 16
ln 2,4,6 TNT (mg/kg)
10.0
7.5
5.0
2.5
0.0
RCL
Variable
ln 2,4,6 TNT
FIT
1/1/12
1/1/14
1/1/16
1/1/18
1/1/20
Date
The natural logarithm of the RCL (124 mg/kg) is shown
No change in slope was seen after lime addition (June 2015)

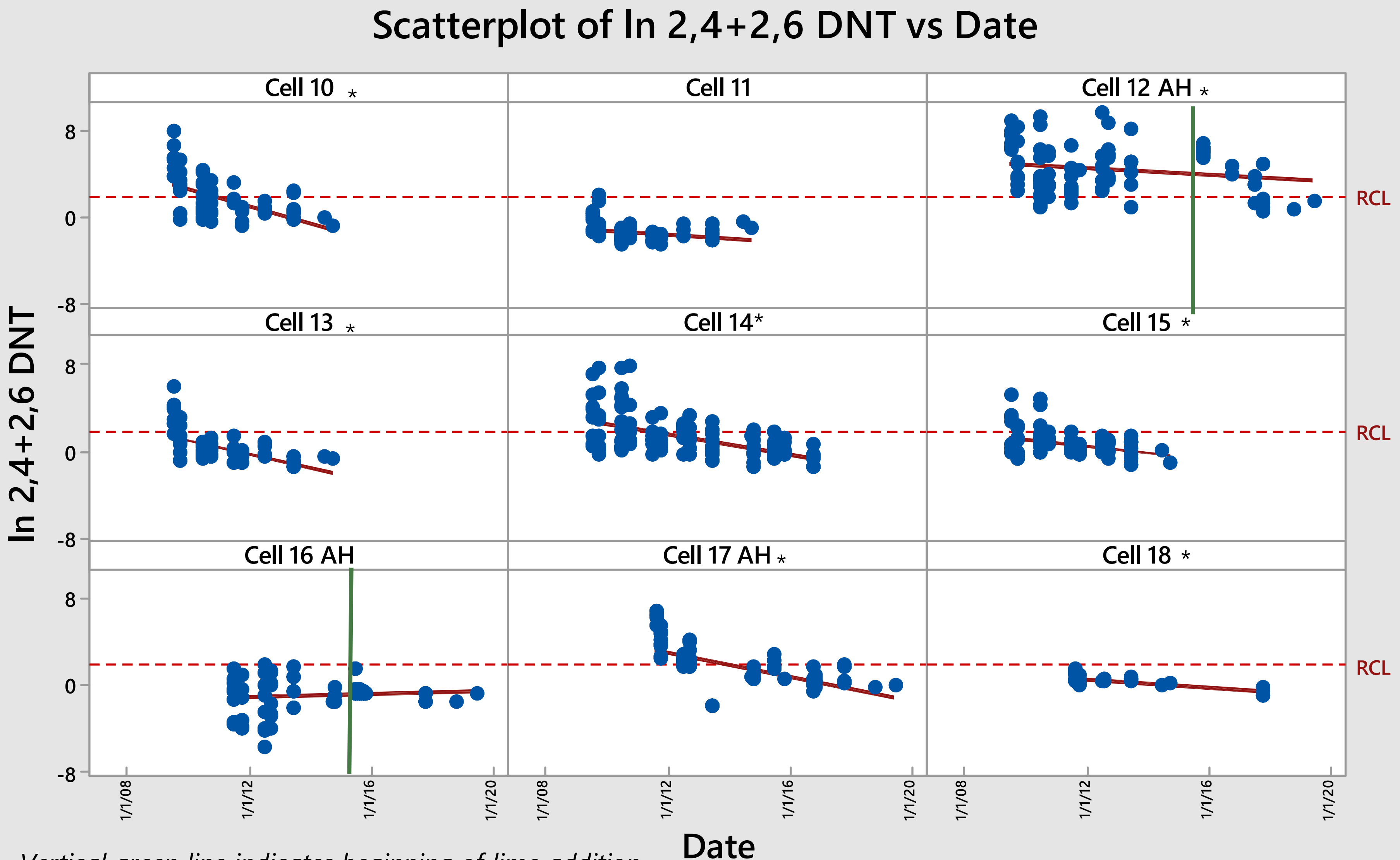


Scatterplot of ln 2,4,6 TNT vs Date
Cell 19 *
Cell 20 *
Cell 21 AH *
Cell 24 AH *
Cell 25 AH *
Cell 26 AH *
Cell 27 AH *
Cell 28 AH
Cell 31 AH *
Cell 33 AH
Cell 35 AH
Cell 36 AH
10
5
0
RCL
ln 2,4,6 TNT
1/1/08
1/1/12
1/1/16
1/1/20
Date
Vertical green line indicates the beginning of lime addition
The natural logarithm of the RCL (124 mg/kg) is shown
* indicates a significant reduction over time



Scatterplot of ln 2,4,6 TNT vs Date
Cell 21
Variable
ln 2,4,6 TNT
Fit
RCL
ln 2,4,6 TNT (mg/kg)
10
9
8
7
6
5
4
3
2
1/1/13
1/1/14
1/1/15
1/1/16
1/1/17
1/1/18
1/1/19
Date
The natural logarithm of the RCL (124 mg/kg) is shown. The slope changes at the beginning of lime addition (6/1/2017)

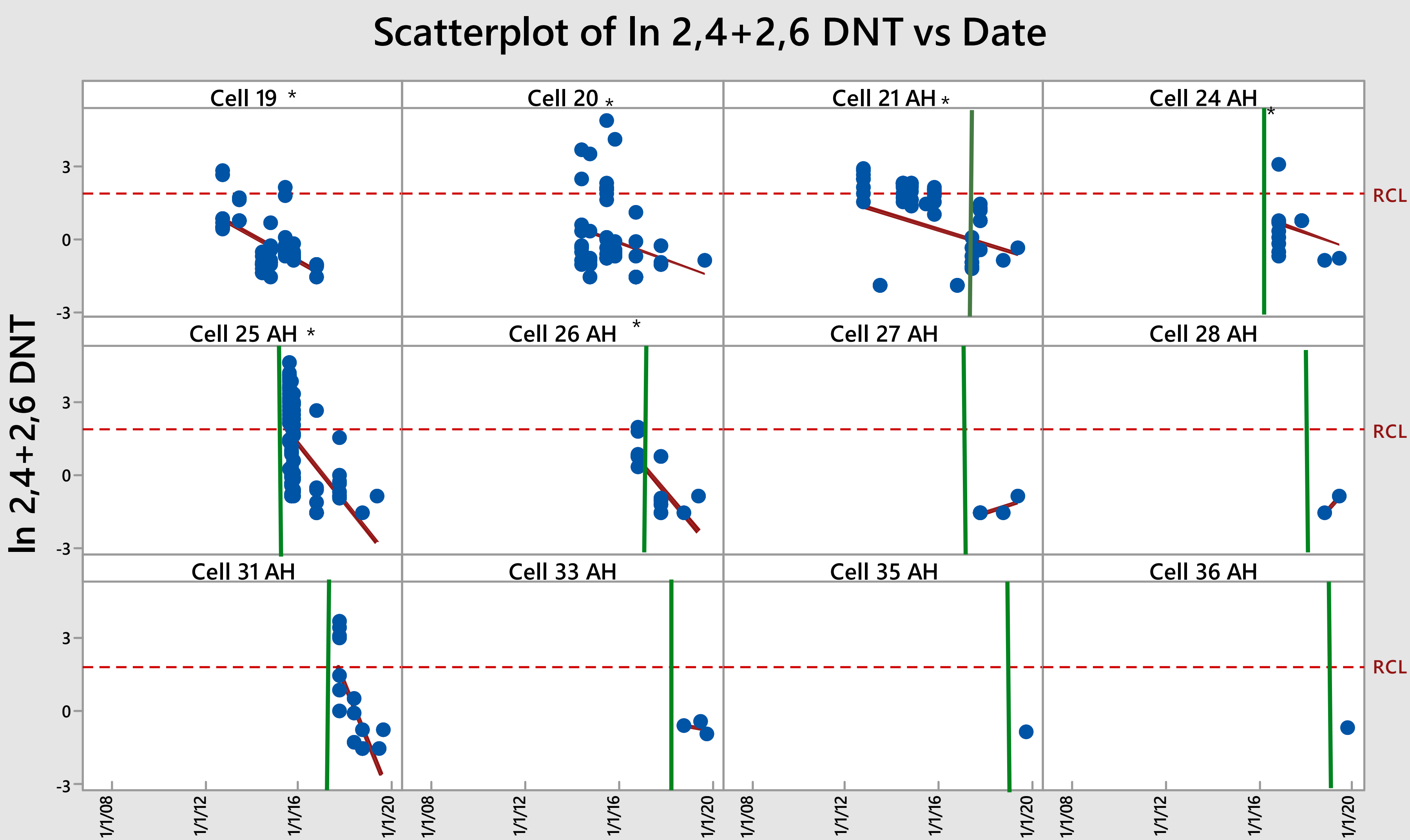

Scatterplot of ln 2,4+2,6 DNT vs Date
Cell 1 *
Cell 2 *
Cell 3 *
Cell 4 *
Cell 5 *
Cell 6 AH *
Cell 7 *
Cell 8 *
Cell 9
10
5
0
RCL
ln 2,4+2,6 DNT
1/1/08
1/1/12
1/1/16
1/1/20
Date
Vertical green line indicates beginning of lime addition
The natural logarithm of the RCL (7.03 mg/kg) is shown
* Indicates a significant reduction over time



Vertical green line indicates beginning of lime addition

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

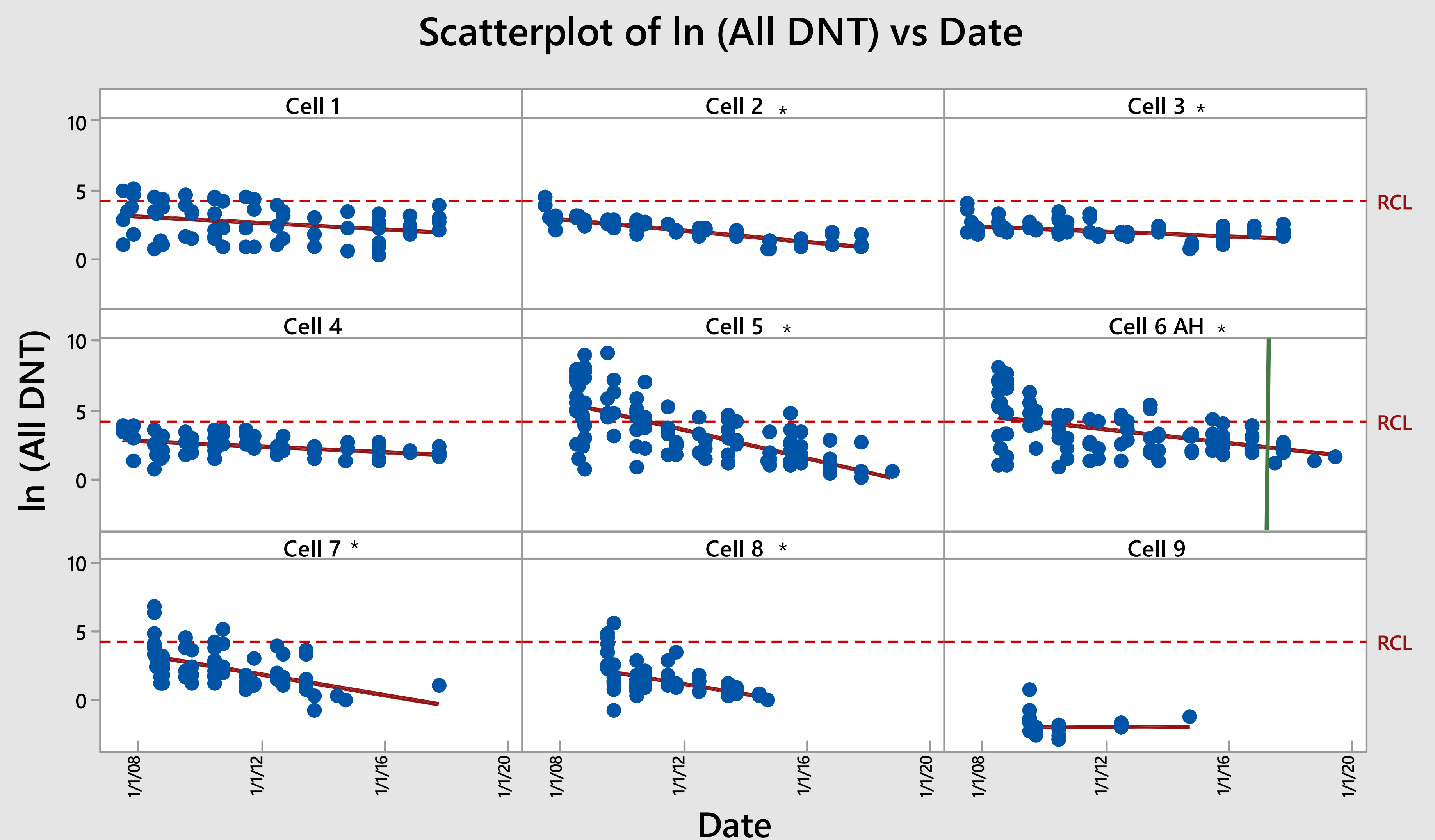
** Indicates a significant reduction over time*



Vertical green line indicates beginning of lime addition

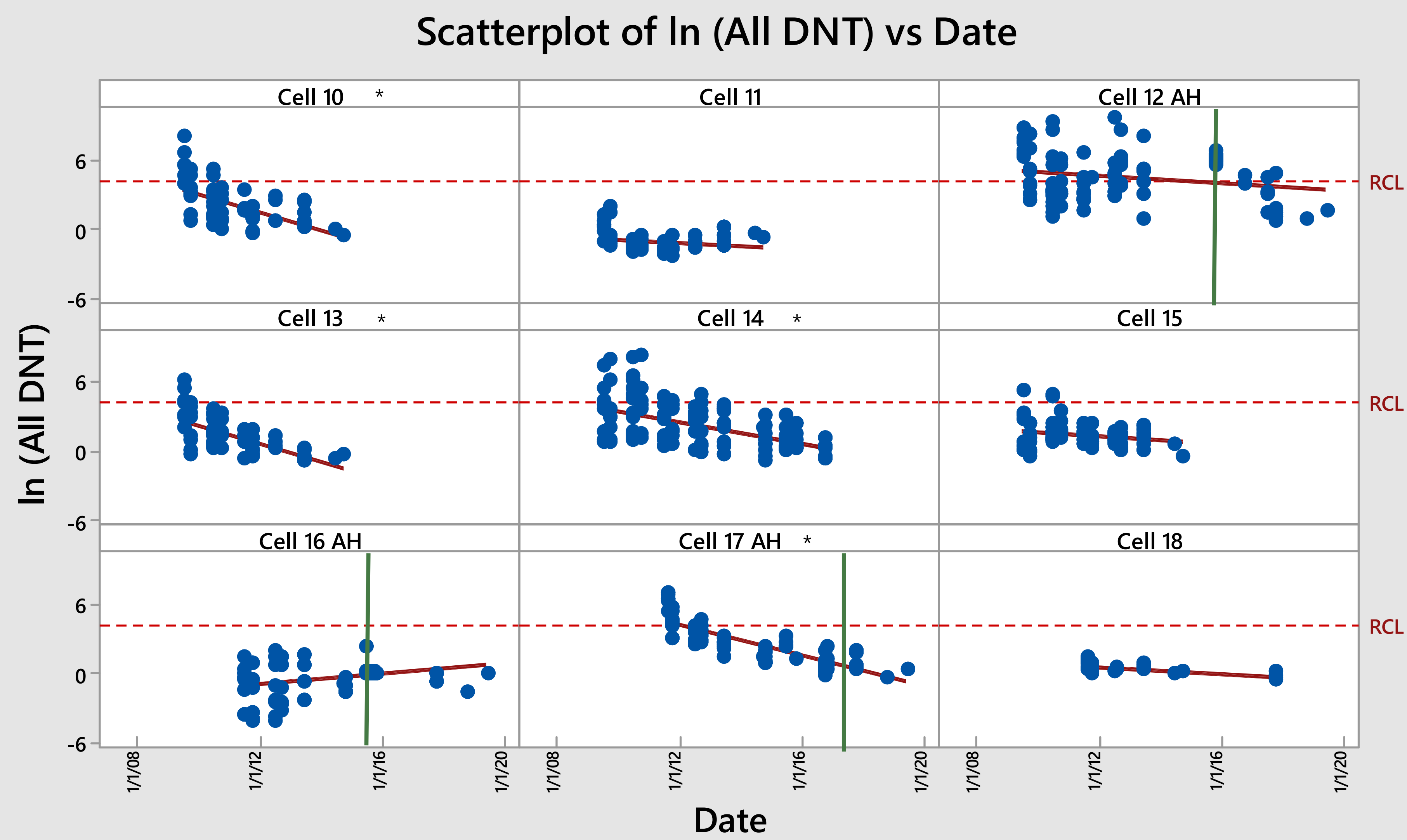
The natural logarithm of the RCL (7.03 mg/kg) is shown

** Indicates a significant reduction over time*

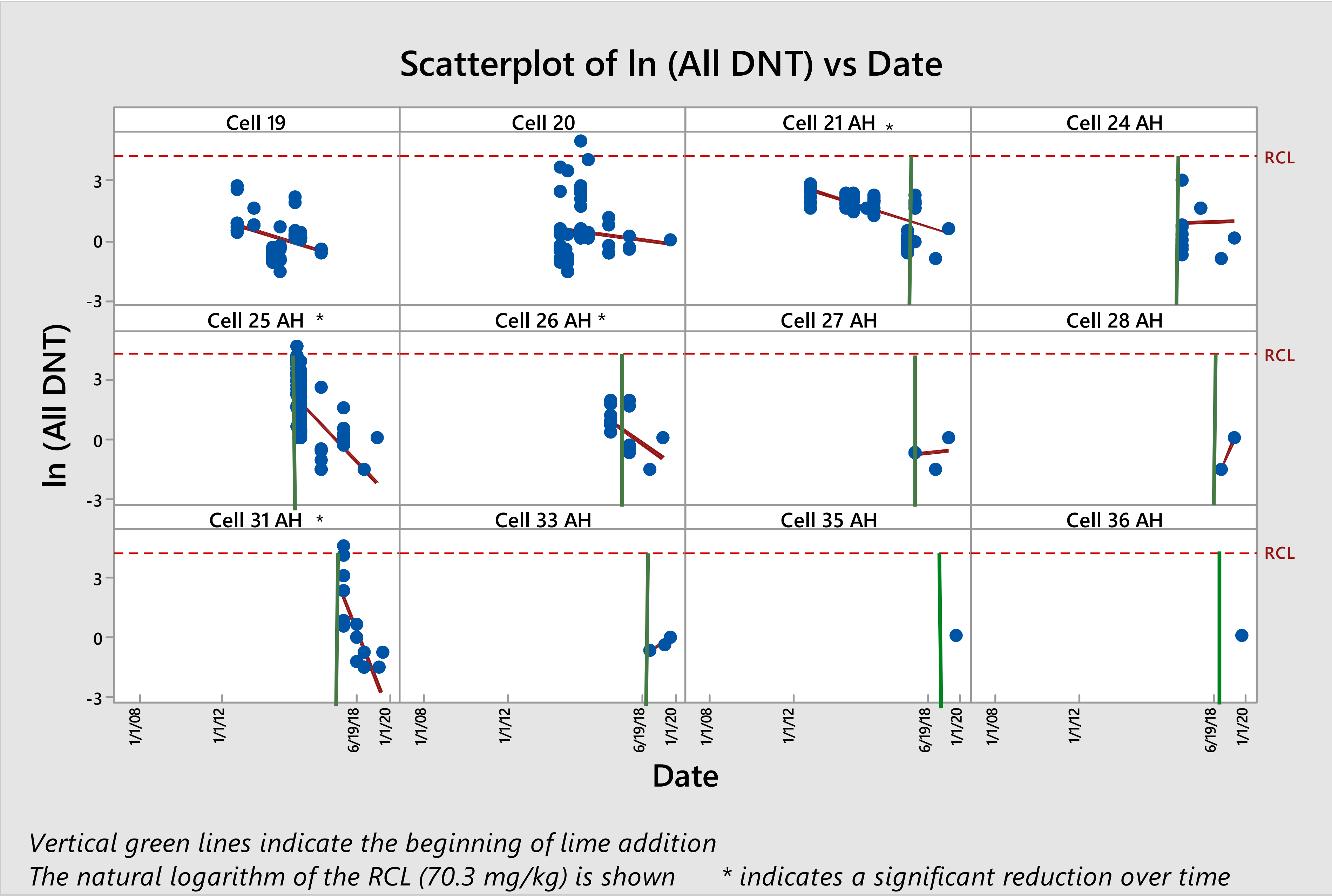


Green vertical line indicates the beginning of lime addition

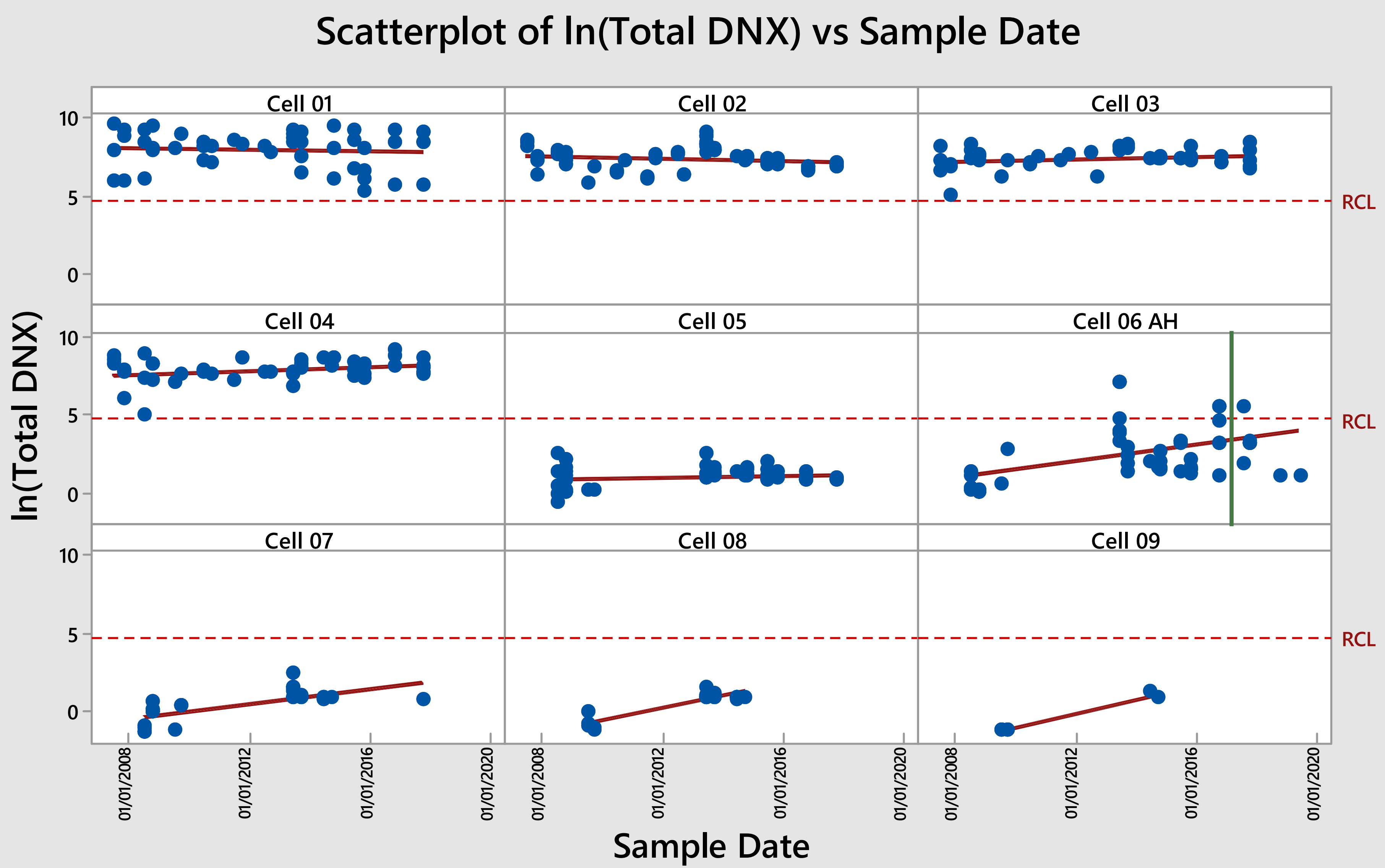
The logarithm of the RCL (70.3 mg/kg) is shown   ** indicates a significant reduction over time*



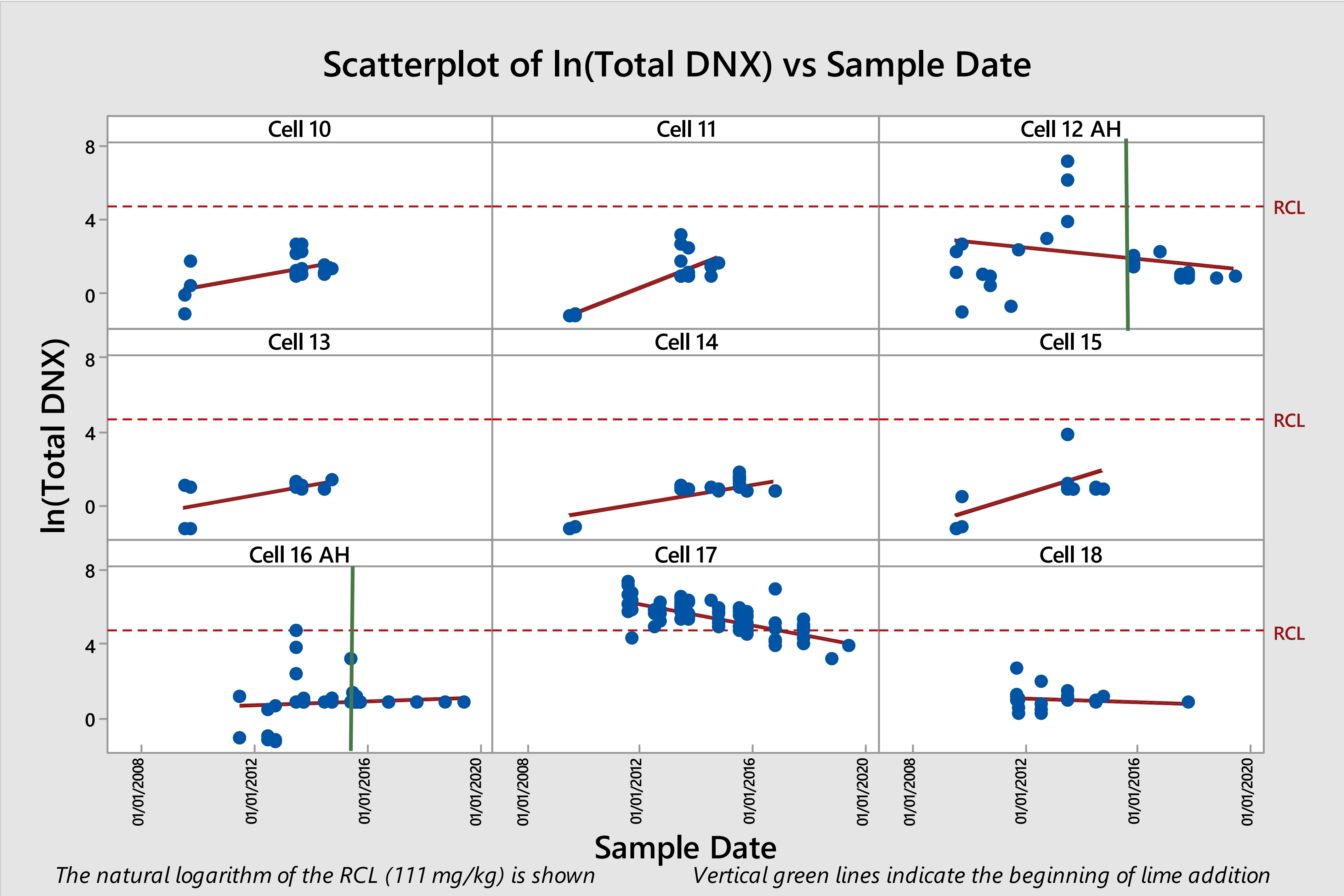
Vertical green line indicates the beginning of lime addition
The logarithm of the RCL (70.3 mg/kg) is shown ** indicates significant reduction over time*



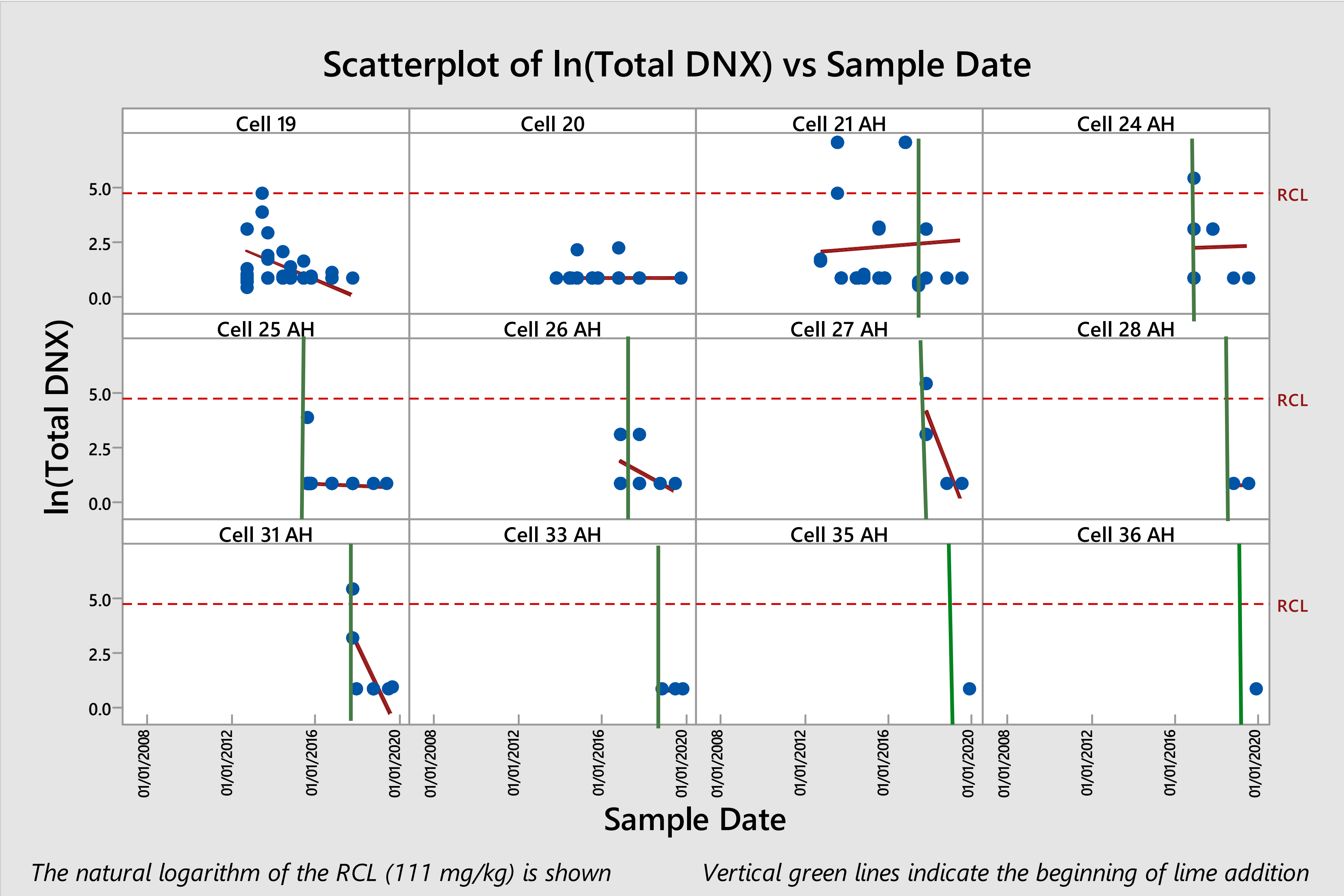
Scatterplot of ln (All DNT) vs Date
Cell 19
Cell 20
Cell 21 AH *
Cell 24 AH
Cell 25 AH *
Cell 26 AH *
Cell 27 AH
Cell 28 AH
Cell 31 AH *
Cell 33 AH
Cell 35 AH
Cell 36 AH
RCL
3
0
-3
1/1/08
1/1/12
6/19/18
1/1/20
ln (All DNT)
Date
Vertical green lines indicate the beginning of lime addition
The natural logarithm of the RCL (70.3 mg/kg) is shown
* indicates a significant reduction over time



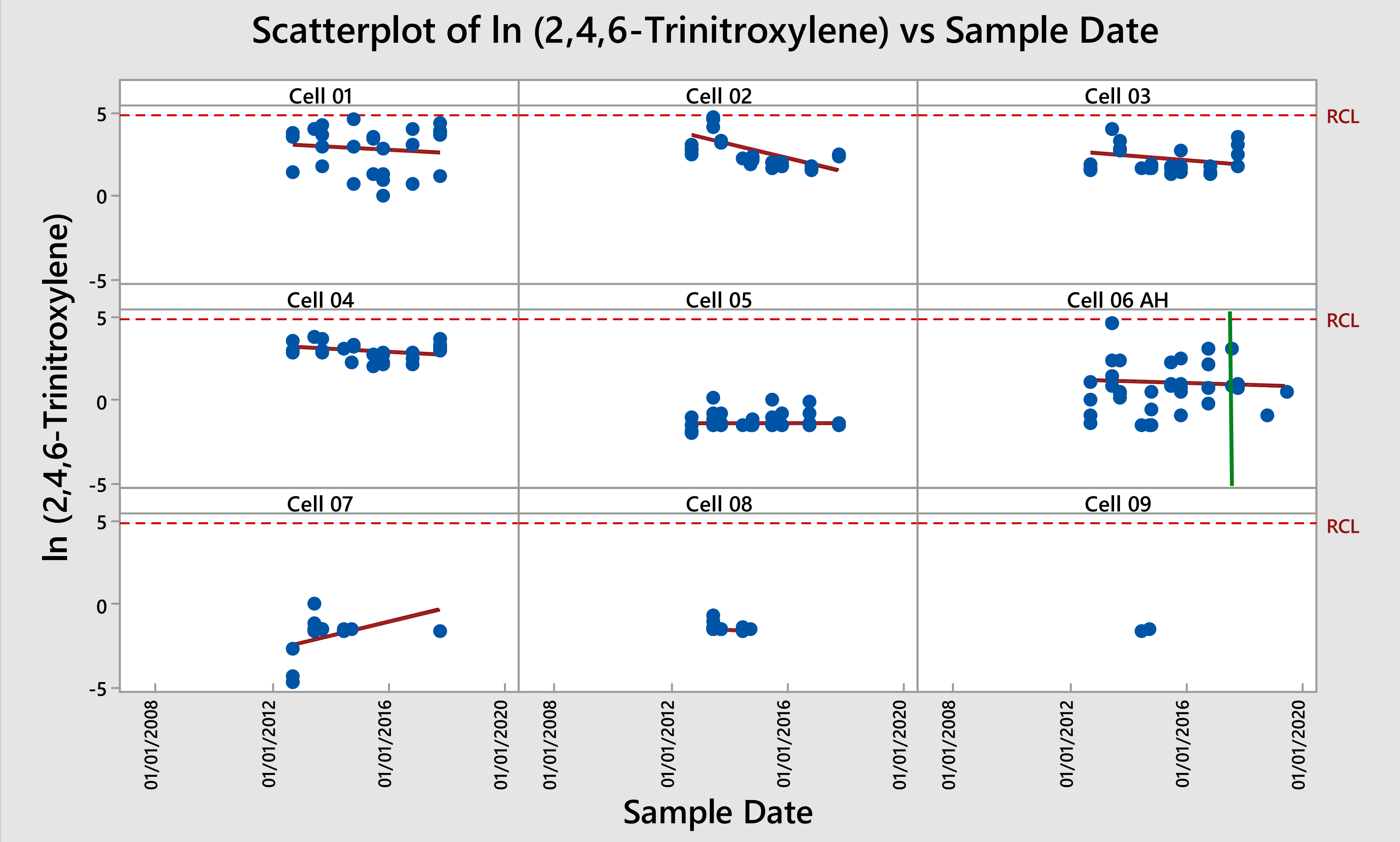
The natural logarithm of the RCL (111 mg/kg) is shown   *Vertical green line indicates the beginning of lime addition*



Scatterplot of ln(Total DNX) vs Sample Date
Cell 10
Cell 11
Cell 12 AH
Cell 13
Cell 14
Cell 15
Cell 16 AH
Cell 17
Cell 18
RCL
ln(Total DNX)
0
4
8
01/01/2008
01/01/2012
01/01/2016
01/01/2020
Sample Date
The natural logarithm of the RCL (111 mg/kg) is shown
Vertical green lines indicate the beginning of lime addition

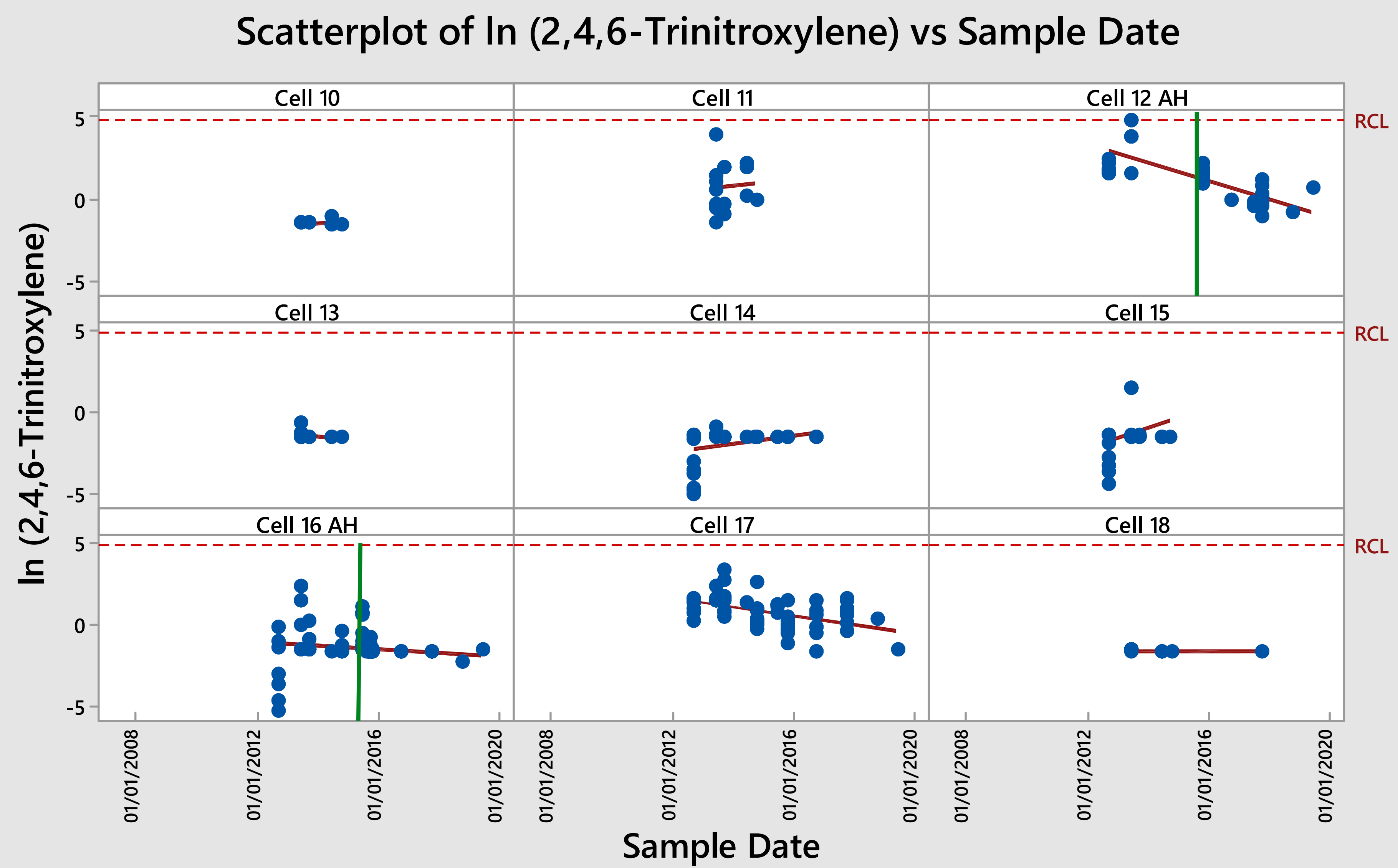


Scatterplot of ln(Total DNX) vs Sample Date
Cell 19
Cell 20
Cell 21 AH
Cell 24 AH
Cell 25 AH
Cell 26 AH
Cell 27 AH
Cell 28 AH
Cell 31 AH
Cell 33 AH
Cell 35 AH
Cell 36 AH
RCL
0.0
2.5
5.0
ln(Total DNX)
01/01/2008
01/01/2012
01/01/2016
01/01/2020
Sample Date
The natural logarithm of the RCL (111 mg/kg) is shown
Vertical green lines indicate the beginning of lime addition

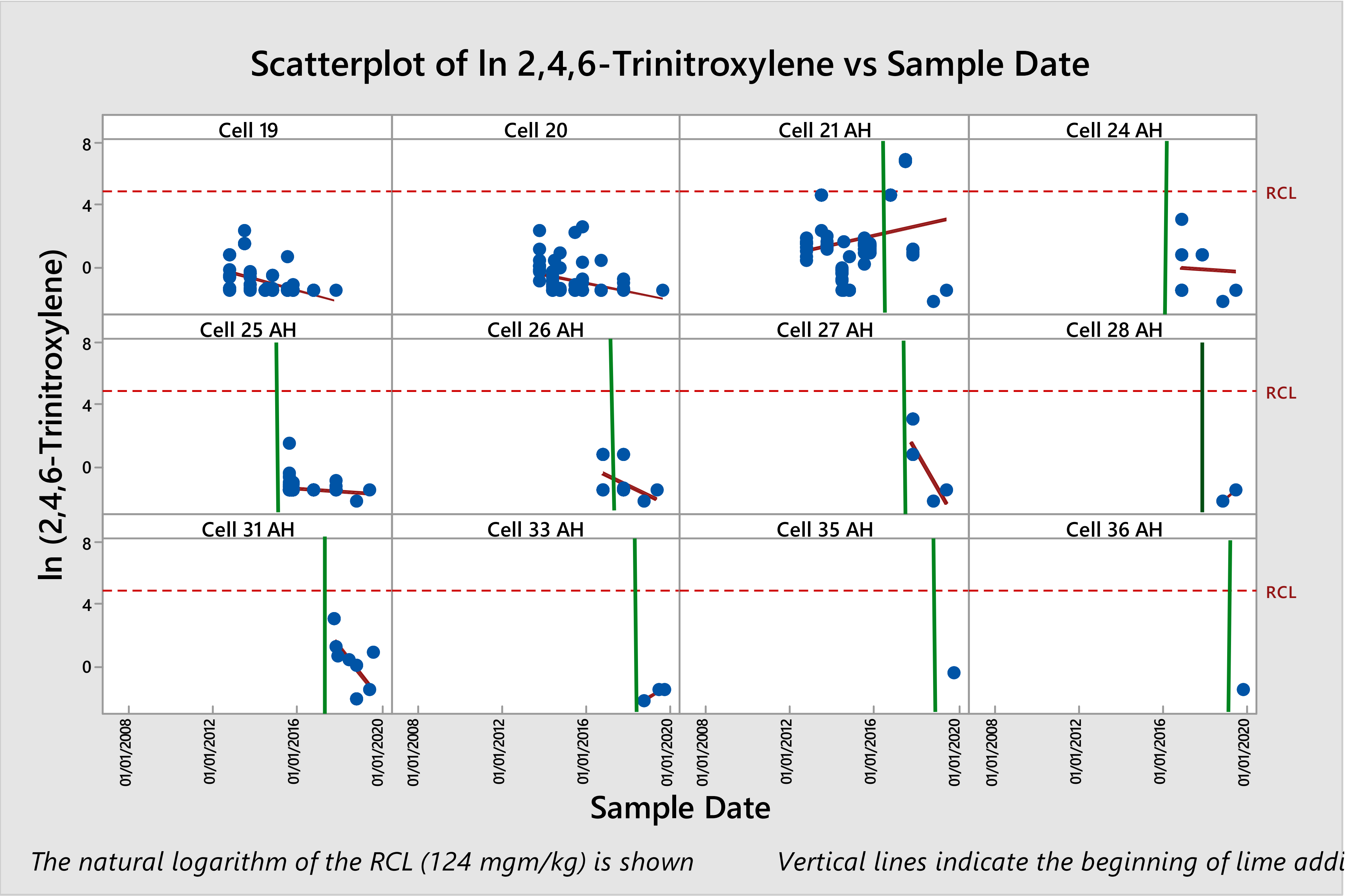


The logarithm of the RCL (124 mg/kg) is shown

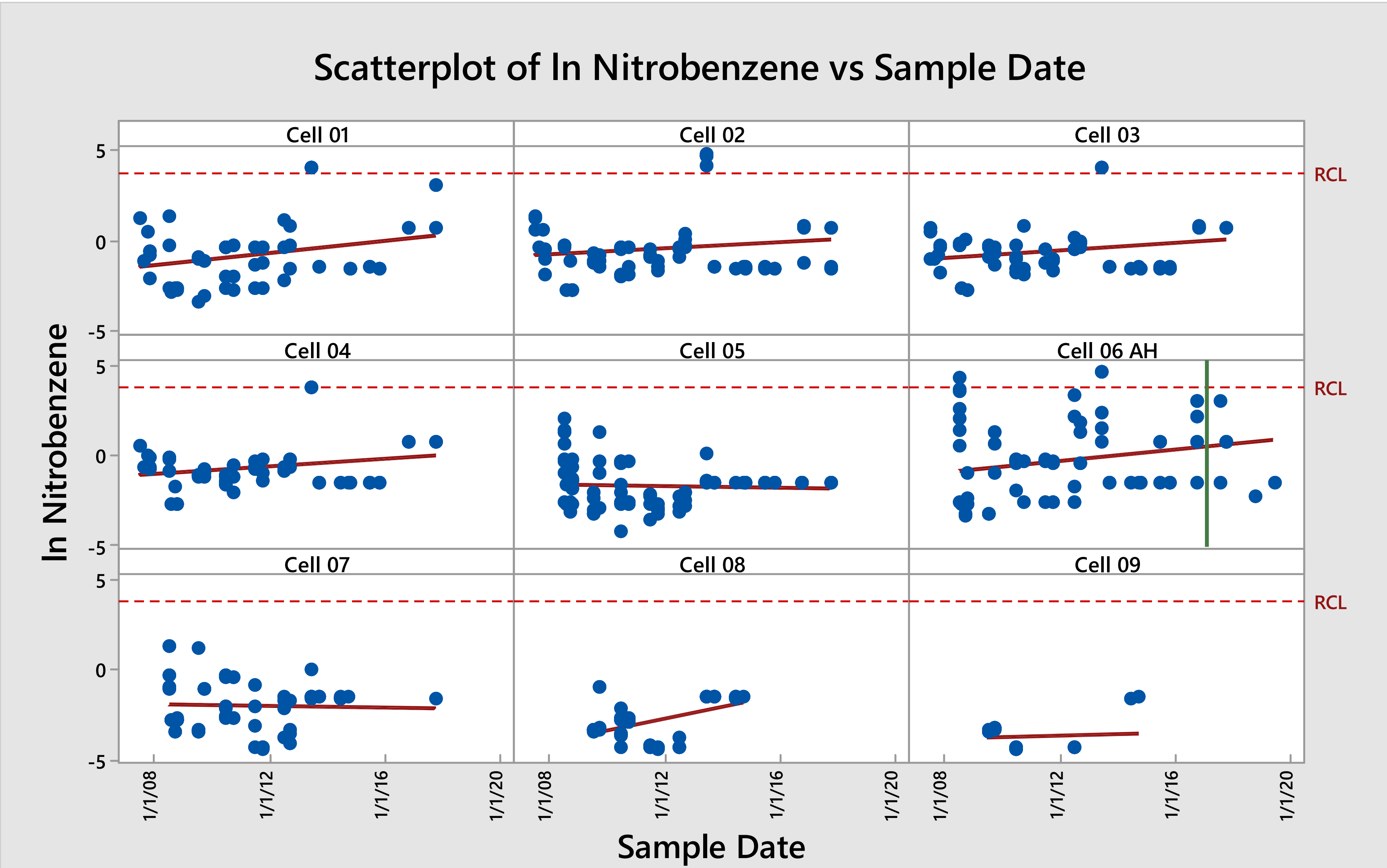
Vertical green lines indicate the beginning of lime addition



The natural logarithm of the RCL (124 mgm/kg) is shown *Vertical lines indicate the beginning of lime addi*

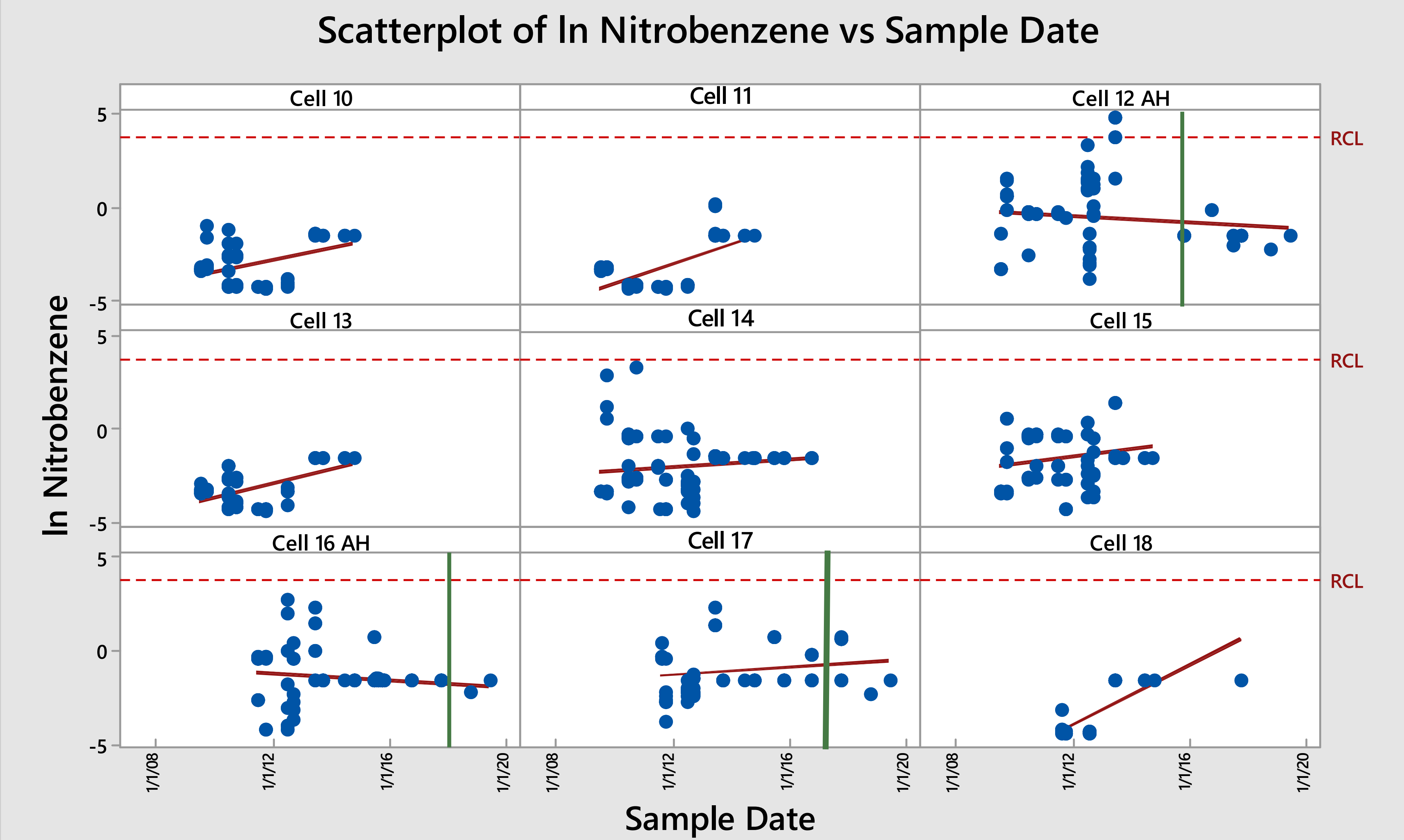


Scatterplot of ln 2,4,6-Trinitroxylene vs Sample Date
Cell 19
Cell 20
Cell 21 AH
Cell 24 AH
Cell 25 AH
Cell 26 AH
Cell 27 AH
Cell 28 AH
Cell 31 AH
Cell 33 AH
Cell 35 AH
Cell 36 AH
RCL
8
4
0
ln (2,4,6-Trinitroxylene)
01/01/2008
01/01/2012
01/01/2016
01/01/2020
Sample Date
The natural logarithm of the RCL (124 mgm/kg) is shown
Vertical lines indicate the beginning of lime addi



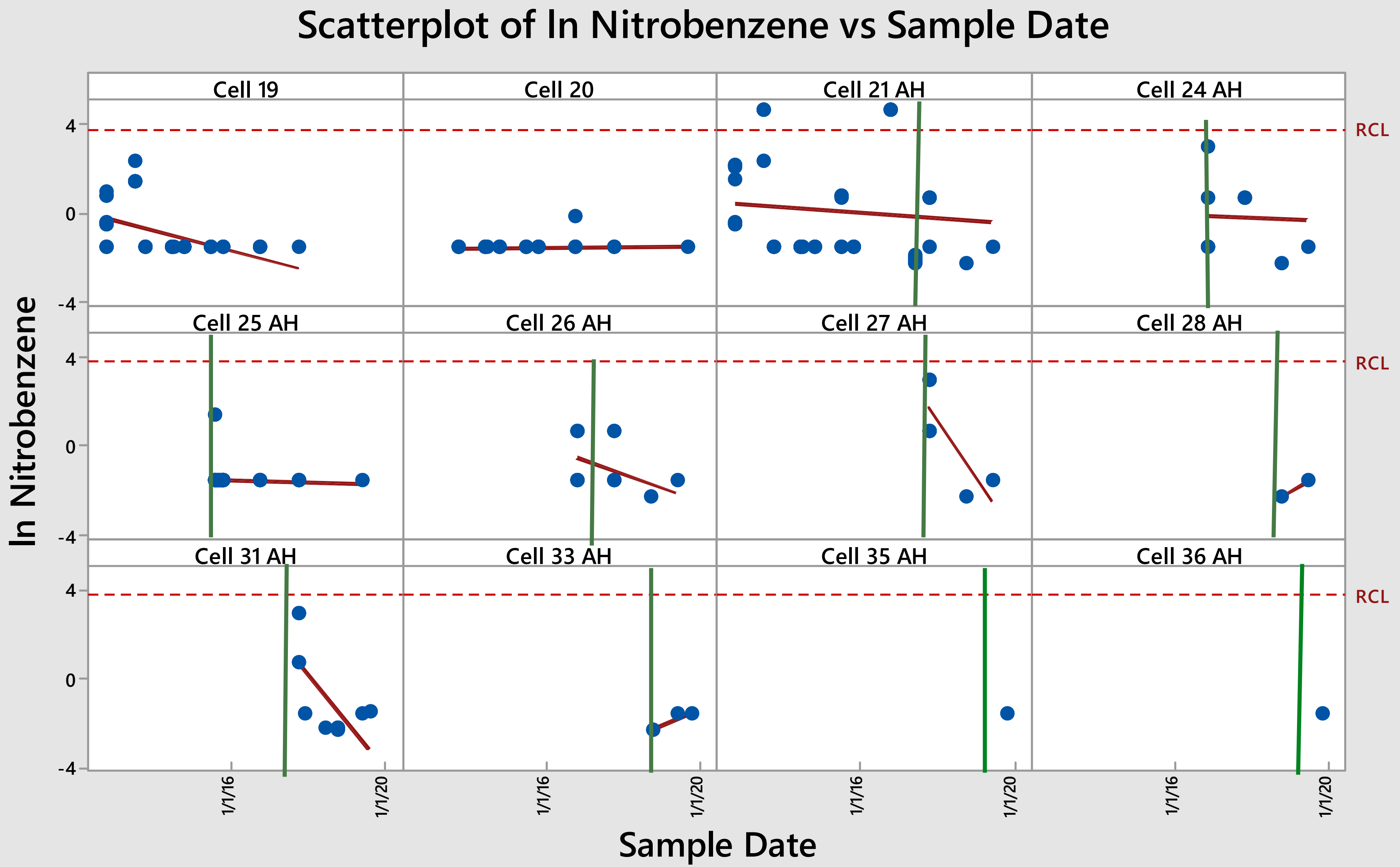
The logarithm of the RCL (43.2 mg/kg) is shown

Vertical green line indicates the beginnin of lime addition



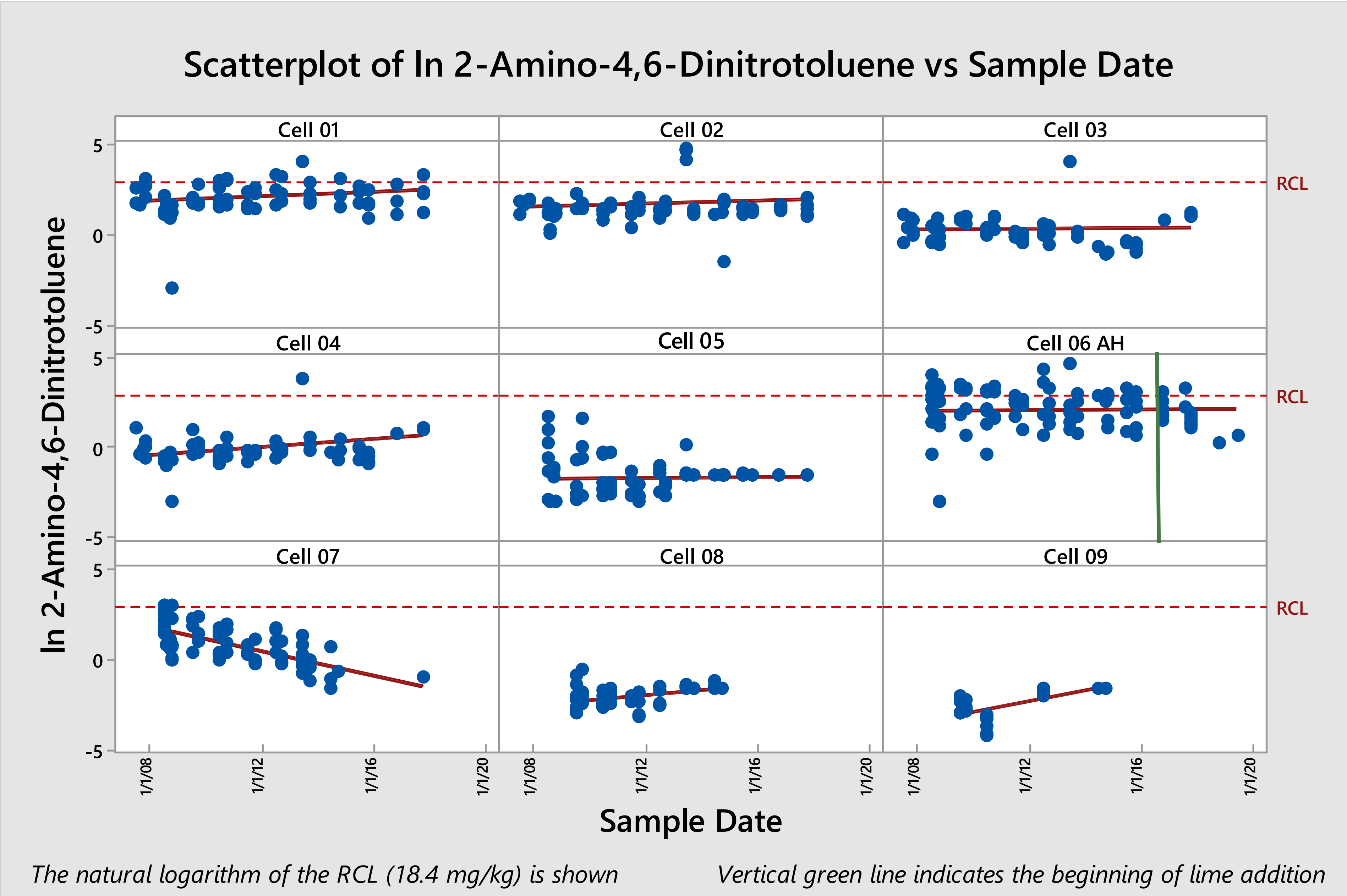
The natural logarithm of the RCL (43.2 mg/kg) is shown

Vertical green lines indicate the beginning of lime addition

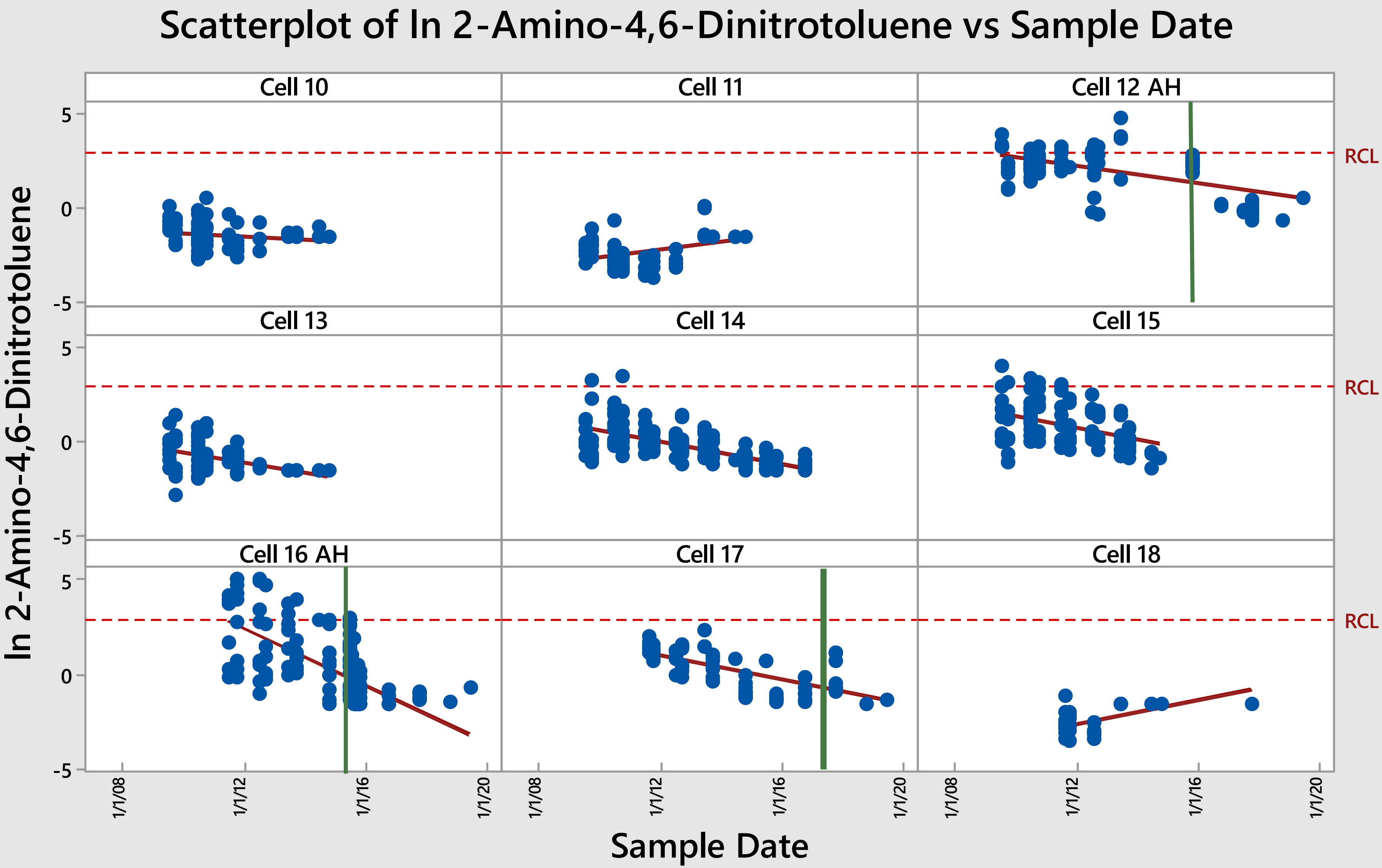


The natural logarithm of the RCL (43.2 mg/kg) is shown

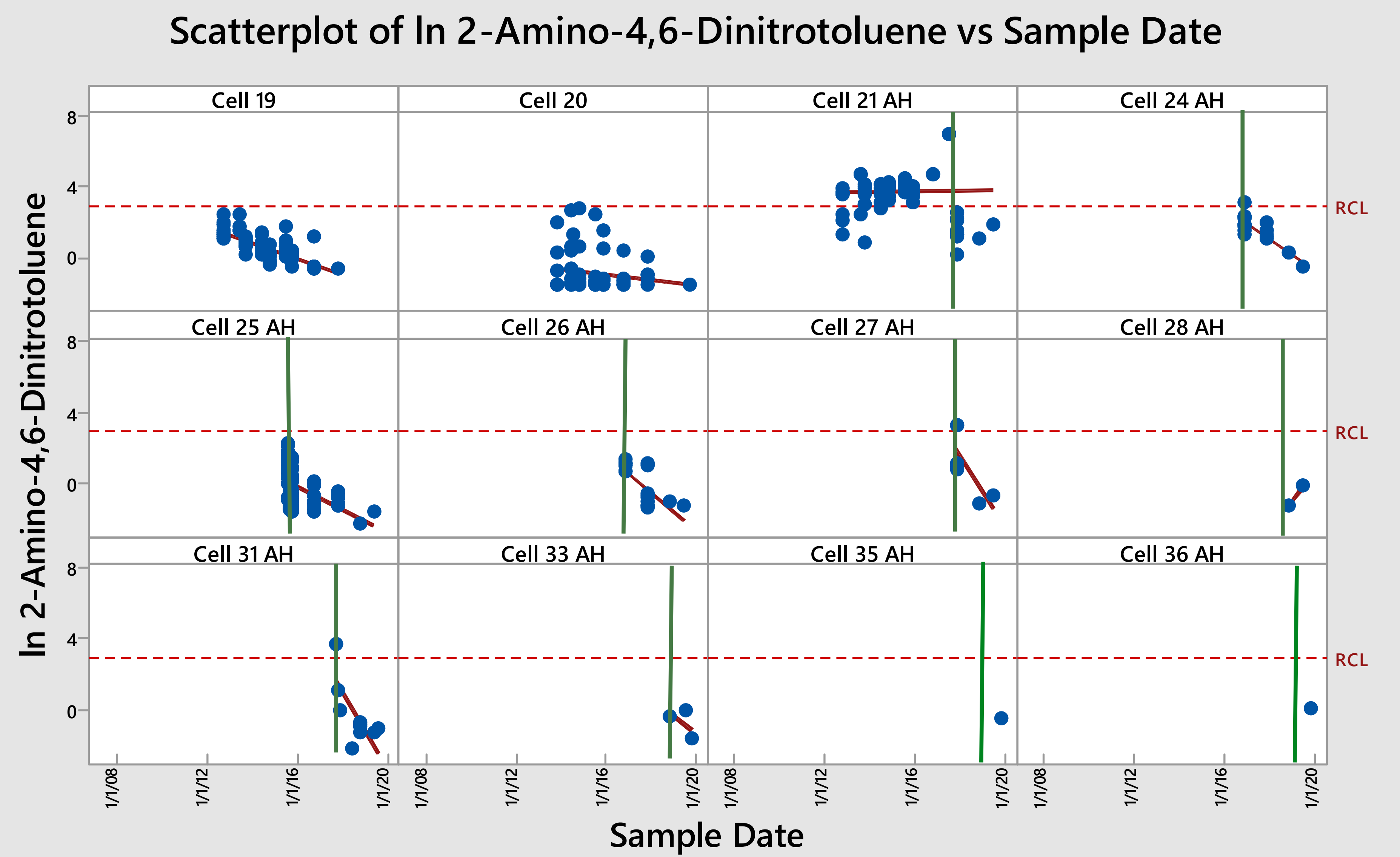
Vertical green lines indicate the beginning of lime addition



Scatterplot of ln 2-Amino-4,6-Dinitrotoluene vs Sample Date
Cell 01
Cell 02
Cell 03
Cell 04
Cell 05
Cell 06 AH
Cell 07
Cell 08
Cell 09
RCL
5
0
-5
1/1/08
1/1/12
1/1/16
1/1/20
ln 2-Amino-4,6-Dinitrotoluene
Sample Date
The natural logarithm of the RCL (18.4 mg/kg) is shown
Vertical green line indicates the beginning of lime addition

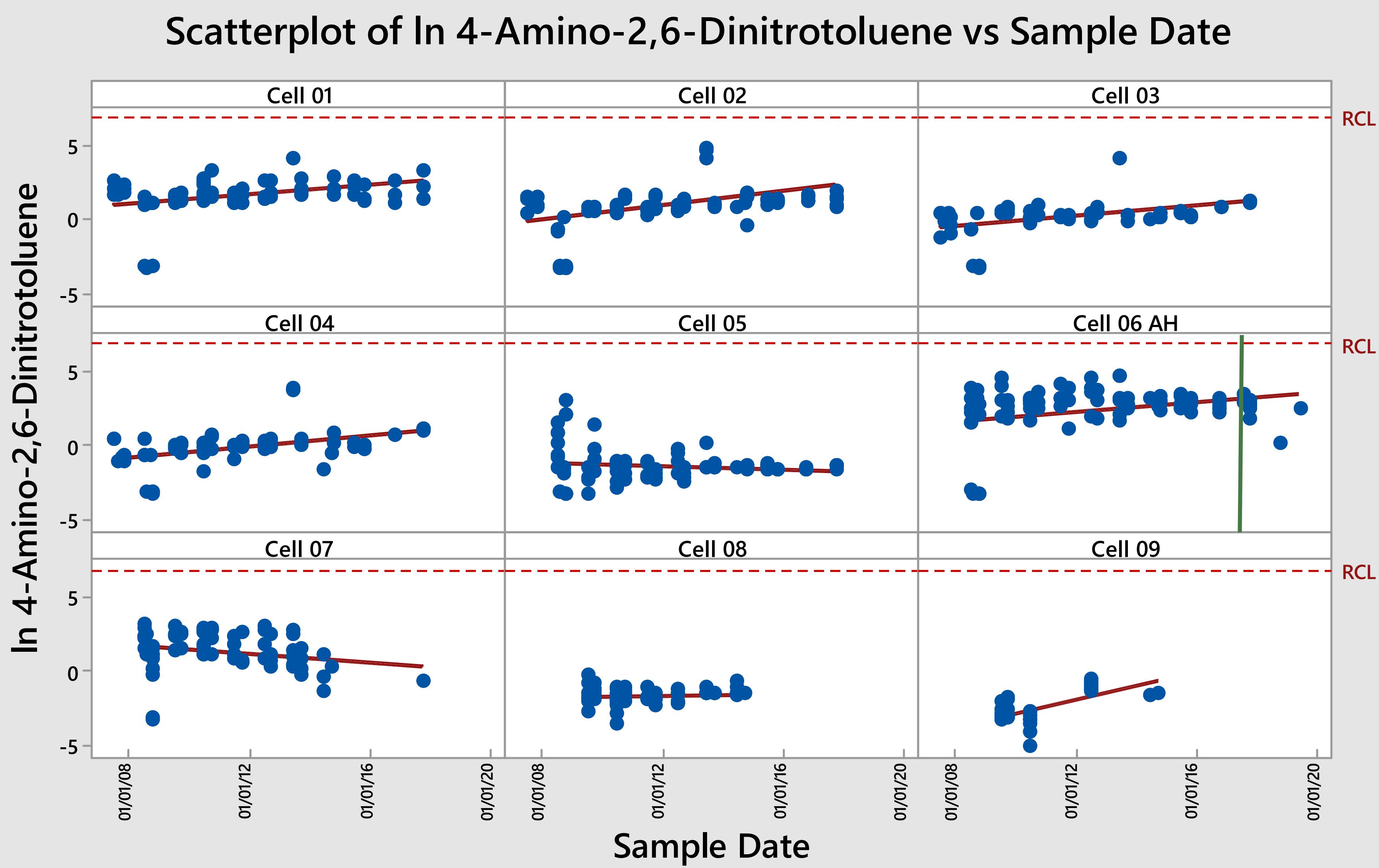


The natural logarithm of the RCL (18.4 mg/kg) is shown *Vertical green lines indicate the beginning of lime addition*



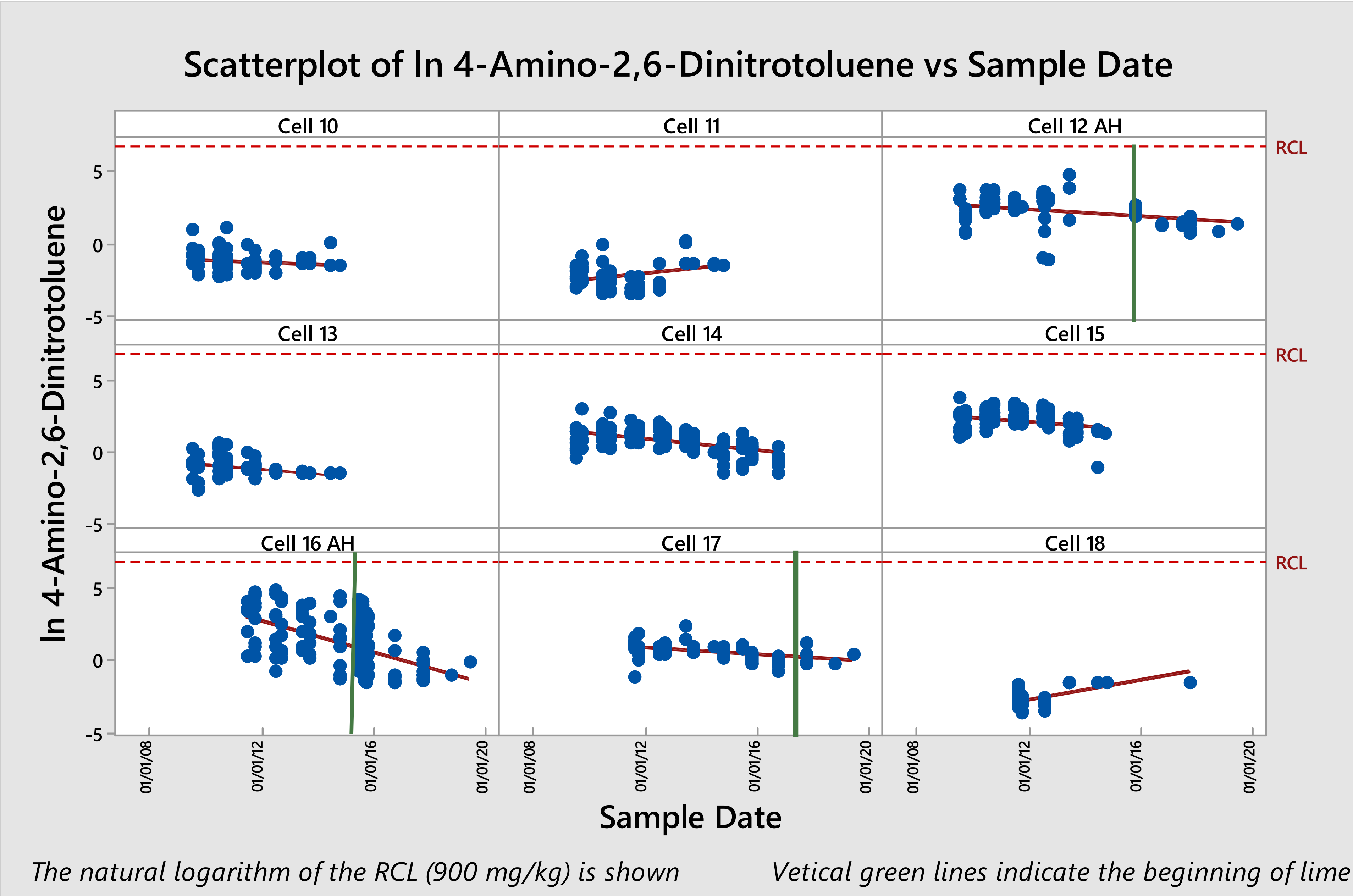
The natural logarithm of the RCL (18.4 mg/kg) is shown

Vertical lines indicate the beginning of lime addition

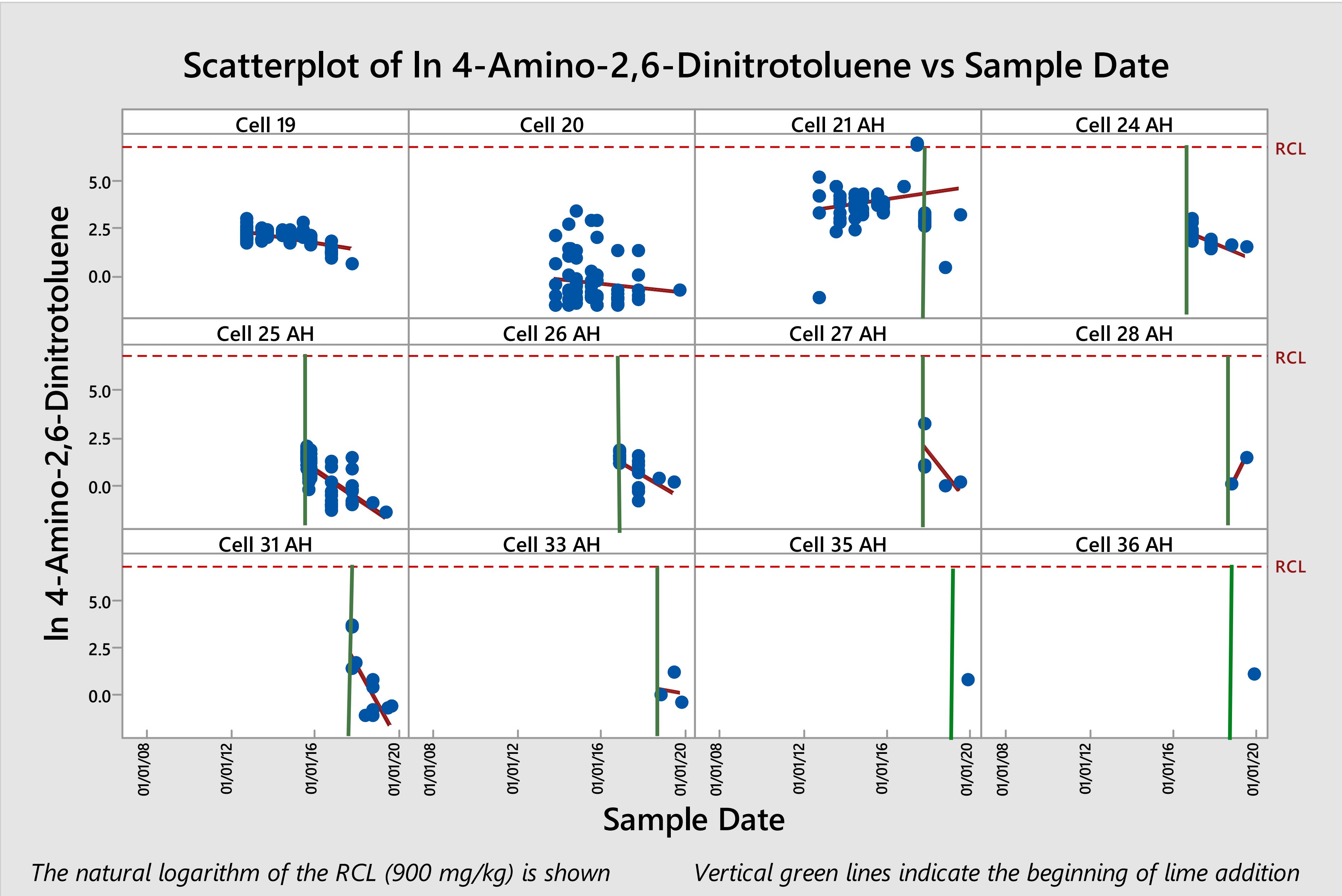


The natural logarithm of the RCL (900 mg/kg) is shown

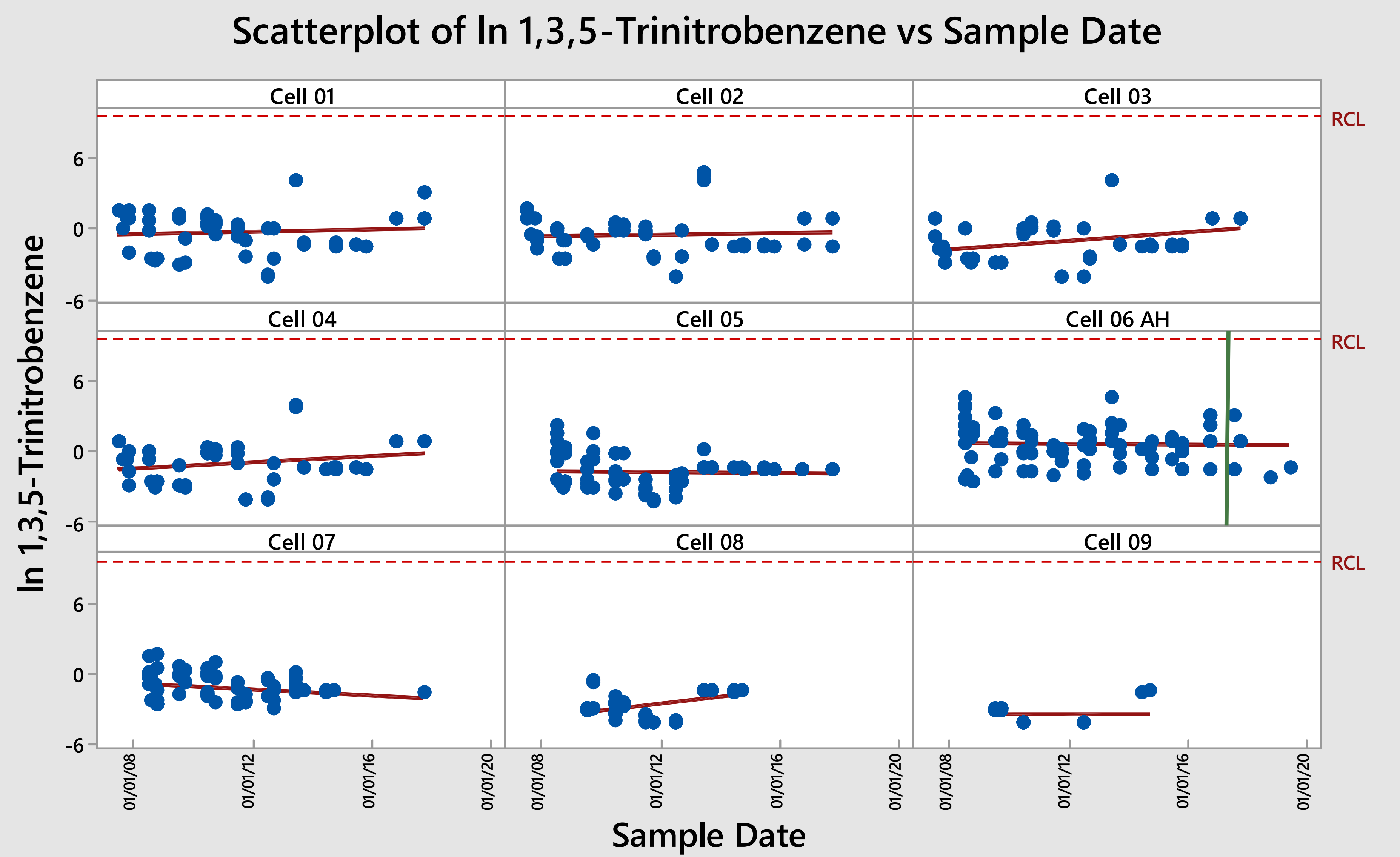
Vertical green line indicates the beginning of lime addition



Scatterplot of ln 4-Amino-2,6-Dinitrotoluene vs Sample Date
Cell 10
Cell 11
Cell 12 AH
Cell 13
Cell 14
Cell 15
Cell 16 AH
Cell 17
Cell 18
RCL
RCL
RCL
5
0
-5
ln 4-Amino-2,6-Dinitrotoluene
01/01/08
01/01/12
01/01/16
01/01/20
Sample Date
The natural logarithm of the RCL (900 mg/kg) is shown
Vetical green lines indicate the beginning of lime

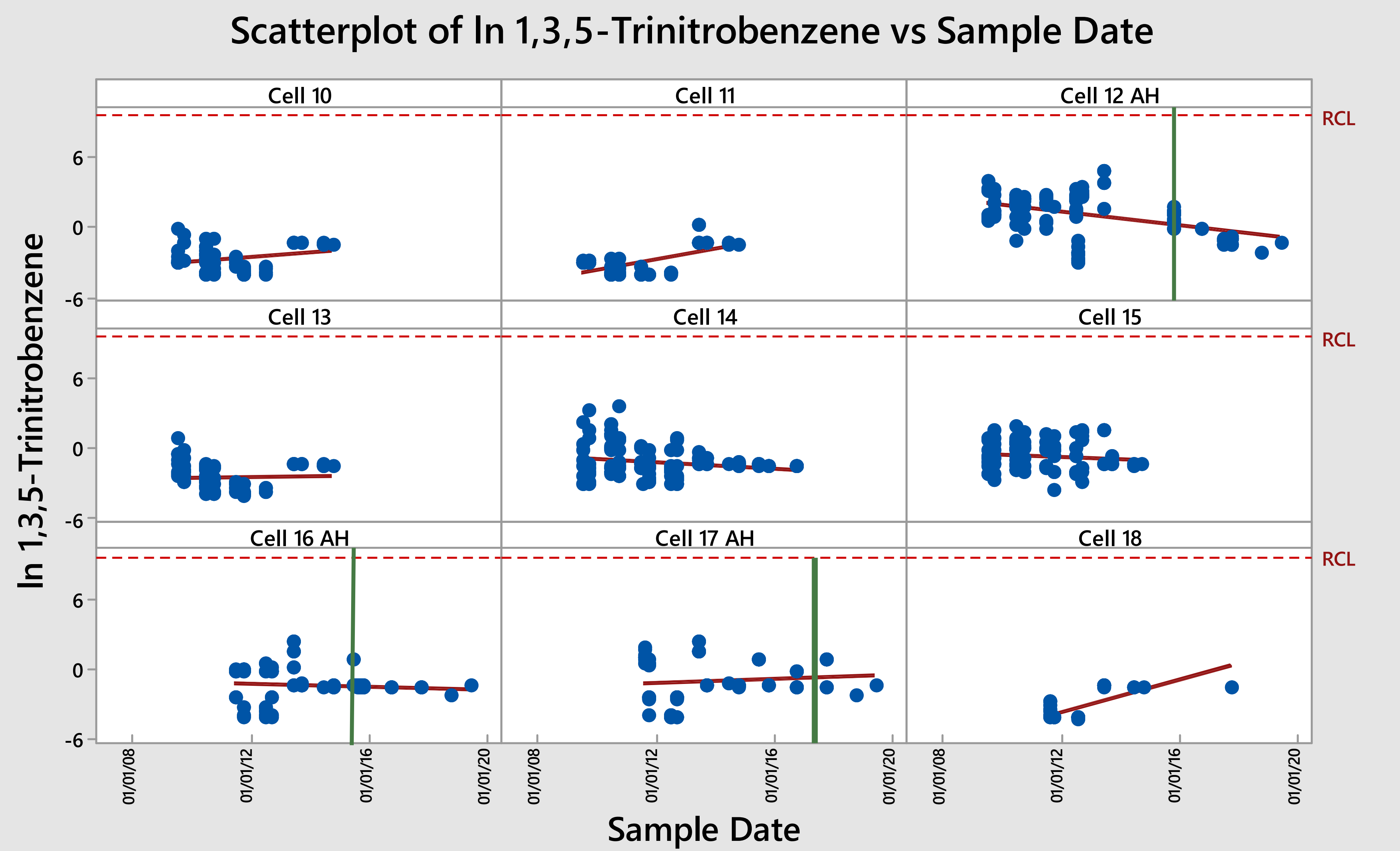


Scatterplot of ln 4-Amino-2,6-Dinitrotoluene vs Sample Date
Cell 19
Cell 20
Cell 21 AH
Cell 24 AH
Cell 25 AH
Cell 26 AH
Cell 27 AH
Cell 28 AH
Cell 31 AH
Cell 33 AH
Cell 35 AH
Cell 36 AH
RCL
5.0
2.5
0.0
ln 4-Amino-2,6-Dinitrotoluene
01/01/08
01/01/12
01/01/16
01/01/20
Sample Date
The natural logarithm of the RCL (900 mg/kg) is shown
Vertical green lines indicate the beginning of lime addition



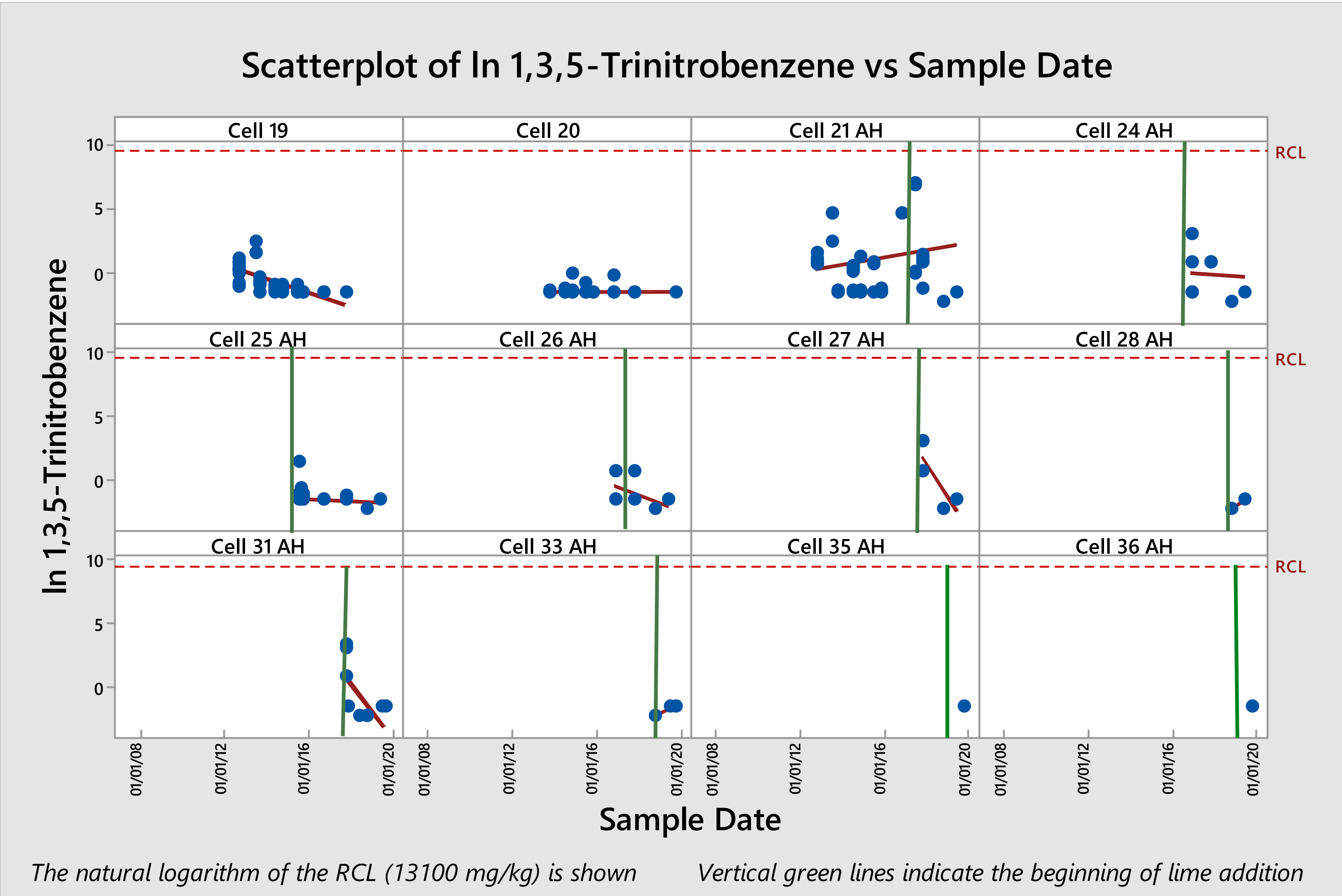
The natural logarithm of the RCL (13100 mg/kg) is shown

Vertical green line indicates the beginning of lime addition



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

Vertical green lines indicate the beginning of lime addition


Scatterplot of ln 1,3,5-Trinitrobenzene vs Sample Date
Cell 19
Cell 20
Cell 21 AH
Cell 24 AH
Cell 25 AH
Cell 26 AH
Cell 27 AH
Cell 28 AH
Cell 31 AH
Cell 33 AH
Cell 35 AH
Cell 36 AH
RCL
10
5
0
ln 1,3,5-Trinitrobenzene
01/01/08
01/01/12
01/01/16
01/01/20
Sample Date
The natural logarithm of the RCL (13100 mg/kg) is shown
Vertical green lines indicate the beginning of lime addition

2525 Advance Road
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July 02, 2019

Sharon Nordstrom
AECOM
4051 Ogletown Road
Newark, DE 19713

RE: Bio Pilot

Enclosed are the analytical results for the samples received by the laboratory on 06/12/2019.

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	03/31/2020
ILEPA	Illinois Secondary NELAP Accreditation	004366	04/30/2020
KDHE	Kansas Secondary NELAP Accreditation	E-10384	04/30/2020
LELAP	Louisiana Primary NELAP Accreditation	04165	06/30/2020
NCDEQ	North Carolina Dept. of Environmental Quality Accreditation	688	12/31/2019
NJDEP	New Jersey Secondary NELAP Accreditation	WI004	06/30/2020
ODEQ	Oklahoma Department of Environmental Quality Accreditation	2018-087	08/31/2019
TCEQ	Texas Secondary NELAP Accreditation	T104704504-16-7	11/30/2019
WDNR	Wisconsin Certification under NR 149	113289110	08/31/2019

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AECOM	Project:	Bio Pilot
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-190604-C06-0-1	A192405-01	Soil	06/04/2019	06/12/2019
BPSB-190604-C12-0-1	A192405-02	Soil	06/04/2019	06/12/2019
BPSB-190604-C16-0-1	A192405-03	Soil	06/04/2019	06/12/2019
BPSB-190604-C17-0-1	A192405-04	Soil	06/04/2019	06/12/2019
BPSB-190604-C21-0-1	A192405-05	Soil	06/04/2019	06/12/2019
BPSB-190604-C24-0-1	A192405-06	Soil	06/04/2019	06/12/2019
BPSB-190604-C25-0-1	A192405-07	Soil	06/04/2019	06/12/2019
BPSB-190604-C26-0-1	A192405-08	Soil	06/04/2019	06/12/2019
BPSB-190604-C27-0-1	A192405-09	Soil	06/04/2019	06/12/2019
BPSB-190604-C28-0-1	A192405-10	Soil	06/04/2019	06/12/2019
BPSB-190610-C31-0-1	A192405-11	Soil	06/10/2019	06/12/2019
BPSB-190610-C33-0-1	A192405-12	Soil	06/10/2019	06/12/2019

CASE NARRATIVE

Sample Receipt Information:
12 samples were received on 06/12/2019. Samples were received at 4.3 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.

Continuing Calibration Verification (CCV):
CCV indicates a potential high bias for 1,4-dimethyl-2,5-dinitrobenzene for samples A192405-01 through A192405-12. The upper control limit is 130% and the highest recovery was 187%. Any detections are footnoted with an HC. For the samples where results were less than the reporting limit no further action is required.

CCV indicates a potential high bias for 1,4-dimethyl-2,3-dinitrobenzene for samples A192405-01 through A192405-12. Samples were less than the reporting limit for this analyte so no further action is required.

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

BPSB-190604-C06-0-1

A192405-01 (Soil)

Date Sampled
06/04/2019 15:50

Pace Analytical - Madison

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
pH by EPA Method 9045						**Preparation Batch: A906224**		
pH	**11.7**		pH Units	1	06/18/2019	06/18/2019 12:00	EPA 9045D	
Explosive Compounds by EPA Method 8270						**Preparation Batch: A906257**		
1,2-Dimethyl-3,4-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 19:56	EPA 8270D	
1,2-Dimethyl-3,5-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 19:56	EPA 8270D	
1,2-Dimethyl-3,6-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 19:56	EPA 8270D	
1,2-Dimethyl-4,5-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 19:56	EPA 8270D	
1,3,5-Trinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 19:56	EPA 8270D	
1,3-Dimethyl-2,4-Dinitrobenzene	**230**	210	ug/kg dry	1	06/26/2019	06/26/2019 19:56	EPA 8270D	
1,3-Dimethyl-2,5-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 19:56	EPA 8270D	
1,3-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 19:56	EPA 8270D	
1,4-Dimethyl-2,3-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 19:56	EPA 8270D	
1,4-Dimethyl-2,5-Dinitrobenzene	**310**	210	ug/kg dry	1	06/26/2019	06/26/2019 19:56	EPA 8270D	HC
1,4-Dimethyl-2,6-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 19:56	EPA 8270D	
1,5-Dimethyl-2,3-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 19:56	EPA 8270D	
1,5-Dimethyl-2,4-Dinitrobenzene	**350**	210	ug/kg dry	1	06/26/2019	06/26/2019 19:56	EPA 8270D	
2,3-Dinitrotoluene	**350**	210	ug/kg dry	1	06/26/2019	06/26/2019 19:56	EPA 8270D	
2,4,6-Trinitrotoluene	**120000**	4100	ug/kg dry	20	06/26/2019	06/28/2019 16:27	EPA 8270D	M1, D
2,4-Dinitrotoluene	**2500**	210	ug/kg dry	1	06/26/2019	06/26/2019 19:56	EPA 8270D	M
2,5-Dinitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 19:56	EPA 8270D	
2,6-Dinitrotoluene	**1300**	210	ug/kg dry	1	06/26/2019	06/26/2019 19:56	EPA 8270D	
2-Amino-4,6-dinitrotoluene	**1800**	210	ug/kg dry	1	06/26/2019	06/26/2019 19:56	EPA 8270D	
2-Nitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 19:56	EPA 8270D	
3,4-Dinitrotoluene	**400**	210	ug/kg dry	1	06/26/2019	06/26/2019 19:56	EPA 8270D	
3,5-Dinitroaniline	**310**	210	ug/kg dry	1	06/26/2019	06/26/2019 19:56	EPA 8270D	
3,5-Dinitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 19:56	EPA 8270D	
3-Nitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 19:56	EPA 8270D	
4-Amino-2,6-dinitrotoluene	**12000**	210	ug/kg dry	1	06/26/2019	06/26/2019 19:56	EPA 8270D	
4-Nitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 19:56	EPA 8270D	
Nitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 19:56	EPA 8270D	
1,3,5-Trinitro-2,4-dimethylbenzene	**1500**	210	ug/kg dry	1	06/26/2019	06/26/2019 19:56	EPA 8270D	
Surrogate: 2,2'-Dinitrobiphenyl		*98.8 %*	*11.5-161*		*06/26/2019*	*06/26/2019 19:56*	*EPA 8270D*	
Surrogate: Nitrobenzene-d5		*92.5 %*	*65.1-116*		*06/26/2019*	*06/26/2019 19:56*	*EPA 8270D*	
Classical Chemistry Parameters						**Preparation Batch: A906225**		
% Moisture	**15.9**	0.00	% by Weight	1	06/17/2019	06/19/2019 16:52	SM 2540B	
% Solids	**96.5**	0.00	% by Weight	1	06/27/2019	06/28/2019 08:24	SM 2540B	

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

BPSB-190604-C12-0-1

A192405-02 (Soil)

Date Sampled
06/04/2019 15:35

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
			Pace Analytical - Madison					
pH by EPA Method 9045					**Preparation Batch: A906224**			
pH	**8.28**		pH Units	1	06/17/2019	06/17/2019 13:50	EPA 9045D	
Explosive Compounds by EPA Method 8270					**Preparation Batch: A906257**			
1,2-Dimethyl-3,4-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 21:30	EPA 8270D	
1,2-Dimethyl-3,5-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 21:30	EPA 8270D	
1,2-Dimethyl-3,6-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 21:30	EPA 8270D	
1,2-Dimethyl-4,5-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 21:30	EPA 8270D	
1,3,5-Trinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 21:30	EPA 8270D	
1,3-Dimethyl-2,4-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 21:30	EPA 8270D	
1,3-Dimethyl-2,5-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 21:30	EPA 8270D	
1,3-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 21:30	EPA 8270D	
1,4-Dimethyl-2,3-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 21:30	EPA 8270D	
1,4-Dimethyl-2,5-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 21:30	EPA 8270D	
1,4-Dimethyl-2,6-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 21:30	EPA 8270D	
1,5-Dimethyl-2,3-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 21:30	EPA 8270D	
1,5-Dimethyl-2,4-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 21:30	EPA 8270D	
2,3-Dinitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 21:30	EPA 8270D	
2,4,6-Trinitrotoluene	**180000**	4100	ug/kg dry	20	06/26/2019	06/28/2019 16:58	EPA 8270D	D
2,4-Dinitrotoluene	**3300**	210	ug/kg dry	1	06/26/2019	06/26/2019 21:30	EPA 8270D	
2,5-Dinitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 21:30	EPA 8270D	
2,6-Dinitrotoluene	**560**	210	ug/kg dry	1	06/26/2019	06/26/2019 21:30	EPA 8270D	
2-Amino-4,6-dinitrotoluene	**1600**	210	ug/kg dry	1	06/26/2019	06/26/2019 21:30	EPA 8270D	
2-Nitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 21:30	EPA 8270D	
3,4-Dinitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 21:30	EPA 8270D	
3,5-Dinitroaniline	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 21:30	EPA 8270D	
3,5-Dinitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 21:30	EPA 8270D	
3-Nitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 21:30	EPA 8270D	
4-Amino-2,6-dinitrotoluene	**3300**	210	ug/kg dry	1	06/26/2019	06/26/2019 21:30	EPA 8270D	
4-Nitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 21:30	EPA 8270D	
Nitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 21:30	EPA 8270D	
1,3,5-Trinitro-2,4-dimethylbenzene	**1900**	210	ug/kg dry	1	06/26/2019	06/26/2019 21:30	EPA 8270D	
Surrogate: 2,2'-Dinitrobiphenyl		*99.2 %*	*11.5-161*		*06/26/2019*	*06/26/2019 21:30*	*EPA 8270D*	
Surrogate: Nitrobenzene-d5		*103 %*	*65.1-116*		*06/26/2019*	*06/26/2019 21:30*	*EPA 8270D*	
Classical Chemistry Parameters					**Preparation Batch: A906225**			
% Moisture	**19.8**	0.00	% by Weight	1	06/17/2019	06/19/2019 16:52	SM 2540B	
% Solids	**97.4**	0.00	% by Weight	1	06/27/2019	06/28/2019 08:24	SM 2540B	

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

BPSB-190604-C16-0-1

A192405-03 (Soil)

Date Sampled
06/04/2019 15:20

Pace Analytical - Madison

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
pH by EPA Method 9045					**Preparation Batch: A906224**			
pH	**7.15**		pH Units	1	06/17/2019	06/17/2019 13:53	EPA 9045D	
Explosive Compounds by EPA Method 8270					**Preparation Batch: A906257**			
1,2-Dimethyl-3,4-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 22:02	EPA 8270D	
1,2-Dimethyl-3,5-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 22:02	EPA 8270D	
1,2-Dimethyl-3,6-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 22:02	EPA 8270D	
1,2-Dimethyl-4,5-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 22:02	EPA 8270D	
1,3,5-Trinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 22:02	EPA 8270D	
1,3-Dimethyl-2,4-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 22:02	EPA 8270D	
1,3-Dimethyl-2,5-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 22:02	EPA 8270D	
1,3-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 22:02	EPA 8270D	
1,4-Dimethyl-2,3-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 22:02	EPA 8270D	
1,4-Dimethyl-2,5-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 22:02	EPA 8270D	
1,4-Dimethyl-2,6-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 22:02	EPA 8270D	
1,5-Dimethyl-2,3-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 22:02	EPA 8270D	
1,5-Dimethyl-2,4-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 22:02	EPA 8270D	
2,3-Dinitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 22:02	EPA 8270D	
2,4,6-Trinitrotoluene	**560**	210	ug/kg dry	1	06/26/2019	06/26/2019 22:02	EPA 8270D	
2,4-Dinitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 22:02	EPA 8270D	
2,5-Dinitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 22:02	EPA 8270D	
2,6-Dinitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 22:02	EPA 8270D	
2-Amino-4,6-dinitrotoluene	**490**	210	ug/kg dry	1	06/26/2019	06/26/2019 22:02	EPA 8270D	
2-Nitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 22:02	EPA 8270D	
3,4-Dinitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 22:02	EPA 8270D	
3,5-Dinitroaniline	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 22:02	EPA 8270D	
3,5-Dinitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 22:02	EPA 8270D	
3-Nitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 22:02	EPA 8270D	
4-Amino-2,6-dinitrotoluene	**840**	210	ug/kg dry	1	06/26/2019	06/26/2019 22:02	EPA 8270D	
4-Nitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 22:02	EPA 8270D	
Nitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 22:02	EPA 8270D	
1,3,5-Trinitro-2,4-dimethylbenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 22:02	EPA 8270D	
Surrogate: 2,2′-Dinitrobiphenyl		*102 %*	*11.5-161*		*06/26/2019*	*06/26/2019 22:02*	*EPA 8270D*	
Surrogate: Nitrobenzene-d5		*97.0 %*	*65.1-116*		*06/26/2019*	*06/26/2019 22:02*	*EPA 8270D*	
Classical Chemistry Parameters					**Preparation Batch: A906225**			
% Moisture	**25.3**	0.00	% by Weight	1	06/17/2019	06/19/2019 16:52	SM 2540B	
% Solids	**93.8**	0.00	% by Weight	1	06/27/2019	06/28/2019 08:24	SM 2540B	

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AECOM
4051 Ogletown Road
Newark DE, 19713

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

BPSB-190604-C17-0-1

A192405-04 (Soil)

Date Sampled 06/04/2019 16:10

Pace Analytical - Madison

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
pH by EPA Method 9045					**Preparation Batch: A906224**			
pH	**12.1**		pH Units	1	06/17/2019	06/17/2019 13:55	EPA 9045D	
Explosive Compounds by EPA Method 8270					**Preparation Batch: A906257**			
1,2-Dimethyl-3,4-Dinitrobenzene	**1300**	210	ug/kg dry	1	06/26/2019	06/26/2019 23:36	EPA 8270D	
1,2-Dimethyl-3,5-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 23:36	EPA 8270D	
1,2-Dimethyl-3,6-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 23:36	EPA 8270D	
1,2-Dimethyl-4,5-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 23:36	EPA 8270D	
1,3,5-Trinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 23:36	EPA 8270D	
1,3-Dimethyl-2,4-Dinitrobenzene	**8900**	210	ug/kg dry	1	06/26/2019	06/26/2019 23:36	EPA 8270D	
1,3-Dimethyl-2,5-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 23:36	EPA 8270D	
1,3-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 23:36	EPA 8270D	
1,4-Dimethyl-2,3-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 23:36	EPA 8270D	
1,4-Dimethyl-2,5-Dinitrobenzene	**9300**	210	ug/kg dry	1	06/26/2019	06/26/2019 23:36	EPA 8270D	HC
1,4-Dimethyl-2,6-Dinitrobenzene	**2700**	210	ug/kg dry	1	06/26/2019	06/26/2019 23:36	EPA 8270D	
1,5-Dimethyl-2,3-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 23:36	EPA 8270D	
1,5-Dimethyl-2,4-Dinitrobenzene	**25000**	410	ug/kg dry	2	06/26/2019	06/28/2019 17:30	EPA 8270D	D
2,3-Dinitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 23:36	EPA 8270D	
2,4,6-Trinitrotoluene	**570**	210	ug/kg dry	1	06/26/2019	06/26/2019 23:36	EPA 8270D	
2,4-Dinitrotoluene	**590**	210	ug/kg dry	1	06/26/2019	06/26/2019 23:36	EPA 8270D	
2,5-Dinitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 23:36	EPA 8270D	
2,6-Dinitrotoluene	**250**	210	ug/kg dry	1	06/26/2019	06/26/2019 23:36	EPA 8270D	
2-Amino-4,6-dinitrotoluene	**270**	210	ug/kg dry	1	06/26/2019	06/26/2019 23:36	EPA 8270D	
2-Nitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 23:36	EPA 8270D	
3,4-Dinitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 23:36	EPA 8270D	
3,5-Dinitroaniline	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 23:36	EPA 8270D	
3,5-Dinitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 23:36	EPA 8270D	
3-Nitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 23:36	EPA 8270D	
4-Amino-2,6-dinitrotoluene	**1500**	210	ug/kg dry	1	06/26/2019	06/26/2019 23:36	EPA 8270D	
4-Nitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 23:36	EPA 8270D	
Nitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 23:36	EPA 8270D	
1,3,5-Trinitro-2,4-dimethylbenzene	ND	210	ug/kg dry	1	06/26/2019	06/26/2019 23:36	EPA 8270D	
Surrogate: 2,2´-Dinitrobiphenyl		*104 %*	*11.5-161*		*06/26/2019*	*06/26/2019 23:36*	*EPA 8270D*	
Surrogate: Nitrobenzene-d5		*99.5 %*	*65.1-116*		*06/26/2019*	*06/26/2019 23:36*	*EPA 8270D*	
Classical Chemistry Parameters					**Preparation Batch: A906225**			
% Moisture	**21.7**	0.00	% by Weight	1	06/17/2019	06/19/2019 16:52	SM 2540B	
% Solids	**97.2**	0.00	% by Weight	1	06/27/2019	06/28/2019 08:24	SM 2540B	

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

BPSB-190604-C21-0-1

A192405-05 (Soil)

Date Sampled
06/04/2019 14:48

Pace Analytical - Madison

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
pH by EPA Method 9045					**Preparation Batch: A906224**			
pH	**8.90**		pH Units	1	06/17/2019	06/17/2019 13:58	EPA 9045D	
Explosive Compounds by EPA Method 8270					**Preparation Batch: A906257**			
1,2-Dimethyl-3,4-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 00:07	EPA 8270D	
1,2-Dimethyl-3,5-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 00:07	EPA 8270D	
1,2-Dimethyl-3,6-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 00:07	EPA 8270D	
1,2-Dimethyl-4,5-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 00:07	EPA 8270D	
1,3,5-Trinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 00:07	EPA 8270D	
1,3-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 00:07	EPA 8270D	
1,3-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 00:07	EPA 8270D	
1,3-Dinitrobenzene	**230**	200	ug/kg dry	1	06/26/2019	06/27/2019 00:07	EPA 8270D	
1,4-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 00:07	EPA 8270D	
1,4-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 00:07	EPA 8270D	
1,4-Dimethyl-2,6-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 00:07	EPA 8270D	
1,5-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 00:07	EPA 8270D	
1,5-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 00:07	EPA 8270D	
2,3-Dinitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 00:07	EPA 8270D	
2,4,6-Trinitrotoluene	**480000**	8100	ug/kg dry	40	06/26/2019	06/28/2019 18:01	EPA 8270D	D
2,4-Dinitrotoluene	**420**	200	ug/kg dry	1	06/26/2019	06/27/2019 00:07	EPA 8270D	
2,5-Dinitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 00:07	EPA 8270D	
2,6-Dinitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 00:07	EPA 8270D	
2-Amino-4,6-dinitrotoluene	**5800**	200	ug/kg dry	1	06/26/2019	06/27/2019 00:07	EPA 8270D	
2-Nitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 00:07	EPA 8270D	
3,4-Dinitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 00:07	EPA 8270D	
3,5-Dinitroaniline	**600**	200	ug/kg dry	1	06/26/2019	06/27/2019 00:07	EPA 8270D	
3,5-Dinitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 00:07	EPA 8270D	
3-Nitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 00:07	EPA 8270D	
4-Amino-2,6-dinitrotoluene	**24000**	8100	ug/kg dry	40	06/26/2019	06/28/2019 18:01	EPA 8270D	D
4-Nitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 00:07	EPA 8270D	
Nitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 00:07	EPA 8270D	
1,3,5-Trinitro-2,4-dimethylbenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 00:07	EPA 8270D	
Surrogate: 2,2´-Dinitrobiphenyl		*109 %*	*11.5-161*		*06/26/2019*	*06/27/2019 00:07*	*EPA 8270D*	
Surrogate: Nitrobenzene-d5		*101 %*	*65.1-116*		*06/26/2019*	*06/27/2019 00:07*	*EPA 8270D*	
Classical Chemistry Parameters					**Preparation Batch: A906225**			
% Moisture	**13.0**	0.00	% by Weight	1	06/17/2019	06/19/2019 16:52	SM 2540B	
% Solids	**98.2**	0.00	% by Weight	1	06/27/2019	06/28/2019 08:24	SM 2540B	

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

BPSB-190604-C24-0-1

A192405-06 (Soil)

Date Sampled
06/04/2019 14:54

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Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
pH by EPA Method 9045					**Preparation Batch: A906224**			
pH	**8.57**		pH Units	1	06/17/2019	06/17/2019 14:02	EPA 9045D	
Explosive Compounds by EPA Method 8270					**Preparation Batch: A906257**			
1,2-Dimethyl-3,4-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 00:39	EPA 8270D	
1,2-Dimethyl-3,5-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 00:39	EPA 8270D	
1,2-Dimethyl-3,6-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 00:39	EPA 8270D	
1,2-Dimethyl-4,5-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 00:39	EPA 8270D	
1,3,5-Trinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 00:39	EPA 8270D	
1,3-Dimethyl-2,4-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 00:39	EPA 8270D	
1,3-Dimethyl-2,5-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 00:39	EPA 8270D	
1,3-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 00:39	EPA 8270D	
1,4-Dimethyl-2,3-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 00:39	EPA 8270D	
1,4-Dimethyl-2,5-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 00:39	EPA 8270D	
1,4-Dimethyl-2,6-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 00:39	EPA 8270D	
1,5-Dimethyl-2,3-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 00:39	EPA 8270D	
1,5-Dimethyl-2,4-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 00:39	EPA 8270D	
2,3-Dinitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 00:39	EPA 8270D	
2,4,6-Trinitrotoluene	**39000**	4100	ug/kg dry	20	06/26/2019	06/28/2019 18:33	EPA 8270D	D
2,4-Dinitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 00:39	EPA 8270D	
2,5-Dinitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 00:39	EPA 8270D	
2,6-Dinitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 00:39	EPA 8270D	
2-Amino-4,6-dinitrotoluene	**560**	210	ug/kg dry	1	06/26/2019	06/27/2019 00:39	EPA 8270D	
2-Nitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 00:39	EPA 8270D	
3,4-Dinitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 00:39	EPA 8270D	
3,5-Dinitroaniline	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 00:39	EPA 8270D	
3,5-Dinitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 00:39	EPA 8270D	
3-Nitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 00:39	EPA 8270D	
4-Amino-2,6-dinitrotoluene	**4200**	210	ug/kg dry	1	06/26/2019	06/27/2019 00:39	EPA 8270D	
4-Nitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 00:39	EPA 8270D	
Nitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 00:39	EPA 8270D	
1,3,5-Trinitro-2,4-dimethylbenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 00:39	EPA 8270D	
Surrogate: 2,2´-Dinitrobiphenyl		*104 %*	*11.5-161*		*06/26/2019*	*06/27/2019 00:39*	*EPA 8270D*	
Surrogate: Nitrobenzene-d5		*100 %*	*65.1-116*		*06/26/2019*	*06/27/2019 00:39*	*EPA 8270D*	
Classical Chemistry Parameters					**Preparation Batch: A906225**			
% Moisture	**16.2**	0.00	% by Weight	1	06/17/2019	06/19/2019 16:52	SM 2540B	
% Solids	**97.0**	0.00	% by Weight	1	06/27/2019	06/28/2019 08:24	SM 2540B	

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Newark DE, 19713	Project Manager:	Sharon Nordstrom

BPSB-190604-C25-0-1

A192405-07 (Soil)

Date Sampled
06/04/2019 14:55

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers

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pH by EPA Method 9045					**Preparation Batch: A906224**			
pH	**10.2**		pH Units	1	06/17/2019	06/17/2019 14:06	EPA 9045D	

Explosive Compounds by EPA Method 8270					**Preparation Batch: A906257**			
1,2-Dimethyl-3,4-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:10	EPA 8270D	
1,2-Dimethyl-3,5-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:10	EPA 8270D	
1,2-Dimethyl-3,6-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:10	EPA 8270D	
1,2-Dimethyl-4,5-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:10	EPA 8270D	
1,3,5-Trinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:10	EPA 8270D	
1,3-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:10	EPA 8270D	
1,3-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:10	EPA 8270D	
1,3-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:10	EPA 8270D	
1,4-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:10	EPA 8270D	
1,4-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:10	EPA 8270D	
1,4-Dimethyl-2,6-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:10	EPA 8270D	
1,5-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:10	EPA 8270D	
1,5-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:10	EPA 8270D	
2,3-Dinitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:10	EPA 8270D	
2,4,6-Trinitrotoluene	**350**	200	ug/kg dry	1	06/26/2019	06/27/2019 01:10	EPA 8270D	
2,4-Dinitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:10	EPA 8270D	
2,5-Dinitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:10	EPA 8270D	
2,6-Dinitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:10	EPA 8270D	
2-Amino-4,6-dinitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:10	EPA 8270D	
2-Nitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:10	EPA 8270D	
3,4-Dinitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:10	EPA 8270D	
3,5-Dinitroaniline	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:10	EPA 8270D	
3,5-Dinitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:10	EPA 8270D	
3-Nitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:10	EPA 8270D	
4-Amino-2,6-dinitrotoluene	**240**	200	ug/kg dry	1	06/26/2019	06/27/2019 01:10	EPA 8270D	
4-Nitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:10	EPA 8270D	
Nitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:10	EPA 8270D	
1,3,5-Trinitro-2,4-dimethylbenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:10	EPA 8270D	
Surrogate: 2,2´-Dinitrobiphenyl		*83.1 %*	*11.5-161*		*06/26/2019*	*06/27/2019 01:10*	*EPA 8270D*	
Surrogate: Nitrobenzene-d5		*99.9 %*	*65.1-116*		*06/26/2019*	*06/27/2019 01:10*	*EPA 8270D*	

Classical Chemistry Parameters					**Preparation Batch: A906225**			
% Moisture	**14.5**	0.00	% by Weight	1	06/17/2019	06/19/2019 16:52	SM 2540B	
% Solids	**98.6**	0.00	% by Weight	1	06/27/2019	06/28/2019 08:24	SM 2540B	

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

BPSB-190604-C26-0-1

A192405-08 (Soil)

Date Sampled
06/04/2019 15:00

Pace Analytical - Madison

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
pH by EPA Method 9045					Preparation Batch: A906224			
pH	**10.9**		pH Units	1	06/17/2019	06/17/2019 14:10	EPA 9045D	
Explosive Compounds by EPA Method 8270					Preparation Batch: A906257			
1,2-Dimethyl-3,4-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:42	EPA 8270D	
1,2-Dimethyl-3,5-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:42	EPA 8270D	
1,2-Dimethyl-3,6-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:42	EPA 8270D	
1,2-Dimethyl-4,5-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:42	EPA 8270D	
1,3,5-Trinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:42	EPA 8270D	
1,3-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:42	EPA 8270D	
1,3-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:42	EPA 8270D	
1,3-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:42	EPA 8270D	
1,4-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:42	EPA 8270D	
1,4-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:42	EPA 8270D	
1,4-Dimethyl-2,6-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:42	EPA 8270D	
1,5-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:42	EPA 8270D	
1,5-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:42	EPA 8270D	
2,3-Dinitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:42	EPA 8270D	
2,4,6-Trinitrotoluene	**3900**	200	ug/kg dry	1	06/26/2019	06/27/2019 01:42	EPA 8270D	
2,4-Dinitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:42	EPA 8270D	
2,5-Dinitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:42	EPA 8270D	
2,6-Dinitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:42	EPA 8270D	
2-Amino-4,6-dinitrotoluene	**260**	200	ug/kg dry	1	06/26/2019	06/27/2019 01:42	EPA 8270D	
2-Nitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:42	EPA 8270D	
3,4-Dinitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:42	EPA 8270D	
3,5-Dinitroaniline	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:42	EPA 8270D	
3,5-Dinitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:42	EPA 8270D	
3-Nitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:42	EPA 8270D	
4-Amino-2,6-dinitrotoluene	**1100**	200	ug/kg dry	1	06/26/2019	06/27/2019 01:42	EPA 8270D	
4-Nitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:42	EPA 8270D	
Nitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:42	EPA 8270D	
1,3,5-Trinitro-2,4-dimethylbenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 01:42	EPA 8270D	
Surrogate: 2,2´-Dinitrobiphenyl		*108 %*	*11.5-161*		*06/26/2019*	*06/27/2019 01:42*	*EPA 8270D*	
Surrogate: Nitrobenzene-d5		*100 %*	*65.1-116*		*06/26/2019*	*06/27/2019 01:42*	*EPA 8270D*	
Classical Chemistry Parameters					Preparation Batch: A906225			
% Moisture	**19.3**	0.00	% by Weight	1	06/17/2019	06/19/2019 16:52	SM 2540B	
% Solids	**97.9**	0.00	% by Weight	1	06/27/2019	06/28/2019 08:24	SM 2540B	

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

BPSB-190604-C27-0-1

A192405-09 (Soil)

Date Sampled
06/04/2019 14:45

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Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
pH by EPA Method 9045					**Preparation Batch: A906224**			
pH	**12.1**		pH Units	1	06/17/2019	06/17/2019 14:13	EPA 9045D	
Explosive Compounds by EPA Method 8270					**Preparation Batch: A906257**			
1,2-Dimethyl-3,4-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 02:13	EPA 8270D	
1,2-Dimethyl-3,5-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 02:13	EPA 8270D	
1,2-Dimethyl-3,6-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 02:13	EPA 8270D	
1,2-Dimethyl-4,5-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 02:13	EPA 8270D	
1,3,5-Trinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 02:13	EPA 8270D	
1,3-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 02:13	EPA 8270D	
1,3-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 02:13	EPA 8270D	
1,3-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 02:13	EPA 8270D	
1,4-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 02:13	EPA 8270D	
1,4-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 02:13	EPA 8270D	
1,4-Dimethyl-2,6-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 02:13	EPA 8270D	
1,5-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 02:13	EPA 8270D	
1,5-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 02:13	EPA 8270D	
2,3-Dinitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 02:13	EPA 8270D	
2,4,6-Trinitrotoluene	**33000**	4100	ug/kg dry	20	06/26/2019	06/28/2019 19:04	EPA 8270D	D
2,4-Dinitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 02:13	EPA 8270D	
2,5-Dinitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 02:13	EPA 8270D	
2,6-Dinitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 02:13	EPA 8270D	
2-Amino-4,6-dinitrotoluene	**460**	200	ug/kg dry	1	06/26/2019	06/27/2019 02:13	EPA 8270D	
2-Nitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 02:13	EPA 8270D	
3,4-Dinitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 02:13	EPA 8270D	
3,5-Dinitroaniline	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 02:13	EPA 8270D	
3,5-Dinitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 02:13	EPA 8270D	
3-Nitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 02:13	EPA 8270D	
4-Amino-2,6-dinitrotoluene	**1200**	200	ug/kg dry	1	06/26/2019	06/27/2019 02:13	EPA 8270D	
4-Nitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 02:13	EPA 8270D	
Nitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 02:13	EPA 8270D	
1,3,5-Trinitro-2,4-dimethylbenzene	ND	200	ug/kg dry	1	06/26/2019	06/27/2019 02:13	EPA 8270D	
Surrogate: 2,2´-Dinitrobiphenyl		*93.6 %*	*11.5-161*		*06/26/2019*	*06/27/2019 02:13*	*EPA 8270D*	
Surrogate: Nitrobenzene-d5		*100 %*	*65.1-116*		*06/26/2019*	*06/27/2019 02:13*	*EPA 8270D*	
Classical Chemistry Parameters					**Preparation Batch: A906225**			
% Moisture	**12.8**	0.00	% by Weight	1	06/17/2019	06/19/2019 16:52	SM 2540B	
% Solids	**98.5**	0.00	% by Weight	1	06/27/2019	06/28/2019 08:24	SM 2540B	

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

BPSB-190604-C28-0-1

A192405-10 (Soil)

Date Sampled
06/04/2019 15:00

Pace Analytical - Madison

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
pH by EPA Method 9045						**Preparation Batch: A906224**		
pH	**12.0**		pH Units	1	06/17/2019	06/17/2019 14:20	EPA 9045D	
Explosive Compounds by EPA Method 8270						**Preparation Batch: A906257**		
1,2-Dimethyl-3,4-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/28/2019 15:55	EPA 8270D	
1,2-Dimethyl-3,5-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/28/2019 15:55	EPA 8270D	
1,2-Dimethyl-3,6-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/28/2019 15:55	EPA 8270D	
1,2-Dimethyl-4,5-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/28/2019 15:55	EPA 8270D	
1,3,5-Trinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/28/2019 15:55	EPA 8270D	
1,3-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/28/2019 15:55	EPA 8270D	
1,3-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/28/2019 15:55	EPA 8270D	
1,3-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/28/2019 15:55	EPA 8270D	
1,4-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/28/2019 15:55	EPA 8270D	
1,4-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/28/2019 15:55	EPA 8270D	
1,4-Dimethyl-2,6-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/28/2019 15:55	EPA 8270D	
1,5-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/28/2019 15:55	EPA 8270D	
1,5-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/28/2019 15:55	EPA 8270D	
2,3-Dinitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/28/2019 15:55	EPA 8270D	
2,4,6-Trinitrotoluene	**10000**	200	ug/kg dry	1	06/26/2019	06/28/2019 15:55	EPA 8270D	
2,4-Dinitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/28/2019 15:55	EPA 8270D	
2,5-Dinitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/28/2019 15:55	EPA 8270D	
2,6-Dinitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/28/2019 15:55	EPA 8270D	
2-Amino-4,6-dinitrotoluene	**800**	200	ug/kg dry	1	06/26/2019	06/28/2019 15:55	EPA 8270D	
2-Nitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/28/2019 15:55	EPA 8270D	
3,4-Dinitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/28/2019 15:55	EPA 8270D	
3,5-Dinitroaniline	ND	200	ug/kg dry	1	06/26/2019	06/28/2019 15:55	EPA 8270D	
3,5-Dinitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/28/2019 15:55	EPA 8270D	
3-Nitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/28/2019 15:55	EPA 8270D	
4-Amino-2,6-dinitrotoluene	**4000**	200	ug/kg dry	1	06/26/2019	06/28/2019 15:55	EPA 8270D	
4-Nitrotoluene	ND	200	ug/kg dry	1	06/26/2019	06/28/2019 15:55	EPA 8270D	
Nitrobenzene	ND	200	ug/kg dry	1	06/26/2019	06/28/2019 15:55	EPA 8270D	
1,3,5-Trinitro-2,4-dimethylbenzene	ND	200	ug/kg dry	1	06/26/2019	06/28/2019 15:55	EPA 8270D	
Surrogate: 2,2´-Dinitrobiphenyl		*96.2 %*	*11.5-161*		*06/26/2019*	*06/28/2019 15:55*	*EPA 8270D*	
Surrogate: Nitrobenzene-d5		*96.4 %*	*65.1-116*		*06/26/2019*	*06/28/2019 15:55*	*EPA 8270D*	
Classical Chemistry Parameters						**Preparation Batch: A906225**		
% Moisture	**18.9**	0.00	% by Weight	1	06/17/2019	06/19/2019 16:52	SM 2540B	
% Solids	**97.9**	0.00	% by Weight	1	06/27/2019	06/28/2019 08:24	SM 2540B	

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

BPSB-190610-C31-0-1

A192405-11 (Soil)

Date Sampled
06/10/2019 16:00

Pace Analytical - Madison

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
pH by EPA Method 9045					**Preparation Batch: A906224**			
pH	**12.1**		pH Units	1	06/17/2019	06/17/2019 14:30	EPA 9045D	
Explosive Compounds by EPA Method 8270					**Preparation Batch: A906257**			
1,2-Dimethyl-3,4-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:16	EPA 8270D	
1,2-Dimethyl-3,5-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:16	EPA 8270D	
1,2-Dimethyl-3,6-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:16	EPA 8270D	
1,2-Dimethyl-4,5-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:16	EPA 8270D	
1,3,5-Trinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:16	EPA 8270D	
1,3-Dimethyl-2,4-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:16	EPA 8270D	
1,3-Dimethyl-2,5-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:16	EPA 8270D	
1,3-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:16	EPA 8270D	
1,4-Dimethyl-2,3-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:16	EPA 8270D	
1,4-Dimethyl-2,5-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:16	EPA 8270D	
1,4-Dimethyl-2,6-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:16	EPA 8270D	
1,5-Dimethyl-2,3-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:16	EPA 8270D	
1,5-Dimethyl-2,4-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:16	EPA 8270D	
2,3-Dinitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:16	EPA 8270D	
2,4,6-Trinitrotoluene	**21000**	410	ug/kg dry	2	06/26/2019	06/28/2019 19:36	EPA 8270D	D
2,4-Dinitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:16	EPA 8270D	
2,5-Dinitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:16	EPA 8270D	
2,6-Dinitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:16	EPA 8270D	
2-Amino-4,6-dinitrotoluene	**280**	210	ug/kg dry	1	06/26/2019	06/27/2019 03:16	EPA 8270D	
2-Nitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:16	EPA 8270D	
3,4-Dinitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:16	EPA 8270D	
3,5-Dinitroaniline	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:16	EPA 8270D	
3,5-Dinitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:16	EPA 8270D	
3-Nitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:16	EPA 8270D	
4-Amino-2,6-dinitrotoluene	**500**	210	ug/kg dry	1	06/26/2019	06/27/2019 03:16	EPA 8270D	
4-Nitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:16	EPA 8270D	
Nitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:16	EPA 8270D	
1,3,5-Trinitro-2,4-dimethylbenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:16	EPA 8270D	
Surrogate: 2,2´-Dinitrobiphenyl		*94.5 %*	*11.5-161*		*06/26/2019*	*06/27/2019 03:16*	*EPA 8270D*	
Surrogate: Nitrobenzene-d5		*99.3 %*	*65.1-116*		*06/26/2019*	*06/27/2019 03:16*	*EPA 8270D*	
Classical Chemistry Parameters					**Preparation Batch: A906225**			
% Moisture	**39.7**	0.00	% by Weight	1	06/17/2019	06/19/2019 16:52	SM 2540B	
% Solids	**97.2**	0.00	% by Weight	1	06/27/2019	06/28/2019 08:24	SM 2540B	

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

BPSB-190610-C33-0-1

A192405-12 (Soil)

Date Sampled
06/10/2019 16:10

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers

Pace Analytical - Madison

pH by EPA Method 9045 — **Preparation Batch: A906224**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
pH	**9.03**		pH Units	1	06/17/2019	06/17/2019 14:42	EPA 9045D	

Explosive Compounds by EPA Method 8270 — **Preparation Batch: A906257**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2-Dimethyl-3,4-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:48	EPA 8270D	
1,2-Dimethyl-3,5-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:48	EPA 8270D	
1,2-Dimethyl-3,6-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:48	EPA 8270D	
1,2-Dimethyl-4,5-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:48	EPA 8270D	
1,3,5-Trinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:48	EPA 8270D	
1,3-Dimethyl-2,4-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:48	EPA 8270D	
1,3-Dimethyl-2,5-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:48	EPA 8270D	
1,3-Dinitrobenzene	**220**	210	ug/kg dry	1	06/26/2019	06/27/2019 03:48	EPA 8270D	
1,4-Dimethyl-2,3-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:48	EPA 8270D	
1,4-Dimethyl-2,5-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:48	EPA 8270D	
1,4-Dimethyl-2,6-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:48	EPA 8270D	
1,5-Dimethyl-2,3-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:48	EPA 8270D	
1,5-Dimethyl-2,4-Dinitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:48	EPA 8270D	
2,3-Dinitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:48	EPA 8270D	
2,4,6-Trinitrotoluene	**280000**	8200	ug/kg dry	40	06/26/2019	06/28/2019 20:07	EPA 8270D	D
2,4-Dinitrotoluene	**630**	210	ug/kg dry	1	06/26/2019	06/27/2019 03:48	EPA 8270D	
2,5-Dinitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:48	EPA 8270D	
2,6-Dinitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:48	EPA 8270D	
2-Amino-4,6-dinitrotoluene	**930**	210	ug/kg dry	1	06/26/2019	06/27/2019 03:48	EPA 8270D	
2-Nitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:48	EPA 8270D	
3,4-Dinitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:48	EPA 8270D	
3,5-Dinitroaniline	**340**	210	ug/kg dry	1	06/26/2019	06/27/2019 03:48	EPA 8270D	
3,5-Dinitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:48	EPA 8270D	
3-Nitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:48	EPA 8270D	
4-Amino-2,6-dinitrotoluene	**3100**	210	ug/kg dry	1	06/26/2019	06/27/2019 03:48	EPA 8270D	
4-Nitrotoluene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:48	EPA 8270D	
Nitrobenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:48	EPA 8270D	
1,3,5-Trinitro-2,4-dimethylbenzene	ND	210	ug/kg dry	1	06/26/2019	06/27/2019 03:48	EPA 8270D	
Surrogate: 2,2′-Dinitrobiphenyl		*103 %*	*11.5-161*		*06/26/2019*	*06/27/2019 03:48*	*EPA 8270D*	
Surrogate: Nitrobenzene-d5		*99.1 %*	*65.1-116*		*06/26/2019*	*06/27/2019 03:48*	*EPA 8270D*	

Classical Chemistry Parameters — **Preparation Batch: A906225**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
% Moisture	**17.6**	0.00	% by Weight	1	06/17/2019	06/19/2019 16:52	SM 2540B	
% Solids	**97.2**	0.00	% by Weight	1	06/27/2019	06/28/2019 08:24	SM 2540B	

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Newark DE, 19713	Project Manager:	Sharon Nordstrom

pH by EPA Method 9045 - Quality Control

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch A906224 - Default Prep GenChem										
Duplicate (A906224-DUP1)	**Source: A192405-01**		Prepared: 06/18/2019 Analyzed: 06/18/2019 12:05							
pH	11.3		pH Units		11.7			3.99	20	
Duplicate (A906224-DUP2)	**Source: A192405-11**		Prepared: 06/17/2019 Analyzed: 06/17/2019 14:33							
pH	12.2		pH Units		12.1			0.304	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 A906257 - EPA 3570										
Blank (A906257-BLK1)				Prepared: 06/26/2019 Analyzed: 06/26/2019 19:24						
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	*1030*		*ug/kg wet*	*2000*		*51.3*	*11.5-161*			
Surrogate: Nitrobenzene-d5	*1820*		*ug/kg wet*	*2000*		*90.8*	*65.1-116*			
LCS (A906257-BS1)				Prepared: 06/26/2019 Analyzed: 06/26/2019 17:19						
1,3,5-Trinitrobenzene	1100	200	ug/kg wet	2000		55.1	50.6-126			
1,3-Dinitrobenzene	1790	200	ug/kg wet	2000		89.4	52.9-125			
2,4,6-Trinitrotoluene	1750	200	ug/kg wet	2000		87.5	57.1-139			
2,4-Dinitrotoluene	1550	200	ug/kg wet	2000		77.5	67.4-120			
2,6-Dinitrotoluene	1960	200	ug/kg wet	2000		98.2	74.6-116			
2-Amino-4,6-dinitrotoluene	1720	200	ug/kg wet	2000		85.8	65.9-110			
2-Nitrotoluene	1980	200	ug/kg wet	2000		99.2	76.3-114			
3,4-Dinitrotoluene	1520	200	ug/kg wet	2000		76.0	68.2-117			
3,5-Dinitroaniline	1770	200	ug/kg wet	2000		88.7	61.6-115			
3-Nitrotoluene	1920	200	ug/kg wet	2000		96.0	77.4-113			
4-Amino-2,6-dinitrotoluene	1750	200	ug/kg wet	2000		87.4	57.5-113			
4-Nitrotoluene	1970	200	ug/kg wet	2000		98.3	74.8-112			
Nitrobenzene	1990	200	ug/kg wet	2000		99.6	77-115			
Surrogate: 2,2´-Dinitrobiphenyl	*1750*		*ug/kg wet*	*2000*		*87.5*	*11.5-161*			

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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 A906257 - EPA 3570										
LCS (A906257-BS1)				Prepared: 06/26/2019 Analyzed: 06/26/2019 17:19						
Surrogate: Nitrobenzene-d5	*1910*		*ug/kg wet*	*2000*		*95.6*	*65.1-116*			
Matrix Spike (A906257-MS1)		**Source: A192405-01**		Prepared: 06/26/2019 Analyzed: 06/26/2019 20:27						
1,2-Dimethyl-3,4-Dinitrobenzene	ND	210	ug/kg dry		ND		59.9-113			
1,2-Dimethyl-3,5-Dinitrobenzene	ND	210	ug/kg dry		ND		63.5-111			
1,2-Dimethyl-3,6-Dinitrobenzene	ND	210	ug/kg dry		ND		67.8-114			
1,2-Dimethyl-4,5-Dinitrobenzene	ND	210	ug/kg dry		ND		58.4-113			
1,3,5-Trinitrobenzene	1910	210	ug/kg dry	2073	ND	92.0	12.3-150			
1,3-Dimethyl-2,4-Dinitrobenzene	249	210	ug/kg dry		225		63.6-111			
1,3-Dimethyl-2,5-Dinitrobenzene	ND	210	ug/kg dry		ND		70.7-112			
1,3-Dinitrobenzene	1920	210	ug/kg dry	2073	144	85.7	32.8-135			
1,4-Dimethyl-2,3-Dinitrobenzene	ND	210	ug/kg dry		ND		58.1-109			
1,4-Dimethyl-2,5-Dinitrobenzene	331	210	ug/kg dry		307		64.1-108			
1,4-Dimethyl-2,6-Dinitrobenzene	125	210	ug/kg dry		120		64.3-107			
1,5-Dimethyl-2,3-Dinitrobenzene	ND	210	ug/kg dry		ND		61.6-112			
1,5-Dimethyl-2,4-Dinitrobenzene	396	210	ug/kg dry		349		58-113			
2,3-Dinitrotoluene	433	210	ug/kg dry		353		61.1-127			
2,4,6-Trinitrotoluene	54800	4100	ug/kg dry	2073	122000	NR	38.8-138			M1, D
2,4-Dinitrotoluene	5110	210	ug/kg dry	2073	2530	124	44.1-133			
2,5-Dinitrotoluene	139	210	ug/kg dry		129		58.3-132			
2,6-Dinitrotoluene	3510	210	ug/kg dry	2073	1270	108	52.5-128			
2-Amino-4,6-dinitrotoluene	3850	210	ug/kg dry	2073	1750	101	18-135			
2-Nitrotoluene	2290	210	ug/kg dry	2073	153	103	73.9-113			
3,4-Dinitrotoluene	2250	210	ug/kg dry	2073	405	89.2	52.8-120			
3,5-Dinitroaniline	2440	210	ug/kg dry	2073	305	103	22.9-131			
3,5-Dinitrotoluene	117	210	ug/kg dry		112		59.3-135			
3-Nitrotoluene	2100	210	ug/kg dry	2073	ND	101	73.6-116			
4-Amino-2,6-dinitrotoluene	13400	210	ug/kg dry	2073	11900	72.7	10-144			
4-Nitrotoluene	2330	210	ug/kg dry	2073	193	103	71.2-114			
Nitrobenzene	2090	210	ug/kg dry	2073	ND	101	72.5-112			
Surrogate: 2,2´-Dinitrobiphenyl	*2050*		*ug/kg dry*	*2073*		*98.8*	*11.5-161*			
Surrogate: Nitrobenzene-d5	*2030*		*ug/kg dry*	*2073*		*97.8*	*65.1-116*			
Matrix Spike Dup (A906257-MSD1)		**Source: A192405-01**		Prepared: 06/26/2019 Analyzed: 06/26/2019 20:59						
1,2-Dimethyl-3,4-Dinitrobenzene	ND	210	ug/kg dry		ND		59.9-113		20	
1,2-Dimethyl-3,5-Dinitrobenzene	ND	210	ug/kg dry		ND		63.5-111		20	
1,2-Dimethyl-3,6-Dinitrobenzene	ND	210	ug/kg dry		ND		67.8-114		20	
1,2-Dimethyl-4,5-Dinitrobenzene	ND	210	ug/kg dry		ND		58.4-113		20	
1,3,5-Trinitrobenzene	2280	210	ug/kg dry	2073	ND	110	12.3-150	18.0	20	
1,3-Dimethyl-2,4-Dinitrobenzene	266	210	ug/kg dry		225		63.6-111	6.53	20	
1,3-Dimethyl-2,5-Dinitrobenzene	ND	210	ug/kg dry		ND		70.7-112		20	
1,3-Dinitrobenzene	2000	210	ug/kg dry	2073	144	89.6	32.8-135	4.16	20	
1,4-Dimethyl-2,3-Dinitrobenzene	ND	210	ug/kg dry		ND		58.1-109		20	
1,4-Dimethyl-2,5-Dinitrobenzene	349	210	ug/kg dry		307		64.1-108	5.28	20	
1,4-Dimethyl-2,6-Dinitrobenzene	128	210	ug/kg dry		120		64.3-107	2.18	20	
1,5-Dimethyl-2,3-Dinitrobenzene	ND	210	ug/kg dry		ND		61.6-112		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 A906257 - EPA 3570										
Matrix Spike Dup (A906257-MSD1)	**Source: A192405-01**		Prepared: 06/26/2019 Analyzed: 06/26/2019 20:59							
1,5-Dimethyl-2,4-Dinitrobenzene	421	210	ug/kg dry		349		58-113	6.14	20	
2,3-Dinitrotoluene	483	210	ug/kg dry		353		61.1-127	11.0	20	
2,4,6-Trinitrotoluene	68100	4100	ug/kg dry	2073	122000	NR	38.8-138	21.6	20	M1, D
2,4-Dinitrotoluene	5580	210	ug/kg dry	2073	2530	147	44.1-133	8.71	20	M
2,5-Dinitrotoluene	138	210	ug/kg dry		129		58.3-132	0.689	20	
2,6-Dinitrotoluene	3840	210	ug/kg dry	2073	1270	124	52.5-128	8.88	20	
2-Amino-4,6-dinitrotoluene	4040	210	ug/kg dry	2073	1750	110	18-135	4.82	20	
2-Nitrotoluene	2380	210	ug/kg dry	2073	153	107	73.9-113	3.67	20	
3,4-Dinitrotoluene	2320	210	ug/kg dry	2073	405	92.2	52.8-120	2.73	20	
3,5-Dinitroaniline	2550	210	ug/kg dry	2073	305	108	22.9-131	4.52	20	
3,5-Dinitrotoluene	119	210	ug/kg dry		112		59.3-135	1.63	20	
3-Nitrotoluene	2170	210	ug/kg dry	2073	ND	105	73.6-116	3.30	20	
4-Amino-2,6-dinitrotoluene	14000	210	ug/kg dry	2073	11900	99.9	10-144	4.12	20	
4-Nitrotoluene	2430	210	ug/kg dry	2073	193	108	71.2-114	4.27	20	
Nitrobenzene	2140	210	ug/kg dry	2073	ND	103	72.5-112	2.30	20	
Surrogate: 2,2´-Dinitrobiphenyl	*2050*		*ug/kg dry*	*2073*		*99.0*	*11.5-161*			
Surrogate: Nitrobenzene-d5	*2080*		*ug/kg dry*	*2073*		*100*	*65.1-116*			

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Newark DE, 19713

Project: Bio Pilot
Project Number: 60525839
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 A906225 - % Solids										
Duplicate (A906225-DUP1)	**Source: A192405-05**	Prepared: 06/17/2019 Analyzed: 06/19/2019 16:52								
% Moisture	14.1	0.00	% by Weight		13.0			7.51	20	
Batch A906260 - % Solids										
Duplicate (A906260-DUP1)	**Source: A192405-01**	Prepared: 06/27/2019 Analyzed: 06/28/2019 08:24								
% Solids	96.6	0.00	% by Weight		96.5			0.150	20	

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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.
HC	Results may be biased high because of high continuing calibration verification (CCV).
D	Data reported from a dilution
ND	Analyte NOT DETECTED at or above the reporting limit or limit of detection (if listed).
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. 8439

Page: 1 of: 2

Lab Work Order #: A192405

Report To: Sharon Nordstrom
Company: AECOM
Address 1:
Address 2:
E-mail Address: Sharon.nordstrom@AECOM.com
Invoice To:
Company:
Address 1:
Address 2:

Project Number: 60525839
PO Number:
Project Name: Bio Pilot
Project Location (City, State): Barksdale, WI
Turn Around (check one): ☒ Normal ☐ Rush
If Rush, Report Due Date:
Sampled By (Print): Nick Sharkey & Dan Barton

Preservation Codes
Analyses Requested

Sample Description	Collection Date	Collection Time	Matrix	Total # of Containers	pH	% Moist	NNOCs added 06-20-19 JJ			Comments	Lab ID	Lab Receipt Time
BPSB-190604-C06 (0-1)	6/4/19	1550	S	2	X	X	X				01	
BPSB-190604-C12 (0-1)	↓	1535	S	2	X	X	↓				02	
BPSB-190604-C16 (0-1)	↓	1520	S	2	X	X	↓				03	
BPSB-190604-C17 (0-1)	↓	1610	S	2	X	X	↓				04	
BPSB-190604-C21 (0-1)	↓	1448	S	2	X	X	↓				05	
BPSB-190604-C24 (0-1)	↓	1454	S	2	X	X	↓				06	
BPSB-190604-C25 (0-1)	↓	1455	S	2	X	X	↓				07	
BPSB-190604-C26 (0-1)	↓	1500	S	2	X	X	↓				08	
BPSB-190604-C27 (0-1)	↓	1445	S	2	X	X	↓				09	
BPSB-190604-C28 (0-1)	↓	1500	S	2	X	X	↓				10	

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:	Time:	Received By:	Date:	Time:
[signature]	6/11/19	11:00	Jessica [signature]	6-12-19	1015

Custody Seal: ☐ NA ☒ Intact ☐ Not Intact
Shipped Via: FedEx
Receipt Temp: 4.3°C
Thermometer #/ Exp. Date: 160142274 07-13-19
Temp Blank: ☒ Y ☐ N

Rev. 12/15

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CHAIN OF CUSTODY

No. 8440

Page: 2 of: 2

Lab Work Order #: A192405

Project Number: 60525839 PO Number:

Project Name: Bio Pilot

Project Location (City, State): Barksdale, WI

Turn Around (check one): ☒ Normal ☐ Rush

If Rush, Report Due Date:

Sampled By (Print): Nick Sharkey

Report To:
Company:
Address 1:
Address 2:
E-mail Address:
Invoice To:
Company:
Address 1:
Address 2:

Preservation Codes

Analyses Requested

Sample Description	Collection Date	Collection Time	Matrix	Total # of Containers	pH	% Moist	NNOCs (added on 6-20-19 J)			Comments	Lab ID	Lab Receipt Time
BPSB-190610-C31 (0-1)	6/10/19	1600	S	2	X	X	X				11	
BPSB-190610-C33 (0-1)	6/10/19	1610	S	2	X	X	X				12	

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:	Time:	Received By:	Date:	Time:
[signature]	6/11/19	11:00	[signature]	06-12-19	1015
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

Custody Seal: ☐ NA ☒ Intact ☐ Not Intact

Shipped Via: FedEx

Receipt Temp: 4.3°C

Thermometer #/ Exp. Date: 160142274 07-31-19

Temp Blank: ☒ Y ☐ N

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September 03, 2019

Sharon Nordstrom
AECOM
4051 Ogletown Road
Newark, DE 19713

RE: Bio Pilot - Barksdale, WI

Enclosed are the analytical results for the samples received by the laboratory on 08/16/2019.

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	03/31/2020
ILEPA	Illinois Secondary NELAP Accreditation	004366	04/30/2020
KDHE	Kansas Secondary NELAP Accreditation	E-10384	04/30/2020
LELAP	Louisiana Primary NELAP Accreditation	04165	06/30/2020
NCDEQ	North Carolina Dept. of Environmental Quality Accreditation	688	12/31/2019
NJDEP	New Jersey Secondary NELAP Accreditation	WI004	06/30/2020
TCEQ	Texas Secondary NELAP Accreditation	T104704504-16-7	11/30/2019
WDNR	Wisconsin Certification under NR 149	113289110	08/31/2020

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AECOM	Project: Bio Pilot - Barksdale, WI
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-190814-C31-0-1	A193320-01	Soil	08/14/2019	08/16/2019

CASE NARRATIVE

Sample Receipt Information:
1 sample was received on 08/16/2019. Sample was received at 1.8 degrees Celsius. Sample was received in acceptable condition.

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

Sample Preparation:
Sample A193320-01 had to be re-extracted and re-analyzed for the explosives by GC/MS analysis due to the high pH of the sample. The re-extraction is presented in this report as sample number A193320-01RE1.

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Newark DE, 19713	Project Manager: Sharon Nordstrom

BPSB-190814-C31-0-1

A193320-01 (Soil)

Date Sampled
08/14/2019 13:15

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers

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pH by EPA Method 9045 — **Preparation Batch: A908189**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
pH	**12.4**		pH Units	1	08/21/2019	08/22/2019 09:24	EPA 9045D	

Classical Chemistry Parameters — **Preparation Batch: A908195**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
% Moisture	**46.3**	0.00	% by Weight	1	08/20/2019	08/21/2019 09:15	SM 2540B	
% Solids	**92.8**	0.00	% by Weight	1	08/26/2019	08/27/2019 09:17	SM 2540B	

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BPSB-190814-C31-0-1

A193320-01RE1 (Soil)

Date Sampled
08/14/2019 13:15

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Explosive Compounds by EPA Method 8270 — **Preparation Batch: A908224**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2-Dimethyl-3,4-Dinitrobenzene	ND	220	ug/kg dry	1	08/28/2019	08/28/2019 19:07	EPA 8270D	
1,2-Dimethyl-3,5-Dinitrobenzene	ND	220	ug/kg dry	1	08/28/2019	08/28/2019 19:07	EPA 8270D	
1,2-Dimethyl-3,6-Dinitrobenzene	ND	220	ug/kg dry	1	08/28/2019	08/28/2019 19:07	EPA 8270D	
1,2-Dimethyl-4,5-Dinitrobenzene	ND	220	ug/kg dry	1	08/28/2019	08/28/2019 19:07	EPA 8270D	
1,3,5-Trinitrobenzene	ND	220	ug/kg dry	1	08/28/2019	08/28/2019 19:07	EPA 8270D	
1,3-Dimethyl-2,4-Dinitrobenzene	ND	220	ug/kg dry	1	08/28/2019	08/28/2019 19:07	EPA 8270D	
1,3-Dimethyl-2,5-Dinitrobenzene	ND	220	ug/kg dry	1	08/28/2019	08/28/2019 19:07	EPA 8270D	
1,3-Dinitrobenzene	ND	220	ug/kg dry	1	08/28/2019	08/28/2019 19:07	EPA 8270D	
1,4-Dimethyl-2,3-Dinitrobenzene	ND	220	ug/kg dry	1	08/28/2019	08/28/2019 19:07	EPA 8270D	
1,4-Dimethyl-2,5-Dinitrobenzene	ND	220	ug/kg dry	1	08/28/2019	08/28/2019 19:07	EPA 8270D	
1,4-Dimethyl-2,6-Dinitrobenzene	ND	220	ug/kg dry	1	08/28/2019	08/28/2019 19:07	EPA 8270D	
1,5-Dimethyl-2,3-Dinitrobenzene	ND	220	ug/kg dry	1	08/28/2019	08/28/2019 19:07	EPA 8270D	
1,5-Dimethyl-2,4-Dinitrobenzene	ND	220	ug/kg dry	1	08/28/2019	08/28/2019 19:07	EPA 8270D	
2,3-Dinitrotoluene	ND	220	ug/kg dry	1	08/28/2019	08/28/2019 19:07	EPA 8270D	
2,4,6-Trinitrotoluene	**34000**	1700	ug/kg dry	8	08/28/2019	08/28/2019 19:38	EPA 8270D	D
2,4-Dinitrotoluene	ND	220	ug/kg dry	1	08/28/2019	08/28/2019 19:07	EPA 8270D	
2,5-Dinitrotoluene	ND	220	ug/kg dry	1	08/28/2019	08/28/2019 19:07	EPA 8270D	
2,6-Dinitrotoluene	ND	220	ug/kg dry	1	08/28/2019	08/28/2019 19:07	EPA 8270D	
2-Amino-4,6-dinitrotoluene	**320**	220	ug/kg dry	1	08/28/2019	08/28/2019 19:07	EPA 8270D	
2-Nitrotoluene	ND	220	ug/kg dry	1	08/28/2019	08/28/2019 19:07	EPA 8270D	
3,4-Dinitrotoluene	ND	220	ug/kg dry	1	08/28/2019	08/28/2019 19:07	EPA 8270D	
3,5-Dinitroaniline	ND	220	ug/kg dry	1	08/28/2019	08/28/2019 19:07	EPA 8270D	
3,5-Dinitrotoluene	ND	220	ug/kg dry	1	08/28/2019	08/28/2019 19:07	EPA 8270D	
3-Nitrotoluene	ND	220	ug/kg dry	1	08/28/2019	08/28/2019 19:07	EPA 8270D	
4-Amino-2,6-dinitrotoluene	**530**	220	ug/kg dry	1	08/28/2019	08/28/2019 19:07	EPA 8270D	
4-Nitrotoluene	ND	220	ug/kg dry	1	08/28/2019	08/28/2019 19:07	EPA 8270D	
Nitrobenzene	ND	220	ug/kg dry	1	08/28/2019	08/28/2019 19:07	EPA 8270D	
1,3,5-Trinitro-2,4-dimethylbenzene	**2200**	220	ug/kg dry	1	08/28/2019	08/28/2019 19:07	EPA 8270D	
Surrogate: 2,2'-Dinitrobiphenyl		*98.5 %*	*11.5-161*		*08/28/2019*	*08/28/2019 19:07*	*EPA 8270D*	
Surrogate: Nitrobenzene-d5		*105 %*	*65.1-116*		*08/28/2019*	*08/28/2019 19:07*	*EPA 8270D*	

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

pH by EPA Method 9045 - Quality Control

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch A908189 - Default Prep GenChem										
Duplicate (A908189-DUP1)	**Source: A193320-01**		Prepared: 08/21/2019 Analyzed: 08/22/2019 09:24							
pH	12.5		pH Units		12.4			0.900	20	

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Explosive Compounds by EPA Method 8270 - Quality Control

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch A908224 - EPA 3570										
Blank (A908224-BLK1)				Prepared: 08/28/2019 Analyzed: 08/28/2019 17:02						
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	*1060*		*ug/kg wet*	*2000*		*52.8*	*11.5-161*			
Surrogate: Nitrobenzene-d5	*2090*		*ug/kg wet*	*2000*		*105*	*65.1-116*			
LCS (A908224-BS1)				Prepared: 08/28/2019 Analyzed: 08/28/2019 16:31						
1,2-Dimethyl-3,4-Dinitrobenzene	2000	200	ug/kg wet	2038		98.1	73.6-111			
1,2-Dimethyl-3,5-Dinitrobenzene	1910	200	ug/kg wet	2000		95.6	71.6-112			
1,2-Dimethyl-3,6-Dinitrobenzene	1950	200	ug/kg wet	2000		97.4	76.3-114			
1,2-Dimethyl-4,5-Dinitrobenzene	1990	200	ug/kg wet	2002		99.2	68.8-113			
1,3,5-Trinitrobenzene	1880	200	ug/kg wet	2000		94.0	50.6-126			
1,3-Dimethyl-2,4-Dinitrobenzene	2040	200	ug/kg wet	2000		102	67.9-111			
1,3-Dimethyl-2,5-Dinitrobenzene	1970	200	ug/kg wet	2000		98.6	75-113			
1,3-Dinitrobenzene	2060	200	ug/kg wet	2000		103	52.9-125			
1,4-Dimethyl-2,3-Dinitrobenzene	1990	200	ug/kg wet	2082		95.8	72.6-107			
1,4-Dimethyl-2,5-Dinitrobenzene	1930	200	ug/kg wet	2096		92.3	70.8-106			
1,4-Dimethyl-2,6-Dinitrobenzene	1980	200	ug/kg wet	2066		96.0	68.3-107			
1,5-Dimethyl-2,3-Dinitrobenzene	1970	200	ug/kg wet	2000		98.6	73.3-110			
1,5-Dimethyl-2,4-Dinitrobenzene	1940	200	ug/kg wet	2058		94.2	70.2-109			
2,3-Dinitrotoluene	1990	200	ug/kg wet	2000		99.5	64.2-125			

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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 A908224 - EPA 3570										
LCS (A908224-BS1)				Prepared: 08/28/2019 Analyzed: 08/28/2019 16:31						
2,4,6-Trinitrotoluene	2050	200	ug/kg wet	2000		102	57.1-139			
2,4-Dinitrotoluene	2000	200	ug/kg wet	2000		99.8	67.4-120			
2,5-Dinitrotoluene	1960	200	ug/kg wet	2000		98.0	62-124			
2,6-Dinitrotoluene	2070	200	ug/kg wet	2000		104	74.6-116			
2-Amino-4,6-dinitrotoluene	2020	200	ug/kg wet	2000		101	65.9-110			
2-Nitrotoluene	2130	200	ug/kg wet	2000		106	76.3-114			
3,4-Dinitrotoluene	1930	200	ug/kg wet	2026		95.2	68.2-117			
3,5-Dinitroaniline	1920	200	ug/kg wet	2000		96.0	61.6-115			
3,5-Dinitrotoluene	1960	200	ug/kg wet	2000		98.0	70.5-120			
3-Nitrotoluene	2040	200	ug/kg wet	2000		102	77.4-113			
4-Amino-2,6-dinitrotoluene	2100	200	ug/kg wet	2000		105	57.5-113			
4-Nitrotoluene	2000	200	ug/kg wet	2000		99.8	74.8-112			
Nitrobenzene	2000	200	ug/kg wet	2000		100	77-115			
Surrogate: 2,2´-Dinitrobiphenyl	*2110*		*ug/kg wet*	*2000*		*106*	*11.5-161*			
Surrogate: Nitrobenzene-d5	*2070*		*ug/kg wet*	*2000*		*103*	*65.1-116*			
Matrix Spike (A908224-MS1)	**Source: A193506-03**			Prepared: 08/28/2019 Analyzed: 08/28/2019 15:28						
1,2-Dimethyl-3,4-Dinitrobenzene	1910	200	ug/kg dry	2088	ND	91.6	59.9-113			
1,2-Dimethyl-3,5-Dinitrobenzene	1820	200	ug/kg dry	2049	ND	88.9	63.5-111			
1,2-Dimethyl-3,6-Dinitrobenzene	2000	200	ug/kg dry	2049	ND	97.5	67.8-114			
1,2-Dimethyl-4,5-Dinitrobenzene	2110	200	ug/kg dry	2051	ND	103	58.4-113			
1,3,5-Trinitrobenzene	1800	200	ug/kg dry	2049	ND	88.1	12.3-150			
1,3-Dimethyl-2,4-Dinitrobenzene	2080	200	ug/kg dry	2049	ND	102	63.6-111			
1,3-Dimethyl-2,5-Dinitrobenzene	2010	200	ug/kg dry	2049	ND	97.9	70.7-112			
1,3-Dinitrobenzene	1760	200	ug/kg dry	2049	ND	85.9	32.8-135			
1,4-Dimethyl-2,3-Dinitrobenzene	2000	200	ug/kg dry	2133	ND	93.9	58.1-109			
1,4-Dimethyl-2,5-Dinitrobenzene	2000	200	ug/kg dry	2148	ND	93.0	64.1-108			
1,4-Dimethyl-2,6-Dinitrobenzene	2040	200	ug/kg dry	2117	ND	96.4	64.3-107			
1,5-Dimethyl-2,3-Dinitrobenzene	1860	200	ug/kg dry	2049	ND	90.9	61.6-112			
1,5-Dimethyl-2,4-Dinitrobenzene	1990	200	ug/kg dry	2109	ND	94.5	58-113			
2,3-Dinitrotoluene	1920	200	ug/kg dry	2049	ND	93.6	61.1-127			
2,4,6-Trinitrotoluene	60400	2000	ug/kg dry	2049	33800	NR	38.8-138			M1, D
2,4-Dinitrotoluene	1990	200	ug/kg dry	2049	144	90.1	44.1-133			
2,5-Dinitrotoluene	2030	200	ug/kg dry	2049	ND	99.1	58.3-132			
2,6-Dinitrotoluene	1970	200	ug/kg dry	2049	ND	96.1	52.5-128			
2-Amino-4,6-dinitrotoluene	2410	200	ug/kg dry	2049	596	88.5	18-135			
2-Nitrotoluene	2050	200	ug/kg dry	2049	ND	100	73.9-113			
3,4-Dinitrotoluene	1890	200	ug/kg dry	2076	ND	90.9	52.8-120			
3,5-Dinitroaniline	1910	200	ug/kg dry	2049	ND	93.3	22.9-131			
3,5-Dinitrotoluene	1950	200	ug/kg dry	2049	ND	95.4	59.3-135			
3-Nitrotoluene	2000	200	ug/kg dry	2049	ND	97.7	73.6-116			
4-Amino-2,6-dinitrotoluene	2870	200	ug/kg dry	2049	687	107	10-144			
4-Nitrotoluene	1980	200	ug/kg dry	2049	ND	96.7	71.2-114			
Nitrobenzene	1960	200	ug/kg dry	2049	ND	95.8	72.5-112			
Surrogate: 2,2´-Dinitrobiphenyl	*2430*		*ug/kg dry*	*2049*		*119*	*11.5-161*			
Surrogate: Nitrobenzene-d5	*1900*		*ug/kg dry*	*2049*		*92.8*	*65.1-116*			

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Newark DE, 19713	Project Manager: Sharon Nordstrom

Explosive Compounds by EPA Method 8270 - Quality Control

Pace Analytical - Madison

Batch A908224 - EPA 3570

Matrix Spike Dup (A908224-MSD1) **Source: A193506-03** Prepared: 08/28/2019 Analyzed: 08/28/2019 15:59

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2-Dimethyl-3,4-Dinitrobenzene	1980	200	ug/kg dry	2088	ND	94.8	59.9-113	3.49	20	
1,2-Dimethyl-3,5-Dinitrobenzene	1920	200	ug/kg dry	2049	ND	93.9	63.5-111	5.45	20	
1,2-Dimethyl-3,6-Dinitrobenzene	2090	200	ug/kg dry	2049	ND	102	67.8-114	4.42	20	
1,2-Dimethyl-4,5-Dinitrobenzene	2230	200	ug/kg dry	2051	ND	109	58.4-113	5.17	20	
1,3,5-Trinitrobenzene	1960	200	ug/kg dry	2049	ND	95.7	12.3-150	8.26	20	
1,3-Dimethyl-2,4-Dinitrobenzene	2180	200	ug/kg dry	2049	ND	106	63.6-111	4.47	20	
1,3-Dimethyl-2,5-Dinitrobenzene	2080	200	ug/kg dry	2049	ND	101	70.7-112	3.45	20	
1,3-Dinitrobenzene	2050	200	ug/kg dry	2049	ND	100	32.8-135	15.3	20	
1,4-Dimethyl-2,3-Dinitrobenzene	2080	200	ug/kg dry	2133	ND	97.3	58.1-109	3.62	20	
1,4-Dimethyl-2,5-Dinitrobenzene	2080	200	ug/kg dry	2148	ND	97.1	64.1-108	4.27	20	
1,4-Dimethyl-2,6-Dinitrobenzene	2120	200	ug/kg dry	2117	ND	100	64.3-107	3.83	20	
1,5-Dimethyl-2,3-Dinitrobenzene	1970	200	ug/kg dry	2049	ND	96.1	61.6-112	5.58	20	
1,5-Dimethyl-2,4-Dinitrobenzene	2090	200	ug/kg dry	2109	ND	99.1	58-113	4.73	20	
2,3-Dinitrotoluene	2050	200	ug/kg dry	2049	ND	99.9	61.1-127	6.51	20	
2,4,6-Trinitrotoluene	47600	2000	ug/kg dry	2049	33800	676	38.8-138	23.6	20	M1, D
2,4-Dinitrotoluene	2080	200	ug/kg dry	2049	144	94.6	44.1-133	4.55	20	
2,5-Dinitrotoluene	2200	200	ug/kg dry	2049	ND	107	58.3-132	7.92	20	
2,6-Dinitrotoluene	2110	200	ug/kg dry	2049	ND	103	52.5-128	7.07	20	
2-Amino-4,6-dinitrotoluene	2480	200	ug/kg dry	2049	596	91.8	18-135	2.74	20	
2-Nitrotoluene	2220	200	ug/kg dry	2049	ND	109	73.9-113	8.22	20	
3,4-Dinitrotoluene	1970	200	ug/kg dry	2076	ND	94.7	52.8-120	4.12	20	
3,5-Dinitroaniline	1940	200	ug/kg dry	2049	ND	94.4	22.9-131	1.21	20	
3,5-Dinitrotoluene	2090	200	ug/kg dry	2049	ND	102	59.3-135	6.48	20	
3-Nitrotoluene	2120	200	ug/kg dry	2049	ND	103	73.6-116	5.71	20	
4-Amino-2,6-dinitrotoluene	2900	200	ug/kg dry	2049	687	108	10-144	0.834	20	
4-Nitrotoluene	2060	200	ug/kg dry	2049	ND	101	71.2-114	4.13	20	
Nitrobenzene	2060	200	ug/kg dry	2049	ND	101	72.5-112	5.00	20	
Surrogate: 2,2´-Dinitrobiphenyl	*2470*		*ug/kg dry*	*2049*		*121*	*11.5-161*			
Surrogate: Nitrobenzene-d5	*2120*		*ug/kg dry*	*2049*		*103*	*65.1-116*			

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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 A908195 - % Solids										
Duplicate (A908195-DUP1)	**Source: A193320-01**		Prepared: 08/20/2019 Analyzed: 08/21/2019 09:15							
% Moisture	48.4	0.00	% by Weight		46.3			4.41	20	
Batch A908211 - % Solids										
Duplicate (A908211-DUP1)	**Source: A193320-01**		Prepared: 08/26/2019 Analyzed: 08/27/2019 09:17							
% Solids	92.9	0.00	% by Weight		92.8			0.0561	20	

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AECOM		Project:	Bio Pilot - Barksdale, WI
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.
D	Data reported from a dilution
ND	Analyte NOT DETECTED at or above the reporting limit or limit of detection (if listed).
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

x

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CHAIN OF CUSTODY

No. 8446

Page: of:

Lab Work Order #: A193320

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

Invoice To:
Company:
Address 1:
Address 2:

Project Number: 507911/60525839 PO Number:
Project Name: BioPilot
Project Location (City, State): Barksdale, WI
Turn Around (check one): ☒ Normal ☐ Rush
If Rush, Report Due Date:
Sampled By (Print): Desmond Nielsen

Preservation Codes: A, A
Analyses Requested

Sample Description	Collection Date	Collection Time	Matrix	Total # of Containers	NVOCs	pH					Comments	Lab ID	Lab Receipt Time
BPSB-190814-C31 (0-1)	8/14/19	1315	S	2	X	X						01	

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:
FedEx
7759 9029 1478

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
[signature]	8/15/19	746	[signature]	8/16/19	0930
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

Custody Seal: ☐ NA ☒ Intact ☐ Not Intact
Shipped Via: FedEx
Receipt Temp: 1.8°C
Thermometer #/ Exp. Date: 160142274 12/20/19
Temp Blank: ☒ Y ☐ N

Rev. 12/15

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October 31, 2019

Sharon Nordstrom
AECOM
4051 Ogletown Road
Newark, DE 19713

RE: Bio Pilot - Barksdale, WI

Enclosed are the analytical results for the samples received by the laboratory on 10/17/2019.

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	03/31/2020
ILEPA	Illinois Secondary NELAP Accreditation	004366	04/30/2020
KDHE	Kansas Secondary NELAP Accreditation	E-10384	04/30/2020
LELAP	Louisiana Primary NELAP Accreditation	04165	06/30/2020
NCDEQ	North Carolina Dept. of Environmental Quality Accreditation	688	12/31/2019
NJDEP	New Jersey Secondary NELAP Accreditation	WI004	06/30/2020
TCEQ	Texas Secondary NELAP Accreditation	T104704504-16-7	11/30/2019
WDNR	Wisconsin Certification under NR 149	113289110	08/31/2020

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AECOM	Project:	Bio Pilot - Barksdale, WI
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
BPSP-191015-C-33	A194211-01	Soil	10/15/2019	10/17/2019
BPSP-191015-C-35	A194211-02	Soil	10/15/2019	10/17/2019
BPSP-191015-C-36	A194211-03	Soil	10/15/2019	10/17/2019
BPSP-190913-C-20	A194211-04	Soil	09/13/2019	10/17/2019

CASE NARRATIVE

Sample Receipt Information:
4 samples were received on 10/17/2019. Samples were received at 2.3 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 - Barksdale, WI
4051 Ogletown Road	Project Number: 60525839
Newark DE, 19713	Project Manager: Sharon Nordstrom

BPSP-191015-C-33

A194211-01 (Soil)

Date Sampled
10/15/2019 09:21

Pace Analytical - Madison

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
pH by EPA Method 9045						**Preparation Batch: A910284**		
pH	**11.3**		pH Units	1	10/25/2019	10/25/2019 10:38	EPA 9045D	
Explosive Compounds by EPA Method 8270						**Preparation Batch: A910269**		
1,2-Dimethyl-3,4-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:20	EPA 8270D	
1,2-Dimethyl-3,5-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:20	EPA 8270D	
1,2-Dimethyl-3,6-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:20	EPA 8270D	
1,2-Dimethyl-4,5-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:20	EPA 8270D	
1,3,5-Trinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:20	EPA 8270D	
1,3-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:20	EPA 8270D	
1,3-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:20	EPA 8270D	
1,3-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:20	EPA 8270D	
1,4-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:20	EPA 8270D	
1,4-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:20	EPA 8270D	
1,4-Dimethyl-2,6-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:20	EPA 8270D	
1,5-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:20	EPA 8270D	
1,5-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:20	EPA 8270D	
2,3-Dinitrotoluene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:20	EPA 8270D	
2,4,6-Trinitrotoluene	**17000**	200	ug/kg dry	1	10/21/2019	10/22/2019 15:20	EPA 8270D	
2,4-Dinitrotoluene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:20	EPA 8270D	
2,5-Dinitrotoluene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:20	EPA 8270D	
2,6-Dinitrotoluene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:20	EPA 8270D	
2-Amino-4,6-dinitrotoluene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:20	EPA 8270D	
2-Nitrotoluene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:20	EPA 8270D	
3,4-Dinitrotoluene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:20	EPA 8270D	
3,5-Dinitroaniline	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:20	EPA 8270D	
3,5-Dinitrotoluene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:20	EPA 8270D	
3-Nitrotoluene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:20	EPA 8270D	
4-Amino-2,6-dinitrotoluene	**640**	200	ug/kg dry	1	10/21/2019	10/22/2019 15:20	EPA 8270D	
4-Nitrotoluene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:20	EPA 8270D	
Nitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:20	EPA 8270D	
1,3,5-Trinitro-2,4-dimethylbenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:20	EPA 8270D	
Surrogate: 2,2´-Dinitrobiphenyl		*46.6 %*	*11.5-161*		*10/21/2019*	*10/22/2019 15:20*	*EPA 8270D*	
Surrogate: Nitrobenzene-d5		*55.5 %*	*65.1-116*		*10/21/2019*	*10/22/2019 15:20*	*EPA 8270D*	*S*
Classical Chemistry Parameters						**Preparation Batch: A910293**		
% Moisture	**15.1**	0.00	% by Weight	1	10/29/2019	10/30/2019 08:53	SM 2540B	
% Solids	**98.4**	0.00	% by Weight	1	10/22/2019	10/23/2019 09:19	SM 2540B	

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

BPSP-191015-C-35

A194211-02 (Soil)

Date Sampled
10/15/2019 09:36

Pace Analytical - Madison

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
pH by EPA Method 9045					**Preparation Batch: A910284**			
pH	**12.4**		pH Units	1	10/25/2019	10/25/2019 10:50	EPA 9045D	
Explosive Compounds by EPA Method 8270					**Preparation Batch: A910269**			
1,2-Dimethyl-3,4-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:52	EPA 8270D	
1,2-Dimethyl-3,5-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:52	EPA 8270D	
1,2-Dimethyl-3,6-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:52	EPA 8270D	
1,2-Dimethyl-4,5-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:52	EPA 8270D	
1,3,5-Trinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:52	EPA 8270D	
1,3-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:52	EPA 8270D	
1,3-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:52	EPA 8270D	
1,3-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:52	EPA 8270D	
1,4-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:52	EPA 8270D	
1,4-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:52	EPA 8270D	
1,4-Dimethyl-2,6-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:52	EPA 8270D	
1,5-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:52	EPA 8270D	
1,5-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:52	EPA 8270D	
2,3-Dinitrotoluene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:52	EPA 8270D	
2,4,6-Trinitrotoluene	**130000**	4100	ug/kg dry	20	10/21/2019	10/23/2019 21:31	EPA 8270D	D
2,4-Dinitrotoluene	**220**	200	ug/kg dry	1	10/21/2019	10/22/2019 15:52	EPA 8270D	
2,5-Dinitrotoluene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:52	EPA 8270D	
2,6-Dinitrotoluene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:52	EPA 8270D	
2-Amino-4,6-dinitrotoluene	**630**	200	ug/kg dry	1	10/21/2019	10/22/2019 15:52	EPA 8270D	
2-Nitrotoluene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:52	EPA 8270D	
3,4-Dinitrotoluene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:52	EPA 8270D	
3,5-Dinitroaniline	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:52	EPA 8270D	
3,5-Dinitrotoluene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:52	EPA 8270D	
3-Nitrotoluene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:52	EPA 8270D	
4-Amino-2,6-dinitrotoluene	**2200**	200	ug/kg dry	1	10/21/2019	10/22/2019 15:52	EPA 8270D	
4-Nitrotoluene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:52	EPA 8270D	
Nitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 15:52	EPA 8270D	
1,3,5-Trinitro-2,4-dimethylbenzene	**570**	200	ug/kg dry	1	10/21/2019	10/22/2019 15:52	EPA 8270D	
Surrogate: 2,2´-Dinitrobiphenyl		*50.9 %*	*11.5-161*		*10/21/2019*	*10/22/2019 15:52*	*EPA 8270D*	
Surrogate: Nitrobenzene-d5		*57.0 %*	*65.1-116*		*10/21/2019*	*10/22/2019 15:52*	*EPA 8270D*	*S*
Classical Chemistry Parameters					**Preparation Batch: A910293**			
% Moisture	**22.8**	0.00	% by Weight	1	10/29/2019	10/30/2019 08:53	SM 2540B	
% Solids	**97.8**	0.00	% by Weight	1	10/22/2019	10/23/2019 09:19	SM 2540B	

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

BPSP-191015-C-36

A194211-03 (Soil)

Date Sampled
10/15/2019 09:32

Pace Analytical - Madison

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
pH by EPA Method 9045					**Preparation Batch: A910284**			
pH	**12.4**		pH Units	1	10/25/2019	10/25/2019 10:55	EPA 9045D	
Explosive Compounds by EPA Method 8270					**Preparation Batch: A910269**			
1,2-Dimethyl-3,4-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 16:23	EPA 8270D	
1,2-Dimethyl-3,5-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 16:23	EPA 8270D	
1,2-Dimethyl-3,6-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 16:23	EPA 8270D	
1,2-Dimethyl-4,5-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 16:23	EPA 8270D	
1,3,5-Trinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 16:23	EPA 8270D	
1,3-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 16:23	EPA 8270D	
1,3-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 16:23	EPA 8270D	
1,3-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 16:23	EPA 8270D	
1,4-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 16:23	EPA 8270D	
1,4-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 16:23	EPA 8270D	
1,4-Dimethyl-2,6-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 16:23	EPA 8270D	
1,5-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 16:23	EPA 8270D	
1,5-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 16:23	EPA 8270D	
2,3-Dinitrotoluene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 16:23	EPA 8270D	
2,4,6-Trinitrotoluene	**740000**	8200	ug/kg dry	40	10/21/2019	10/28/2019 14:40	EPA 8270D	D
2,4-Dinitrotoluene	**240**	200	ug/kg dry	1	10/21/2019	10/22/2019 16:23	EPA 8270D	
2,5-Dinitrotoluene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 16:23	EPA 8270D	
2,6-Dinitrotoluene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 16:23	EPA 8270D	
2-Amino-4,6-dinitrotoluene	**1000**	200	ug/kg dry	1	10/21/2019	10/22/2019 16:23	EPA 8270D	
2-Nitrotoluene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 16:23	EPA 8270D	
3,4-Dinitrotoluene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 16:23	EPA 8270D	
3,5-Dinitroaniline	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 16:23	EPA 8270D	
3,5-Dinitrotoluene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 16:23	EPA 8270D	
3-Nitrotoluene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 16:23	EPA 8270D	
4-Amino-2,6-dinitrotoluene	**2900**	200	ug/kg dry	1	10/21/2019	10/22/2019 16:23	EPA 8270D	
4-Nitrotoluene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 16:23	EPA 8270D	
Nitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 16:23	EPA 8270D	
1,3,5-Trinitro-2,4-dimethylbenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 16:23	EPA 8270D	
Surrogate: 2,2´-Dinitrobiphenyl		*90.9 %*	*11.5-161*		*10/21/2019*	*10/22/2019 16:23*	*EPA 8270D*	
Surrogate: Nitrobenzene-d5		*93.4 %*	*65.1-116*		*10/21/2019*	*10/22/2019 16:23*	*EPA 8270D*	
Classical Chemistry Parameters					**Preparation Batch: A910293**			
% Moisture	**20.1**	0.00	% by Weight	1	10/29/2019	10/30/2019 08:53	SM 2540B	
% Solids	**97.9**	0.00	% by Weight	1	10/22/2019	10/23/2019 09:19	SM 2540B	

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

BPSP-190913-C-20

A194211-04 (Soil)

Date Sampled
09/13/2019 10:12

Pace Analytical - Madison

Explosive Compounds by EPA Method 8270 — **Preparation Batch: A910269**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2-Dimethyl-3,4-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 17:57	EPA 8270D	
1,2-Dimethyl-3,5-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 17:57	EPA 8270D	
1,2-Dimethyl-3,6-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 17:57	EPA 8270D	
1,2-Dimethyl-4,5-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 17:57	EPA 8270D	
1,3,5-Trinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 17:57	EPA 8270D	
1,3-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 17:57	EPA 8270D	
1,3-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 17:57	EPA 8270D	
1,3-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 17:57	EPA 8270D	
1,4-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 17:57	EPA 8270D	
1,4-Dimethyl-2,5-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 17:57	EPA 8270D	
1,4-Dimethyl-2,6-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 17:57	EPA 8270D	
1,5-Dimethyl-2,3-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 17:57	EPA 8270D	
1,5-Dimethyl-2,4-Dinitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 17:57	EPA 8270D	
2,3-Dinitrotoluene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 17:57	EPA 8270D	
2,4,6-Trinitrotoluene	**220**	200	ug/kg dry	1	10/21/2019	10/22/2019 17:57	EPA 8270D	
2,4-Dinitrotoluene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 17:57	EPA 8270D	
2,5-Dinitrotoluene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 17:57	EPA 8270D	
2,6-Dinitrotoluene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 17:57	EPA 8270D	
2-Amino-4,6-dinitrotoluene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 17:57	EPA 8270D	
2-Nitrotoluene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 17:57	EPA 8270D	
3,4-Dinitrotoluene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 17:57	EPA 8270D	
3,5-Dinitroaniline	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 17:57	EPA 8270D	
3,5-Dinitrotoluene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 17:57	EPA 8270D	
3-Nitrotoluene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 17:57	EPA 8270D	
4-Amino-2,6-dinitrotoluene	**450**	200	ug/kg dry	1	10/21/2019	10/22/2019 17:57	EPA 8270D	
4-Nitrotoluene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 17:57	EPA 8270D	
Nitrobenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 17:57	EPA 8270D	
1,3,5-Trinitro-2,4-dimethylbenzene	ND	200	ug/kg dry	1	10/21/2019	10/22/2019 17:57	EPA 8270D	
Surrogate: 2,2´-Dinitrobiphenyl		*75.0 %*	*11.5-161*		*10/21/2019*	*10/22/2019 17:57*	*EPA 8270D*	
Surrogate: Nitrobenzene-d5		*93.1 %*	*65.1-116*		*10/21/2019*	*10/22/2019 17:57*	*EPA 8270D*	

Classical Chemistry Parameters — **Preparation Batch: A910277**

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
% Solids	**98.5**	0.00	% by Weight	1	10/22/2019	10/23/2019 09:19	SM 2540B	

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Newark DE, 19713	Project Manager:	Sharon Nordstrom

pH by EPA Method 9045 - Quality Control

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch A910284 - Default Prep GenChem										
Duplicate (A910284-DUP1)		**Source: A194211-01**		Prepared: 10/25/2019 Analyzed: 10/25/2019 10:45						
pH	11.8		pH Units		11.3			4.04	20	

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Explosive Compounds by EPA Method 8270 - Quality Control

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch A910269 - EPA 3570										
Blank (A910269-BLK1)				Prepared: 10/21/2019 Analyzed: 10/22/2019 11:55						
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	*1030*		*ug/kg wet*	*1943*		*53.0*	*11.5-161*			
Surrogate: Nitrobenzene-d5	*1840*		*ug/kg wet*	*2000*		*92.0*	*65.1-116*			
LCS (A910269-BS1)				Prepared: 10/21/2019 Analyzed: 10/22/2019 14:49						
1,2-Dimethyl-3,4-Dinitrobenzene	1980	200	ug/kg wet	1996		99.4	73.6-111			
1,2-Dimethyl-3,5-Dinitrobenzene	1940	200	ug/kg wet	2020		96.0	71.6-112			
1,2-Dimethyl-3,6-Dinitrobenzene	2020	200	ug/kg wet	1999		101	76.3-114			
1,2-Dimethyl-4,5-Dinitrobenzene	1930	200	ug/kg wet	2026		95.2	68.8-113			
1,3,5-Trinitrobenzene	1500	200	ug/kg wet	2000		74.8	50.6-126			
1,3-Dimethyl-2,4-Dinitrobenzene	1850	200	ug/kg wet	2020		91.3	67.9-111			
1,3-Dimethyl-2,5-Dinitrobenzene	2020	200	ug/kg wet	2002		101	75-113			
1,3-Dinitrobenzene	1540	200	ug/kg wet	2000		76.9	52.9-125			
1,4-Dimethyl-2,3-Dinitrobenzene	1910	200	ug/kg wet	2006		95.1	72.6-107			
1,4-Dimethyl-2,5-Dinitrobenzene	2010	200	ug/kg wet	2026		99.0	70.8-106			
1,4-Dimethyl-2,6-Dinitrobenzene	1960	200	ug/kg wet	1996		98.4	68.3-107			
1,5-Dimethyl-2,3-Dinitrobenzene	1890	200	ug/kg wet	2012		93.7	73.3-110			
1,5-Dimethyl-2,4-Dinitrobenzene	1880	200	ug/kg wet	1966		95.8	70.2-109			
2,3-Dinitrotoluene	2000	200	ug/kg wet	2000		99.9	64.2-125			

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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 A910269 - EPA 3570										
LCS (A910269-BS1)				Prepared: 10/21/2019 Analyzed: 10/22/2019 14:49						
2,4,6-Trinitrotoluene	1680	200	ug/kg wet	2000		83.8	57.1-139			
2,4-Dinitrotoluene	1900	200	ug/kg wet	2000		95.2	67.4-120			
2,5-Dinitrotoluene	1810	200	ug/kg wet	2000		90.5	62-124			
2,6-Dinitrotoluene	1890	200	ug/kg wet	2000		94.7	74.6-116			
2-Amino-4,6-dinitrotoluene	1640	200	ug/kg wet	2000		82.2	65.9-110			
2-Nitrotoluene	1720	200	ug/kg wet	2000		86.0	76.3-114			
3,4-Dinitrotoluene	1960	200	ug/kg wet	2000		98.0	68.2-117			
3,5-Dinitroaniline	1790	200	ug/kg wet	2000		89.3	61.6-115			
3,5-Dinitrotoluene	2020	200	ug/kg wet	2000		101	70.5-120			
3-Nitrotoluene	1760	200	ug/kg wet	2000		87.8	77.4-113			
4-Amino-2,6-dinitrotoluene	1660	200	ug/kg wet	2000		82.9	57.5-113			
4-Nitrotoluene	1830	200	ug/kg wet	2000		91.5	74.8-112			
Nitrobenzene	1910	200	ug/kg wet	2000		95.5	77-115			
Surrogate: 2,2´-Dinitrobiphenyl	*1680*		*ug/kg wet*	*1943*		*86.5*	*11.5-161*			
Surrogate: Nitrobenzene-d5	*1830*		*ug/kg wet*	*2000*		*91.5*	*65.1-116*			
Matrix Spike (A910269-MS1)	**Source: A194211-04**			Prepared: 10/21/2019 Analyzed: 10/22/2019 18:29						
1,2-Dimethyl-3,4-Dinitrobenzene	1960	200	ug/kg dry	2027	ND	96.6	59.9-113			
1,2-Dimethyl-3,5-Dinitrobenzene	1920	200	ug/kg dry	2051	ND	93.5	63.5-111			
1,2-Dimethyl-3,6-Dinitrobenzene	2050	200	ug/kg dry	2030	ND	101	67.8-114			
1,2-Dimethyl-4,5-Dinitrobenzene	1940	200	ug/kg dry	2057	ND	94.1	58.4-113			
1,3,5-Trinitrobenzene	1420	200	ug/kg dry	2031	ND	70.0	12.3-150			
1,3-Dimethyl-2,4-Dinitrobenzene	1870	200	ug/kg dry	2051	ND	91.1	63.6-111			
1,3-Dimethyl-2,5-Dinitrobenzene	2050	200	ug/kg dry	2033	ND	101	70.7-112			
1,3-Dinitrobenzene	1590	200	ug/kg dry	2031	ND	78.5	32.8-135			
1,4-Dimethyl-2,3-Dinitrobenzene	1960	200	ug/kg dry	2037	ND	96.1	58.1-109			
1,4-Dimethyl-2,5-Dinitrobenzene	2040	200	ug/kg dry	2057	ND	99.3	64.1-108			
1,4-Dimethyl-2,6-Dinitrobenzene	2010	200	ug/kg dry	2027	ND	99.1	64.3-107			
1,5-Dimethyl-2,3-Dinitrobenzene	1880	200	ug/kg dry	2043	ND	91.8	61.6-112			
1,5-Dimethyl-2,4-Dinitrobenzene	1940	200	ug/kg dry	1996	ND	97.0	58-113			
2,3-Dinitrotoluene	1930	200	ug/kg dry	2031	ND	95.1	61.1-127			
2,4,6-Trinitrotoluene	2430	200	ug/kg dry	2031	221	109	38.8-138			
2,4-Dinitrotoluene	2240	200	ug/kg dry	2031	140	104	44.1-133			
2,5-Dinitrotoluene	1890	200	ug/kg dry	2031	ND	92.9	58.3-132			
2,6-Dinitrotoluene	1990	200	ug/kg dry	2031	ND	97.8	52.5-128			
2-Amino-4,6-dinitrotoluene	1890	200	ug/kg dry	2031	149	85.6	18-135			
2-Nitrotoluene	1790	200	ug/kg dry	2031	ND	88.4	73.9-113			
3,4-Dinitrotoluene	1940	200	ug/kg dry	2031	ND	95.4	52.8-120			
3,5-Dinitroaniline	1710	200	ug/kg dry	2031	ND	84.3	22.9-131			
3,5-Dinitrotoluene	2050	200	ug/kg dry	2031	ND	101	59.3-135			
3-Nitrotoluene	1870	200	ug/kg dry	2031	ND	91.8	73.6-116			
4-Amino-2,6-dinitrotoluene	2500	200	ug/kg dry	2031	454	101	10-144			
4-Nitrotoluene	1910	200	ug/kg dry	2031	ND	94.2	71.2-114			
Nitrobenzene	1970	200	ug/kg dry	2031	ND	97.1	72.5-112			
Surrogate: 2,2´-Dinitrobiphenyl	*1730*		*ug/kg dry*	*1973*		*87.7*	*11.5-161*			
Surrogate: Nitrobenzene-d5	*1900*		*ug/kg dry*	*2031*		*93.4*	*65.1-116*			

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Newark DE, 19713	Project Manager:	Sharon Nordstrom

Explosive Compounds by EPA Method 8270 - Quality Control

Pace Analytical - Madison

Batch A910269 - EPA 3570

Matrix Spike Dup (A910269-MSD1) **Source: A194211-04** Prepared: 10/21/2019 Analyzed: 10/22/2019 19:00

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2-Dimethyl-3,4-Dinitrobenzene	1920	200	ug/kg dry	2027	ND	95.0	59.9-113	1.70	20	
1,2-Dimethyl-3,5-Dinitrobenzene	1920	200	ug/kg dry	2051	ND	93.5	63.5-111	0.0730	20	
1,2-Dimethyl-3,6-Dinitrobenzene	2100	200	ug/kg dry	2030	ND	103	67.8-114	2.18	20	
1,2-Dimethyl-4,5-Dinitrobenzene	1920	200	ug/kg dry	2057	ND	93.3	58.4-113	0.842	20	
1,3,5-Trinitrobenzene	1430	200	ug/kg dry	2031	ND	70.4	12.3-150	0.565	20	
1,3-Dimethyl-2,4-Dinitrobenzene	1910	200	ug/kg dry	2051	ND	93.2	63.6-111	2.25	20	
1,3-Dimethyl-2,5-Dinitrobenzene	2070	200	ug/kg dry	2033	ND	102	70.7-112	0.728	20	
1,3-Dinitrobenzene	1650	200	ug/kg dry	2031	ND	81.2	32.8-135	3.40	20	
1,4-Dimethyl-2,3-Dinitrobenzene	1970	200	ug/kg dry	2037	ND	96.9	58.1-109	0.854	20	
1,4-Dimethyl-2,5-Dinitrobenzene	2040	200	ug/kg dry	2057	ND	99.2	64.1-108	0.127	20	
1,4-Dimethyl-2,6-Dinitrobenzene	2030	200	ug/kg dry	2027	ND	100	64.3-107	0.944	20	
1,5-Dimethyl-2,3-Dinitrobenzene	1880	200	ug/kg dry	2043	ND	92.2	61.6-112	0.452	20	
1,5-Dimethyl-2,4-Dinitrobenzene	1960	200	ug/kg dry	1996	ND	98.3	58-113	1.40	20	
2,3-Dinitrotoluene	1970	200	ug/kg dry	2031	ND	96.8	61.1-127	1.74	20	
2,4,6-Trinitrotoluene	2480	200	ug/kg dry	2031	221	111	38.8-138	2.14	20	
2,4-Dinitrotoluene	2430	200	ug/kg dry	2031	140	113	44.1-133	7.90	20	
2,5-Dinitrotoluene	1950	200	ug/kg dry	2031	ND	96.0	58.3-132	3.25	20	
2,6-Dinitrotoluene	2060	200	ug/kg dry	2031	ND	102	52.5-128	3.85	20	
2-Amino-4,6-dinitrotoluene	1870	200	ug/kg dry	2031	149	84.9	18-135	0.761	20	
2-Nitrotoluene	1820	200	ug/kg dry	2031	ND	89.7	73.9-113	1.49	20	
3,4-Dinitrotoluene	1960	200	ug/kg dry	2031	ND	96.7	52.8-120	1.41	20	
3,5-Dinitroaniline	1740	200	ug/kg dry	2031	ND	85.5	22.9-131	1.41	20	
3,5-Dinitrotoluene	2060	200	ug/kg dry	2031	ND	102	59.3-135	0.747	20	
3-Nitrotoluene	1900	200	ug/kg dry	2031	ND	93.5	73.6-116	1.75	20	
4-Amino-2,6-dinitrotoluene	2570	200	ug/kg dry	2031	454	104	10-144	2.65	20	
4-Nitrotoluene	1930	200	ug/kg dry	2031	ND	95.1	71.2-114	0.977	20	
Nitrobenzene	1980	200	ug/kg dry	2031	ND	97.6	72.5-112	0.455	20	
Surrogate: 2,2´-Dinitrobiphenyl	*1780*		*ug/kg dry*	*1973*		*90.1*	*11.5-161*			
Surrogate: Nitrobenzene-d5	*1920*		*ug/kg dry*	*2031*		*94.5*	*65.1-116*			

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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 A910277 - % Solids										
Duplicate (A910277-DUP1)	**Source: A194212-16**	Prepared: 10/22/2019 Analyzed: 10/23/2019 09:19								
% Solids	99.2	0.00	% by Weight		98.9			0.298	20	
Batch A910293 - % Solids										
Duplicate (A910293-DUP1)	**Source: A194211-01**	Prepared: 10/29/2019 Analyzed: 10/30/2019 08:53								
% Moisture	15.0	0.00	% by Weight		15.1			1.03	20	

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Newark DE, 19713		Project Manager:	Sharon Nordstrom

Notes and Definitions

S	Surrogate recovery was outside of laboratory control limits.
D	Data reported from a dilution
ND	Analyte NOT DETECTED at or above the reporting limit or limit of detection (if listed).
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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insert COC number

Lab Work Order #: A194211

Project Number: 507911/60525839	PO Number:
Project Name: Barksdale Bio-pilot	
Project Location (City, State): Barksdale, WI	
Turn Around (check one): ☑ Normal ☐ Rush	
If Rush, Report Due Date:	
Sampled By (Print): Desmond Nielsen	

Report To:	Sharon Nordstrom
Company:	Aecom
Address 1:	
Address 2:	
E-mail Address:	Sharon.nordstrom@aecom.com
Invoice To:	
Company:	
Address 1:	
Address 2:	

Preservation Codes - A
Analyses Requested

Sample Description	Collection Date	Collection Time	Matrix	Total # of Containers	NNOC's (A)	pH (A)	% moisture (10-17-19)			Comments	Lab ID	Lab Receipt Time
BPSP-191015-C-33	10/15/19	9:21	S	2	X	X	X			Possible elevated NNOCs (10-17-19)	~~02~~	01
BPSP-191015-C-35	10/15/19	9:36	S	2	X	X	X			Possible elevated NNOCs	~~03~~	02
BPSP-191015-C-36	10/15/19	9:32	S	2	X	X	X			Possible elevated NNOCs	~~04~~	03
BPSP-190913-C-20	09/13/19	10:12	S	1	X					Frozen immediately after collection	~~05~~	04

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:
FedEx 776722614347

Copy:
Original (or 2 or 3)

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
[signature] Desmond Nielsen	10/16/19	10:00	[signature]	10-17-19	0920
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

Custody Seal: ☐ NA ☒ Intact ☐ Not Intact
Shipped Via: FedEx
Receipt Temp: 2.3°C
Thermometer #/ Exp. Date: 160142274 12-20-19
Temp Blank: ☒ Y ☐ N

Rev. 12/15