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NEMR OF MADBURY VARIANCE PETITION

290 Knox Marsh Road
Madbury, NH 03823
NHDES Site #: 198705022
Project Type: Hazardous Waste Project
Project Number: 8795

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Date of Submittal: October 16, 2020

PETITION OF NEW ENGLAND METAL RECYCLING LLC
FOR A SITE-SPECIFIC VARIANCE FROM OTHERWISE APPLICABLE TREATMENT STANDARDS
FOR CERTAIN AUTO SHREDDER RESIDUES BEING REMEDIATED
AT THE COMPANY'S FACILITY IN MADBURY, NEW HAMPSHIRE

NHDES Site #: 198705022

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New Hampshire Department of Environmental Services
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October 16, 2020

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Petition of New England Metal Recycling LLC
for a Site-Specific Variance from Otherwise Applicable Treatment Standards
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1 Introduction

Pursuant to 40 C.F.R. § 268.44(h), which is incorporated by reference in the New Hampshire regulations at Env-Hw 1202.01, New England Metal Recycling LLC ("NEMR" or the "Company") hereby petitions the New Hampshire Department of Environmental Services ("NHDES" or the "Department") for a site-specific variance from the Land Disposal Restrictions ("LDR") treatment standards that might otherwise apply to certain auto shredder residue ("ASR") materials that the Company intends to excavate, treat, and ship offsite for disposal as part of the ongoing remediation at the NEMR site at 290 Knox Marsh Road in Madbury, New Hampshire. The ASR materials that are the focus of this petition are those materials that, based on visual inspection, contain less than 50% soil and less than 50% non-earthen materials with a particle size greater than 60 mm, and which generally are derived from past screening/processing of ASR for recovery of valuable metals.

As discussed below, some of this material qualifies as hazardous waste based on its leachable lead content. NHDES has taken the position that such hazardous waste is not eligible for the reduced LDR treatment standards for hazardous debris, but rather must be treated to meet generally applicable LDR treatment standards for "as generated" waste – including stringent numerical limits not only for lead, but also for various "underlying hazardous constituents" (*e.g.*, cadmium, certain phthalates, and perhaps some other organic compounds). Although NEMR questions NHDES's position on this issue, the Company has tentatively decided not to dispute it here. However, NEMR has determined that the only potential way to achieve the generally applicable treatment standards would be to burn the material and then stabilize the resulting residues. And, as discussed in detail further below, combustion of this ASR material would be both technically and environmentally inappropriate.

In such circumstances, the LDR regulations provide a mechanism for seeking a variance that establishes alternative treatment standards. The purpose of this petition is to request such a variance. Based on a detailed study of potential treatment methodologies, NEMR has determined that stabilization is the most appropriate treatment for these wastes. The Company has found one particular stabilization "recipe" (including treatment reagent and mixing ratio) that is capable of achieving the generally applicable treatment standards for lead and many of the underlying hazardous constituents (*e.g.*, cadmium and several organics). While such treatment is not able to achieve the generally applicable standards for a few organics, it is able to achieve substantial reductions in the concentrations of such constituents. In this way, stabilization meets the requirement that treatment "minimize threats" to human health and the environment.

NEMR is proposing alternative treatment standards based on the levels it has shown should be achievable through stabilization of the ASR materials at issue. The Company is also proposing additional safeguards to help ensure that the "minimize threats" standard is satisfied. We hereby request that NHDES grant an LDR variance on this basis. The Company stands ready to provide additional information and/or to meet with NHDES representatives as necessary to address any questions or concerns that the Department may have.

2 Background

2.1 *The Madbury Facility*

The NEMR site in Madbury, New Hampshire was operated as a metal recycling and shredding facility from approximately 1974 to 2006, in accordance with a Solid Waste Facility Permit from NHDES. The facility received and stored used automobiles and other scrap metal, prepared them for shredding, performed the shredding process, and then separated the resulting material into different fractions. The

ferrous and non-ferrous metal fractions were shipped off-site to metals recycling facilities (*e.g.*, smelters) for recovery of metals. The remaining residue, known as auto shredder residue ("ASR"), was a mixture of various materials including glass, plastics, rubber, and metals that could not easily be separated from the other materials. The facility either disposed the ASR on-site or stockpiled it on-site for shipment to an off-site recycling or disposal facility.

Metal shredding operations at the site were discontinued in 2006, and the metal shredder was dismantled. In March 2016, NEMR notified NHDES of its intent to file for a Temporary Cessation of metal recycling operations. The facility remains closed at this time.

2.2 *Site Assessment and Remediation*

In 2015, NEMR performed site assessment activities, based on findings of a NHDES inspection, with primary emphasis on determining the extent of the ASR remaining at the western portions of Madbury facility where metal recycling debris had been observed on the ground surface. These site assessment activities extended through February 2018 in accordance with a scope of work determined in consultation with NHDES. The site assessment activities identified four affected areas, which are referred to as (1) the Stockpile Area, (2) the South of Driveway ("SAD") Area, (3) the Eastern Test Pit ("ETP") Area, and (4) the Feasibility Study ("FS") Area.

In 2018, the Company collected and tested numerous "disposal characterization samples" from each of these areas in order to help develop plans for excavation, treatment, and off-site disposal of impacted materials and to evaluate whether the materials could be sent to and disposed at a non-hazardous waste landfill. *See generally* October 2018 Design Plans and Construction Specifications Report ("2018 Report"). For three of the areas, NEMR has been able to craft suitable remediation strategies, consistent with applicable regulatory requirements, as outlined briefly below:

- ***Stockpile Area*:** None of the 14 samples from the Stockpile Area exhibited any characteristics of hazardous waste. Thus, any material excavated from this area was non-hazardous, such that it could be disposed "as is" in a non-hazardous waste landfill, without any prior treatment (as could any non-hazardous waste excavated from other areas at the facility). This material was excavated and disposed off-site per NHDES approval in August and September 2019.

- ***SAD Area*:** All of the samples from the SAD Area consisted of soil. *See* 40 C.F.R. §268.3(k), incorporated by reference in Env-Hw 1202.01 (defining "soil" for purposes of the LDR program as earthen materials or "a mixture of such materials with liquids, sludges or solids which is inseparable by simple mechanical removal processes and is made up primarily of soil by volume based on visual inspection"). Only 4 of the 37 samples tested hazardous – in all cases, solely because they had leachable lead levels greater than the characteristic level of 5.0 mg/L under the Toxicity Characteristic Leaching Procedure ("TCLP"). *See* Env-Hw 403.06 (corresponding to 40 C.F.R. § 261.24). Non-hazardous sections of material present in the SAD area were excavated and disposed off-site per NHDES approval in August and September 2019.

  The sections designated as characteristically hazardous due to TCLP lead concentrations were relocated to a Staging Pile per NHDES approval and are expected to be disposed off-site during future remedial activities. Prior to disposal, such soils will have to be stabilized/treated to meet applicable treatment standards under the LDR program. In particular, any hazardous constituents (with limited exceptions) that are present in these soils in concentrations greater than 10 times their respective Universal Treatment Standards ("UTSs") must be treated to reduce such concentrations by 90% or to less than 10 times the UTS. *See* 40 C.F.R. § 268.49, incorporated by reference in Env-Hw 1202.01 (LDR treatment standards for hazardous soil). In addition, in order to dispose of the treated soil in a non-hazardous waste landfill, it must be below the characteristic level of 5.0 mg/L (TCLP) lead.

NEMR does not anticipate encountering any difficulty in meeting these requirements through stabilization of the SAD Area hazardous soil currently present in the Staging Pile, especially because stabilization is generally an effective treatment method for the metals found at this site (as discussed further below) and none of the 4 hazardous soil samples from this area had any organic hazardous constituents above their UTSs (much less above 10 times their UTS). Nevertheless, the Company intends to perform confirmatory testing on the stabilized soils to ensure treatment efficacy, and to re-treat the soil, if necessary, to achieve the applicable standard. (Any hazardous soils found in any of the other areas at the facility will be handled in a similar way.)

- ***ETP Area*:** All of the samples from the ETP Area consisted of debris, namely ASR. *See* 40 C.F.R. § 268.3(g), incorporated by reference in Env-Hw 1202.01 (defining debris for purposes of the LDR program as solids with a particle size in excess of 60 mm or "a mixture of debris … and other material … comprised primarily of debris, by volume, based on visual inspection"). Two-thirds of the 24 samples tested hazardous – in all cases, solely because they had leachable lead levels greater than the characteristic level of 5.0 mg/L (TCLP). *See* Env-Hw 403.06 (corresponding to 40 C.F.R. § 261.24).

  The non-hazardous debris could be disposed "as is" in a non-hazardous waste landfill (as discussed above in the context of the Stockpile Area). However, the hazardous debris would first have to be treated to meet applicable treatment standards under the LDR program. In particular, it would have to be treated using a technology specified as being applicable for each "constituent subject to treatment" and each type of debris present (*e.g.*, plastic, rubber, metal, glass, concrete, pavement, or wood). *See* 40 C.F.R. § 268.45(a)(1), incorporated by reference in Env-Hw 1202.01. Where, as here, the debris is hazardous solely because it exhibits the toxicity characteristic for lead, the only constituent subject to treatment is lead. *See* 40 C.F.R. § 268.45(b)(1), incorporated by reference in Env-Hw 1202.01. NEMR plans to satisfy the treatment standard for hazardous debris using "microencapsulation" (*i.e.*, stabilization), which is a specified technology for all hazardous constituents and all types of debris. *See* 40 C.F.R. § 268.45, Table 1, incorporated by reference in Env-Hw 1202.01. The only requirement is that such treatment reduce the leachability of the relevant hazardous contaminant(s) (here, lead). *Id*. However, in order to dispose of the stabilized debris as non-hazardous waste, it must also no longer exhibit the toxicity characteristic (*i.e.*, the TCLP lead levels must be below 5.0 mg/L). *See* U.S. Environmental Protection Agency ("EPA" or the "Agency"), Resource Conservation and Recovery Act ("RCRA") Hotline Report (April 2000) (RCRA Online #14446) ("[c]haracteristic debris that has been treated using an immobilization technology and no longer exhibits a characteristic of hazardous waste may be disposed in a nonhazardous waste landfill").

  The Company does not anticipate encountering any difficulty in meeting these requirements, given that stabilization is generally an effective treatment method for the leachable lead (and other metals) found at this site. Nevertheless, the Company intends to perform confirmatory testing on the stabilized debris to ensure treatment efficacy, and to re-treat the debris, if necessary, to achieve the applicable standard. (Any hazardous debris found in any of the other areas at the facility will be handled in a similar way.)

While the remediation strategies outlined above for the Stockpile Area, the SAD Area, and the ETP Area appear suitable and consistent with applicable regulatory requirements, the fourth and final area (*i.e.*, the FS Area) poses unique challenges. These challenges are discussed in the following section.

2.3 *Challenges Posed by the Materials in the FS Area*

The materials in the FS Area pose unique challenges because of certain physical differences from the materials in the other areas, which may cause the materials to be subject to different LDR treatment standards. As discussed below, NHDES has taken the position that the materials in the FS

Area are not eligible for management as debris, and NEMR has tentatively decided not to take issue with this position. As non-debris wastes, the materials in the FS Area are subject to subject to considerably more stringent LDR requirements. Treatment to meet these standards is not viable, which is what necessitates the current petition for a site-specific LDR variance.

2.3.1 *NHDES Has Taken the Position that the Materials in the FS Area Cannot Be Managed as Debris Because of Their Physical Characteristics*

The samples collected from the FS Area consisted primarily of material that was non-earthern and had a particle size of less than 60 mm. Accordingly, this material did not meet the definition of soil or debris under the LDR program (as discussed above). However, based on the site history, NEMR believes that this material derived from debris (*i.e.*, ASR) that was reprocessed, in or around 2006, to recover additional metals. We understand that NHDES consulted with EPA in June 2019 about whether, under such circumstances, the material might properly still be subject to the LDR treatment standards for debris. EPA reportedly took the position that the material would not be subject to the debris treatment standards, but instead would be subject to the standards for "as generated" waste (discussed below). In addition, NHDES has apparently concurred.

NEMR questions this conclusion for several reasons. For example, we note that a footnote to the description of microencapsulation/stabilization in the table of permissible treatment methods for hazardous debris in the LDR regulations specifies that, at least in certain circumstances, "[i]f reducing the particle size of debris … results in material that no longer meets the 60 mm minimum particle size for debris," the size-reduced material may still be subject to the treatment standards for debris. *See* 40 C.F.R. § 268.45, Table 1, footnote 5, incorporated by reference in Env-Hw 1202.01. Nevertheless, we have tentatively decided not to dispute the EPA/NHDES position on this issue, and to see whether a workable remediation strategy can be found, based on the assumption that this material – referred to below as "small-particle ASR" or "SP-ASR" – is subject to the generally applicable LDR treatment standards, rather than the standards for debris.

2.3.2 *To the Extent that the SP-ASR Constitutes "As Generated" Waste, the Generally Applicable Treatment Standards Are Considerably More Stringent Than the Standards Applicable to Debris*

During the 2018 disposal characterization sampling and testing discussed above, slightly less than half of the 45 SP-ASR samples from the FS Area tested as hazardous – in all cases, solely because they had leachable lead levels greater than the characteristic level of 5.0 mg/L (TCLP). *See* Env-Hw 403.06 (corresponding to 40 C.F.R. § 261.24); 2018 Report. The non-hazardous SP-ASR could be disposed "as is" in a non-hazardous waste landfill (as discussed above in the context of the Stockpile Area). However, the hazardous SP-ASR would first have to be treated to meet applicable treatment standards under the LDR program. For wastes that do not qualify as soil or debris (also referred to by EPA and NHDES as "as generated" wastes), the generally applicable LDR treatment standard (for non-wastewaters, such as SP-ASR) is treatment to achieve a leachable lead level of 0.75 mg/L (TCLP) and to meet the UTSs for all "underlying hazardous constituents" or "UHCs." *See* 40 C.F.R. § 268.40, incorporated by reference in Env-Hw 1202.01 (treatment standards for D008). For these purposes, a UHC is defined as "any constituent [with a UTS (with limited exceptions)] which can reasonably be expected to be present at the point of generation of the hazardous waste at a concentration above the constituent-specific UTS treatment standards." *See* 40 C.F.R. § 268.3(i), incorporated by reference in Env-Hw 1202.01. We address below the identification of both metal and organic UHCs for the SP-ASR material, and then summarize the UTSs for all of the UHCs and potential UHCs.

o <u>Identification of Metal UHCs</u>

In order to identify any metal UHCs that might be present in the SP-ASR, NEMR considered all 11 metals that have UTSs and have not been excluded from the definition of UHCs. *See* 40 C.F.R. § 268.48 (establishing UTSs for 14 metals) and § 268.3(i) (excluding selenium, vanadium,

and zinc from the definition of UHCs), both incorporated by reference in Env-Hw 1202.01. The original 2018 disposal characterization sampling covered 7 of these metals (plus selenium, which is excluded from the definition of UHCs), because these metals are regulated under the toxicity characteristic and the focus was on determining whether the SP-ASR was hazardous under that characteristic (or others). Only one of these 7 metals other than lead – namely, cadmium – was found to have TCLP concentrations above its UTS, such that it qualifies as a UHC. *See* 2018 Report.

It is important to note, however, that because the focus in 2018 was on waste characterization only, NEMR performed TCLP analyses only for those toxicity characteristic metals for which the total concentrations were at least 20 times the toxicity characteristic limits (indicating that leachable levels could potentially be above such limits). *See* Memorandum #36 from Gail Hansen, Chief, Methods Section, Office of Solid Waste, EPA (January 12, 1993) (RCRA Online #11721) ("For wastes that are 100% solid as defined by the TCLP, the maximum theoretical leachate concentration can be calculated by dividing the total concentration of the constituent by 20. … This value then can be compared to the appropriate regulatory concentration. If this value is below the regulatory concentration, the TCLP need not be performed. If the value is above the regulatory concentration, the waste may then be subjected to the TCLP to determine its regulatory status"). The total concentrations of 3 of the toxicity characteristic metals (*i.e.*, barium, mercury, and silver) were less than 20 times the toxicity characteristic limits (and thus were not tested under the TCLP), but were more than 20 times their UTS levels – suggesting that they could *potentially* leach at levels above the UTSs. *See* 2018 Report. For this reason, we have identified these 3 metals as "potential UHCs." We note, however, that in recent treatability study testing (discussed in Section 6.3 below), the TCLP levels for these three metals were tested and were found to be below the UTS levels in all 10 untreated samples. Thus, NEMR does not believe these metals are properly viewed as UHCs. Nevertheless, in an abundance of caution, we are proposing to handle these 3 metals for purposes of the proposed variance as if they were UHCs.

Finally, with respect to the remaining 4 metals among the original 11 mentioned above (*i.e.*, antimony, beryllium, nickel, and thallium), these metals were not covered by the 2018 waste characterization testing. As a result, NEMR conservatively identified these metals as "potential UHCs." Once again, however, we note that in the recent treatability study testing (discussed in Section 6.3 below), the TCLP levels for these four metals were tested and were found to be below the UTS levels in all 10 untreated samples. Thus, NEMR does not believe these metals are properly viewed as UHCs. Nevertheless, in an abundance of caution, we are proposing to handle these 4 metals for purposes of the proposed variance as if they were UHCs.

- <u>Identification of Organic UHCs</u>

The disposal characterization sampling indicated that many of the SP-ASR samples exceeding the toxicity characteristic limit for lead contained one or more organic constituents with concentrations above their respective UTSs, such that they might qualify as UHCs. *See* 2018 Report. The table below lists these organic constituents, together with an indication of how many of the 21 hazardous SP-ASR samples contained each constituent at a level above its respective UTS:

Organic Constituent	How Many of the 21 Hazardous SP-ASR Samples Exceeded the UTS for the Constituent
Phthalates	
Bis(2-ethylhexyl)phthalate ("BEHP")	16
Di-*n*-octyl phthalate ("DNOP")	4

Polynuclear Aromatic Hydrocarbons ("PAHs")	
Fluoranthene	3
Other PAHs (anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g, h, i)perylene, chrysene, indeno(1,2.3-c,d)pyrene, phenanthrene, and pyrene)	1
Miscellaneous Organics	
PCBs (total)	4
3-Methylphenol (*m*-cresol)	1
p, p'-DDT	1

NEMR believes that the two phthalates in this table were likely present because they are common plasticizers in plastics of the type that represent a significant component of SP-ASR. These two phthalates clearly qualify as UHCs, since they are "reasonably expected to be present" in hazardous SP-ASR and have been found in most hazardous SP-ASR samples in concentrations above their UTSs.

Although PCBs were found in only a small number of samples from the 2018 waste characterization sampling at levels above the UTS, NEMR recognizes that PCBs are a common contaminant of concern in the context of scrap metal recycling. Accordingly, the Company believes that PCBs are properly considered UHCs for hazardous SP-ASR.

The Company believes that the reason PAHs were present in a small number of samples was most likely because those samples were collected from the edge of the FS Area where asphalt from the adjacent road likely contaminated the samples. Inasmuch as PAHs were found above UTS levels in only a very limited number of samples, and that was likely due to contamination of SP-ASR from external sources, NEMR does not believe PAHs are "reasonably *expected* to be present" in SP-ASR above UTS levels, as required under the definition of UHCs. Nevertheless, in an abundance of caution, we have designated the relevant PAHs as "potential UHCs," and we are tentatively proposing to handle them for purposes of the proposed variance as if they were UHCs.

The two remaining organic constituents that were found in hazardous SP-ASR above UTS levels during the 2018 waste characterization study were 3-Methylphenol and p, p'-DDT. However, each of these constituents appeared in only 1 sample above UTS levels, and these constituents are not ordinarily associated with metal shredding operations. NEMR believes that these constituents were present due to random environmental contamination, rather than anything related to SP-ASR. Because the "hits" involving these constituents appear to be outliers unrelated to SP-ASR, NEMR does not believe they are properly viewed as UHCs.

o <u>UTSs for All UHCs and Potential UHCs</u>

Based on the analysis above, the full list of relevant treatment standards for all UHCs and potential UHCs for hazardous SP-ASR (assuming it is not debris) is as follows:

Constituent	Generally Applicable Treatment Standard (in mg/kg except where indicated otherwise)
Metal Causing the Waste to be Hazardous	
Lead	0.75 mg/L (TCLP)
Metal UHC	
Cadmium	0.11 mg/L (TCLP)
Potential Additional Metal UHCs	
Antimony	1.15 mg/L (TCLP)

Barium	21 mg/L (TCLP)
Beryllium	1.22 mg/L (TCLP)
Mercury	0.025 mg/L (TCLP)
Nickel	11 mg/L (TCLP)
Silver	0.14 mg/L (TCLP)
Thallium	0.20 mg/L (TCLP)
Phthalate UHCs	
Bis(2-ethylhexyl)phthalate ("BEHP")	28.0
Di-*n*-octyl phthalate ("DNOP")	28.0
Other Organic UHCs	
PCBs (total)	10.0
Potential Additional Organic UHCs (PAHs)	
Anthracene	3.4
Benz(a)anthracene	3.4
Benzo(a)pyrene	3.4
Benzo(b)fluoranthene	6.8
Benzo(g, h, i)perylene	1.8
Chrysene	3.4
Fluoranthene	3.4
Indeno(1,2.3-c,d)pyrene	3.4
Phenanthrene	5.6
Pyrene	8.2

See 40 C.F.R. § 268.48, incorporated by reference in Env-Hw 1202.01. These numerical standards are obviously far more stringent that the LDR treatment standards that would apply if the SP-ASR was viewed as debris, which (as discussed above) would simply require stabilization to achieve some reduction in the leachability of the lead (to below the characteristic level of 5.0 mg/L (TCLP) if the treated material was to be disposed in a non-hazardous waste landfill).

2.3.3 *Treatment of SP-ASR to Meet the Generally Applicable LDR Standards Is Not Viable, Thus Necessitating the Current Petition for a Site-Specific Variance*

As discussed in detail in Section 4 below, it does not appear possible to meet the numerical treatment standards discussed above solely through stabilization (as would be allowed for debris). Instead, the only potential way to meet these treatment standards appears to be by combusting the SP-ASR and then stabilizing the resulting residues (*e.g.*, ash). However, as discussed in Section 5 below, combustion of the SP-ASR would be both technically and environmentally inappropriate. The LDR regulations provide for site-specific variances from the generally applicable treatment standards in circumstances like these. Indeed, in early 2019, NHDES suggested that NEMR might pursue such a variance. *See* Letter from H. Keith DuBois, P.G., Assistant Director, Waste Management Division, NHDES, to Gary Raddatz, NEMR (January 9, 2019) ("If NEMR is unable to treat UHCs to below UTS, then NEMR may petition for a site specific variance").

Based on NHDES's suggestion in January 2019, and in order to expedite the site remediation as quickly as possible, NEMR quickly prepared and submitted a petition a few weeks later. *See* Letter from Raymond C. Johnson, P.G., L.S.P., Senior Vice President, Tetra Tech, Inc. (on behalf of NEMR), to Paul Rydel, P.G., Hazardous Waste Remediation Bureau, NHDES (February 21, 2019). NHDES expressed some concerns about the 2019 petition, and in response NEMR has conducted an extensive treatability study for the SP-ASR materials over the last year. The current petition refines the 2019 petition and reflects the results of the treatability study.

3 Legal Basis and Framework for the Petition

This petition for a site-specific variance from otherwise applicable LDR treatment standards is being submitted pursuant to 40 C.F.R. § 268.44(h), which is incorporated by reference in Env-Hw 1202.01. Although the state has not adopted the federal rule for nationally applicable LDR variances, *see* Env-Hw 1202.02(a)(1) (deleting 40 C.F.R. §§ 268.44(a)-(g) from the rules adopted by reference), this petition is properly viewed as a petition for a site-specific variance – which the state does allow – given that the variance being sought would have "no generic applicability and effect." *See* 53 Fed. Reg. 31,138, 31,199-200 (August 17, 1988). NHDES has received authorization to implement the provisions relating to site-specific treatability variances in lieu of EPA. *See* 84 Fed. Reg. 22,378 (May 17, 2019) (final rule granting the state authorization for various provisions, effective May 17, 2019, and referring to the proposed rule for a complete list of state rules being authorized); 84 Fed. Reg. 7010, 7010-12 (March 1, 2019) (proposed rule to authorize New Hampshire for various rules, including the 1988 rule establishing requirements for site-specific treatability variances (Checklist #50) and the 1997 rule revising such provisions (Checklist #162)). Accordingly, NEMR is submitting this petition to NHDES.

Under 40 C.F.R. § 268.44(h), as incorporated into the New Hampshire regulations, there are several potential bases for a site-specific LDR variance. Some of these relate only to contaminated soil, and thus are not relevant to the SP-ASR materials at issue here. *See* 40 C.F.R. §§ 268.44(h)(3)-(4). Another relates to situations in which "[i]t is not physically possible to treat the waste to the level specified in the treatment standards." *See* 40 C.F.R. § 268.44(h)(1). As discussed in Section 4.3 below, NEMR believes it *might* be physically possible to treat the SP-ASR to meet all the generally applicable treatment standards, through a combination of different treatment technologies (although there is some uncertainty about whether such treatment standards could, in fact, be achieved in this way), Accordingly, the Company is not basing this petition on the theory that it is physically impossible to meet the treatment standards. Rather, we are basing this petition on the final criterion specified in the regulations, namely that "[i]t is *inappropriate* to require the waste to be treated to the level specified in the treatment standards … even though such treatment is technically possible." *See* 40 C.F.R. § 268.44(h)(2) (emphasis added).

The regulations specify two ways that it may be shown that treatment to meet the generally applicable LDR treatment standards would be inappropriate: (1) if such treatment is "technically inappropriate" (*e.g.*, it requires combustion of large amounts of mildly contaminated material), or (2) if the treatment would be "environmentally inappropriate" (*e.g.*, because it would discourage environmentally beneficial remediation). *See* 40 C.F.R. §§ 268.44(h)(2)(i)-(ii). In the present case, NEMR believes that the treatment needed to meet the ordinary treatment standards would be inappropriate in *both* ways. We therefore address technical inappropriateness and environmental inappropriateness separately in Sections 5.1 and 5.2 below (although just one form of inappropriateness is sufficient to justify a variance under the regulations). In addition, since the regulations require that all petitions demonstrate that that the alternative treatment standards being requested are "sufficient to minimize threats to human health and the environment posed by land disposal of the waste," *see* 40 C.F.R. § 268.44(m), we address the "minimize threats" requirement in Section 6 below.

4 The Generally Applicable LDR Treatment Standards for Hazardous SP-ASR Can Only Potentially Be Achieved by Combustion of the Material, Followed by Stabilization of the Resulting Residues

4.1 *Treatability Studies Demonstrate that Stabilization Alone Cannot Satisfy All of the Generally Applicable Treatment Standards*

NEMR has performed extensive treatability studies to determine whether the generally applicable LDR treatment standards identified in Section 2.3.2 above can be achieved through stabilization alone. Initially, the Company tested multiple stabilization reagents in varying concentrations on several samples of the SP-ASR material, in order to identify an optimal stabilization "recipe." As discussed more fully in Section 6.3 below, NEMR found through this initial testing one stabilization reagent that, in appropriate concentrations, appears capable of ensuring that the SP-ASR will meet the relevant treatment standards

for lead (the constituent that sometimes causes the materials to be hazardous in the first instance), for cadmium (the only other metal UHC in the material), for other potential metal UHCs, and for *some* of the organic UHCs or potential UHCs. However, even this stabilization reagent, which was identified as the most promising after considerable efforts, was unable to meet the treatment standards for other organic UHCs (most notably BEHP, DNOP, and PCBs). Accordingly, it seems clear that stabilization alone will not be able to satisfy all of the generally applicable LDR treatment standards.

4.2 *Extensive Research Indicates that No Other Non-Combustion Technologies Would Be Capable of Achieving All of the Generally Applicable Treatment Standards*

NEMR has consulted with experts and performed an extensive literature search to determine whether any other treatment technologies (besides combustion) might be a viable way to achieve the generally applicable treatment standards for the SP-ASR material (especially for the organic UHCs). The Company's analysis of some of the key technologies considered is summarized below:

- ***Solvent extraction***: NEMR has determined that solvent extraction of hazardous organics in the SP-ASR would not be feasible or environmentally desirable, because at least some of the organics (*e.g.*, phthalates) are tightly embedded in the matrix of polymers (*e.g.*, plastics) and can only be extracted using large volumes of solvents that would be unreasonably expensive, present tremendous logistical challenges, and create a massive waste disposal problem of their own. To illustrate, we note that the Consumer Product Safety Commission ("CPSC") has developed a methodology for extracting phthalates from plastic children's products (for analytical purposes), which requires each 0.05 g of plastic to be dissolved with 5 mL (approximately 5 g) of tetrahydrofuran ("THF") and then mixed with an additional 10 mL (approximately 10 g) of hexane to precipitate the polymer. *See* CPSC, "Standard Operating Procedure for Determination of Phthalates" (Method CPSC-CH-C1001-09.3) (April 1, 2010) at 4-5. That corresponds to the use of organic solvents in an amount 300 times the weight of the plastics. Given the fact that the site is estimated to contain approximately 12,000 tons of SP-ASR qualifying as a characteristic hazardous waste, the amount of solvent needed would be nearly 3,600,000 tons, or about 90,000 tanker trucks' worth (assuming 10,000 gallon tankers). Where, as here, a technology would dramatically increase the amount of wastes requiring disposal, it is clearly not the "best" technology and thus is not a suitable basis for a treatment requirement.

- ***Thermal desorption***: NEMR has determined that thermal desorption of the hazardous organics in SP-ASR would not be feasible or environmentally desirable, because at least some of the organics (*e.g.*, phthalates) are tightly embedded in the matrix of polymers (*e.g.*, plastics) which would likely have to be subjected to substantial pre-processing (*e.g.*, size reduction and screening) followed by processing with tremendous amounts of energy, all of which would be unreasonably expensive, present tremendous logistical challenges, and generate vast amounts of greenhouse gases and other undesirable emissions. It has been shown that thermal desorption is an effective way to extract phthalates from small (approximately 5 g) laboratory samples of plastics for purposes of analyzing their phthalate content. *See, e.g.*, T. Yuzawa, et al., "Rapid and Simple Determination of Phthalates in Plastic Toys by a Thermal Desorption-GC/MS Method," *Analytical Sciences* (September 2009) at 1057. However, on a mass scale, this approach does not appear to be viable. As an initial matter, the size of the particles would have to be reduced in order to ensure adequate and uniform heat transfer and to facilitate the "escape" of the organic contaminants. *See, e.g., id*. (indicating that even a 5 g sample needed to be "cryo-milled into a fine powder to achieve homogeneity"). Such processing could be difficult, costly, and raise concerns about particulate emissions. The material would then have to be heated to high temperatures to effectuate desorption of the low-volatility phthalates. *See id*. at 1058 (indicating that phthalates generally desorb at temperatures in the range of 200-300°C (approximately 400-600°F)). Doing this for such a large volume of material would present practical challenges, require large amounts of fuels, and create significant emissions of greenhouse gases and other potential air pollutants. It would also be unreasonably expensive. *See, e.g.*, Battelle Corporation (for the Naval Facilities Engineering Service Center), "Overview of

Thermal Desorption Technology" (June 1998) at 24 (estimating the costs of thermal desorption for *volatile* organics from hazardous wastes, which would obviously require much less energy, to be in the range of $150-600 per ton).

- ***Bioremediation*:** NEMR has investigated the possibility of bioremediation for the SP-ASR, and concluded that it is not a viable option. As an example, with respect to phthalates, it has been noted that "most of the literature studies involving biodegradation of phthalates in soils have been performed on a laboratory scale … with synthetically contaminated soils, pure cultures of microorganisms and with only phthalates." *See* I. D. Ferreira, et al., "Ex-Situ Bioremediation of Brazilian Soil Contaminated with Plasticizers Process Wastes," Brazilian Journal of Chemical Engineering (January-Match 2012) ("Brazilian Soil Study") at 77. In these studies, significant biodegradation has been observed for phthalates with shorter ester chains, but "phthalates with longer ester chains, such as dicyclohexyl phthalate, dihexyl phthalate (DHP), dioctyl phthalate (DOP), di-2-ethylhexyl phthalate (DEHP) and dibutyl phthalates (DBP) are less susceptible to biodegradation." *See* W-J Tang, et al., "Biodegradation of phthalate esters by newly isolated *Rhizobium* sp. LMB-1 and its biochemical pathway of di-n-butyl phthalate," Journal of Applied Microbiology (March 2016) at 177. Of course, the phthalates of primary concern at the Madbury site are ones with longer chain esters (*e.g.*, DNOP and DEHP), such that they are "less susceptible to biodegradation."

  Moreover, researchers have noted that "bench scale results cannot be extrapolated to field studies, which incorporate large-scale heterogeneities due to mass transfer limitations, soil heterogeneity, and bacterial access to the nutrients." *See* Brazilian Soil Study at 77. The problems are magnified in the present case, where the material to be treated is not soil but a complex mixture in which the phthalates are embedded in a plastic matrix, which can be expected to severely limit, if not preclude, bacterial access to the phthalates. Where, as here, a technology has not been shown to be effective for the types of wastes at issue (and, in fact, there are reasons to doubt its effectiveness for such wastes), the technology is clearly not "demonstrated" and therefore not a suitable basis for a treatment requirement. *See* 51 Fed. Reg. 40,572, 40,588 (November 7, 1986) ("To be considered a 'demonstrated' treatment technology … a full scale facility must be known to be in operation for the waste or similar wastes").

- ***Photocatalytic Degradation*:** NEMR briefly considered the possibility of using photocatalytic degradation as a way to destroy the organic UHCs in the SP-ASR. This method has been identified as a potential treatment method for these same chemicals in wastewater. *See, e.g.*, P. Singla, et al., "Study of photocatalytic degradation of environmentally harmful phthalate esters using Ni-doped TiO_2 nanoparticles," *International Journal of Environmental Science and Technology* (2016) at 849. However, it does not appear to be a viable technology for opaque solid-phase wastes, such as SP-ASR, because the solid matrix would prevent both the light and the catalyst (*e.g.*, TiO_2) needed for the process to reach the contaminants of concern.

- ***Phytoremediation:*** Phytoremediation is a form of bioremediation which uses green plants grown in impacted media to treat contaminants via removal, degradation or stabilization. Specifically, treatment may occur through several mechanisms including release of natural substances which enhance biological degradation; stabilization via compounds produced by the plants which immobilize contaminants; sorption of contaminant mass in the roots, stems and leaves of the plants; metabolization and destruction of contaminant mass within plant tissue; and volatilization of organics via uptake and release through the leaves of the plants. Although relatively inexpensive, phytoremediation is a slow process which may take many years or decades to achieve remedial objectives. Importantly, it is only potentially applicable for remediation where there is a soil matrix which is conducive to growth of the plants selected to address the site-specific conditions. Therefore, because the material in the FS Area consists primarily of SP-ASR with little to no soil, a matrix which is not suitable for the growth and proliferation of the plants needed to implement this technology, this approach is not feasible for implementation at the NEMR site.

- ***Chemical Oxidation:*** Chemical oxidation is implemented by treating media or wastes with chemicals which convert hazardous contaminants to non-hazardous or less toxic compounds. Typical oxidizing agents include ozone, hydrogen peroxide, sodium or potassium permanganate, hypochlorite, chlorine, or chlorine dioxide. The technology is most effective for treatment of chlorinated organic compounds but is less effective for treatment of non-halogenated VOCs or SVOCs. Chemical oxidation may result in the formation of intermediate contaminants due to incomplete oxidation, and may not be suitable for treatment of those intermediate compounds. Implementation of this remedial approach at the NEMR site would require the application of large volumes of oxidant solution to the SP-ASR, a process which could be difficult to control and is unlikely to achieve the remedial objectives. Even if it were effective for achieving remedial objectives, the estimated cost for treatment via chemical oxidation is $250 to $500 per cubic yard, or $3 million to $6 million for the approximately 12,000 cubic yards of hazardous SP-ASR at the site. This cost would be disproportionate to the incremental improvement which may result from its implementation.

In light of the above, it does not appear that there are any non-combustion technologies that would be viable means for achieving the generally applicable treatment standards for SP-ASR.

4.3 *The Only Potential Way to Achieve the Generally Applicable Treatment Standards for SP-ASR Appears to Be to Combust the Material and then Stabilize the Resulting Residues*

Given that stabilization alone does not appear capable of satisfying all the relevant treatment standards for organic UHCs (as discussed in Section 4.1 above), and given that there do not appear to be any other non-combustion technologies capable of meeting such standards (as discussed in Section 4.2), it seems clear that the only way to achieve these standards is by burning the SP-ASR. Of course, combustion would not diminish the concentrations of metals in the material, and therefore would not be able to also achieve the relevant treatment standards for metals (*e.g.*, lead and cadmium). Rather, to meet those metal treatment standards, the residues from combustion (*e.g.*, ash) would have to be stabilized.

Importantly, there is significant uncertainty as to whether stabilization of such residues would, in fact, be able to achieve the treatment standards for metals, at least without creating other issues that would interfere with land disposal of the materials. Because combustion would reduce the mass of the SP-ASR without destroying or removing metals, the metal concentrations in the residue/ash would be far higher than in the SP-ASR. In order to stabilize the increased levels of metals, dramatically more stabilizing agent would be required, That would obviously substantially increase costs, complicate logistics, and run counter to goals of waste minimization. Moreover, because stabilization reagents are highly alkaline, there would be a significant chance that the stabilized residue – with its much higher proportion of stabilization reagent – would have a pH greater than 12.5, which would severely limit or even eliminate disposal options. *See* Env-Hw 403.04(b)(3) (state corrosivity characteristic for solids).

In sum, it appears that the only *possible* way to meet all of the generally applicable LDR treatment standards for SP-ASR would be to combust the material and then stabilize the resulting residues. However, even this combination of treatment methods might not be able to meet the generally applicable treatment standards. In any event, even if it would be physically possible to achieve the generally applicable treatment standards in this way, requiring such treatment would be inappropriate, as discussed in Section 5 below. It is for this reason that an LDR variance is warranted.

5 Requiring Combustion to Meet the Generally Applicable LDR Treatment Standards for SP-ASR Would Be Technically and Environmentally Inappropriate

As discussed in Section 3 above, the regulations specify that even if it is technically possible to treat a hazardous waste to meet the generally applicable LDR treatment standards (which is not entirely

clear here), a variance may be warranted if such treatment is inappropriate. More specifically, the regulations specify two different types of inappropriateness, either of which, by itself, may warrant an LDR variance: (1) if treatment to meet the general LDR standards is "technically inappropriate" (*e.g.*, it requires combustion of large amounts of mildly contaminated material), or (2) if the treatment would be "environmentally inappropriate" (*e.g.*, because it would discourage environmentally beneficial remediation). *See* 40 C.F.R. §§ 268.44(h)(2)(i)-(ii), incorporated by reference in Env-Hw 1202.01. As discussed below, NEMR believes that treatment using combustion, in whole or in part, to meet the ordinary treatment standards for SP-ASR would be inappropriate in *both* ways.

5.1 *Combustion to Meet the Generally Applicable LDR Treatment Standards Would Be Technically Inappropriate*

As noted above, one reason that a site-specific LDR variance may be warranted is if the generally applicable treatment standard is "technically inappropriate." *See* 40 C.F.R. § 268.44(h)(2)(i), incorporated by reference in Env-Hw 1202.01. The regulations and associated EPA guidance identify several examples of situations in which the general treatment standards may be deemed technically inappropriate. As discussed below, several of those examples are comparable to the current situation with SP-ASR:

- The regulations themselves state that generally applicable LDR treatment standards are technically inappropriate if, in a particular situation, they "result[ ] in combustion of large amounts of mildly contaminated environmental media." *See* 40 C.F.R. § 268.44(h)(2)(i), incorporated by reference in Env-Hw 1202.01. While the SP-ASR is obviously not a form of environmental media (*e.g.*, soil), the principle underlying the example in the regulations applies equally here. As discussed in Section 4.3 above, the only way to potentially meet all of the generally applicable LDR standards appears to be to incinerate (*i.e.*, combust) the material, and then attempt to stabilize the resulting residues (*e.g.*, ash) for ultimate disposal. The amount of material that would need to be combusted would be extremely large; NEMR estimates that the total would be in the range of 12,000 tons. Moreover, the SP-ASR is only "mildly" contaminated in the sense that it exceeds only one characteristic level (for TCLP lead), and only slightly, and has organic UHCs at levels that are orders of magnitude lower than the waste that EPA evaluated in setting the UTSs for such constituents. *See, e.g.*, 54 Fed. Reg. 26,594, 26,620-23 (June 23, 1989) (basing the treatment standards for several phthalate wastes on the levels achievable when burning Hazardous Waste No. K024 (distillation bottoms from production of phthalic anhydride from naphthalene), which contains "1.3 to 22% phthalic anhydride"); Appendix A (Treatability Study Report), Table 2 (indicating that the SP-ASR generally has phthalate levels substantially lower than 1000 mg/kg (0.1%)). In short, the generally applicable treatment standards would effectively require NEMR to combust very large amounts of only mildly contaminated waste, precisely the type of situation that EPA indicated was technically inappropriate, such that a variance might be warranted.

- EPA has stated that "it may be inappropriate to combust wastes where metals are the chief hazardous constituent" if the waste "contains [only] low levels of organic contaminants." *See* 62 Fed. Reg. 64,504, 64,505 (December 5, 1997). It is worth noting that this statement by the Agency relates to wastes in general, not just environmental media. In the present case, a metal (lead) is clearly the chief hazardous constituent, inasmuch as the only reason that any SP-ASR is hazardous is due to the leachable levels of lead. Moreover, as noted above, the concentrations of organic contaminants in the SP-ASR are low, especially in comparison to the levels that were present in the wastes that EPA evaluated in setting the UTSs for such constituents. Accordingly, as EPA has previously recognized, it may be inappropriate to require combustion of the metal-containing wastes.

- EPA has indicated on a number of occasions that a treatment technology may be deemed technically inappropriate if it would result in adverse environmental effects that an alternative technology would not. *See, e.g.*, 62 Fed. Reg. 64,504, 64,505 (December 5, 1997) (a treatment

> technology may be technically inappropriate if it "could expose site workers to acute risks of fire or explosion and an alternative technology would not"); 73 Fed. Reg. 27,761, 27,764 (May 14, 2008) (granting an LDR variance from treatment standards that would require combustion of a mixed hazardous/radioactive waste, in part because it would be technically inappropriate to require combustion that could cause the release of radionuclides into the atmosphere). In the present case, burning lead-bearing SP-ASR with low levels of hazardous organics might result in emissions of lead into the air (even recognizing that the combustion facility would likely have air pollution control equipment to limit such emissions). Moreover, the SP-ASR contains a substantial amount of chlorinated polymers (*e.g.*, polyvinyl chloride ("PVC")), which when burned have the potential to produce toxic polychlorinated dibenzodioxins ("dioxins") that would either be emitted or end up in combustion residues (*e.g.*, ash or air pollution dusts/sludges). In addition, burning the SP-ASR would result in significant greenhouse gas emissions (*e.g.*, carbon dioxide). Indeed, some environmental groups have expressed concern about emissions of heavy metals and dioxins from burning of ASR (although NEMR does not necessarily agree with all of the concerns raised by these organizations). *See, e.g.*, https://www.downwindersatrisk.org/2011/10/why-non-hazardous-auto-shredder-waste-is-really-hazardous/. The potential risks associated with burning SP-ASR are another reason why burning may be technically inappropriate in the present case.

In sum, requiring NEMR to meet the generally applicable LDR treatment standards would result in the combustion of large volumes of material in which lead (which would not be effectively treated through combustion) is the main hazardous constituent of concern, and in which hazardous organics (which could be treated by combustion) are present at only low levels to begin with. Such burning could needlessly increase air emissions of toxic lead and dioxins, as well as greenhouse gases and other air pollutants. These are just the types of conditions in which EPA has found combustion to be technically inappropriate, such that an LDR variance would be justified.

5.2 *Combustion to Meet the Generally Applicable LDR Treatment Standards Would Be Environmentally Inappropriate*

As noted above, treatment to meet generally applicable treatment standards may be deemed inappropriate not only if it is *technically* inappropriate (as discussed in Section 5.1 above), but also if it is *environmentally* inappropriate. *See* 40 C.F.R. § 268.44(h)(2)(ii), incorporated by reference in Env-Hw 1202.01. The environmental inappropriateness standard applies to all "remediation wastes," including not only contaminated media or debris, but also any other wastes generated or managed during remediation. *See* 40 C.F.R. § 260.10, incorporated by reference in Env-Hw 102.01 ("*Remediation waste* means all solid and hazardous wastes, and all media … and debris, that are managed for implementing cleanup"). The SP-ASR at issue here clearly qualifies as remediation waste, and thus treatment of the material to meet generally applicable LDR standards can be found inappropriate based on environmental considerations.

Under the regulations, treatment to meet the generally applicable treatment standards may be found environmentally inappropriate if "it would likely discourage aggressive remediation." *See* 40 C.F.R. § 268.44(h)(2)(ii), incorporated by reference in Env-Hw 1202.01. EPA has clarified that one way such treatment could discourage aggressive remediation is if it significantly delays remediation, for example by being so costly that it effectively forces the site owner to seek ways to minimize the applicability of the treatment standards. Indeed, on at least one occasion, the Agency has granted a variance petition on this basis, stating as follows:

> [I]f the costly [general] treatment standard is imposed, [the facility] will likely pursue legal remedial options that minimize LDR applicability due to their understandable desire to pursue a cost-effective strategy. … [A] debate over remedial options that minimize LDR applicability … would be contested and protracted and would, at the least, significantly delay … remediation leaving … tons of [waste] in place in an unlined impoundment.

See 61 Fed. Reg. 55,718, 55,723-24 (October 28, 1996) (CITGO variance).

In the present case, requiring treatment to meet the generally applicable treatment standards would likely lead to just such delays. As discussed above, NEMR believes that the only potential way to meet all such standards would be to incinerate the material as a hazardous waste, and then stabilize the resulting incineration residues (*e.g.*, ash) for ultimate disposal. NEMR estimates that the total amount of SP-ASR that would have to be treated in this way would be in the range of 12,000 tons, and that the costs of incineration alone would be approximately $ 600/ton (not counting the costs of excavation, transportation or stabilization/disposal of the incineration residues). Faced with a total cost of well over $7,200,000 (*i.e.*, 12,000 tons x $ 600/ton), NEMR would have little choice but to explore other, more cost-effective remediation options. While we have not evaluated what other options we might pursue in such a situation, one possibility (for illustrative purposes only) might be to dispute EPA's assertion (discussed in Section 2.3.1 above) that the SP-ASR is not eligible for the debris treatment standards in 40 C.F.R. § 268.45 (as incorporated by reference in Env-Hw 1202.01), despite the fact that it was derived from processing of debris. A prolonged debate over this issue (or others like it) could significantly delay remediation, leaving the SP-ASR in an unlined pit throughout the whole time. Moreover, it could also eventually lead to a substantially less aggressive remediation. For example, if the SP-ASR is ultimately determined to be eligible for the debris treatment standard, it could simply be stabilized to reduce the leachable lead concentrations below the characteristic level of 5.0 mg/L TCLP, without having to reach the lead UTS of 0.75 mg/L TCLP or the UTSs for any UHCs. *See* Sections 2.2 and 2.3.2 above.

In light of the above, NEMR believes it would be environmentally inappropriate to require the SP-ASR to be treated to meet the generally applicable LDR treatment standards. Because such treatment would be environmentally inappropriate (and, independently, because such treatment would also be technically inappropriate (as discussed in Section 5.1 above)), a site-specific LDR variance under 40 C.F.R. § 268.44(h)(2) (as incorporated by reference in Env-Hw 1202.01) is warranted.

6 Alternative Treatment Standards Will Minimize Threats to Human Health and the Environment

6.1 *Summary of the "Minimize Threats" Requirement*

As noted above, the LDR regulations require that site-specific variances provide sufficient protections (*e.g.*, alternative treatment standards) to "minimize threats to human health and the environment posed by land disposal of the waste." *See* 40 C.F.R. § 268.44(m), incorporated by reference in Env-Hw 1202.01. EPA has explained that this requirement is derived from the federal RCRA statute. *See, e.g.*, 62 Fed. Reg. 26,041, 26,060 (May 12, 1997) ("In all cases, treatment variances must result in an alternative treatment standard which would have to be satisfied before the waste could be land disposed. These alternative treatment standards must comply with the statutory standard of RCRA Section 3004(m) by minimizing threats to human health and the environment"). The statute, in turn, states that LDR treatment standards must "specify[ ] those levels or methods of treatment, if any, which substantially diminish the toxicity of the waste or substantially reduce the likelihood of migration of hazardous constituents from the waste so that short-term and long-term threats to human health and the environment are minimized." *See* RCRA § 3004(m), 42 U.S.C. § 6924(m).

EPA has stressed that the "minimize threats" standard is not a rigid one. *See* 55 Fed. Reg. 6640, 6641, note 1 (February 26, 1990) ("Congress intended that the treatment standards have some flexibility"). On its face, the statute requires only a "substantial[ ] reduc[tion]" in either the toxicity or mobility of hazardous constituents. Moreover, the Agency has highlighted that "section 3004(m) does not dictate that treatment standards be either technology-based or risk-based." *Id*. at 6641 (summarizing the decision of the U.S. Court of Appeals for District of Columbia Circuit ("D.C. Circuit") on this issue in *Hazardous Waste Treatment Council v. EPA*, 886 F.2d 355, 361-64 (D.C. Cir. 1989) ("*HWTC v. EPA*")). In addition, "the Agency does not believe that [the 'minimize threats'] standard requires the elimination of every conceivable threat posed by disposal of a prohibited hazardous waste." *Id*. at 6641, note 1 (citing

legislative history which said that "[i]t is not intended that every waste receive repetitive or ultimate levels of treatment"). Indeed, "EPA's interpretation of 'minimize threats' does not necessarily require … treatment of all regulated constituents in every prohibited waste." *See* 61 Fed. Reg. 55,718, 55,724 (October 28, 1996) (CITGO variance).

According to EPA, "[a]lternative standards … are most often based on site-specific treatability data or on a 'substantial treatment' standard." *See* Memorandum from Michael Shapiro, Director, Office of Solid Waste, EPA, et al., to RCRA/CERCLA Senior Policy Managers, EPA Regions 1-10 (January 8, 1997) (RCRA Online #14078) ("Shapiro Memorandum"). The Agency has indicated that in these cases, a variance petition should include "[a] description of the alternative treatment systems examined by the petitioner (if any), a description of the treatment system deemed appropriate by the petitioner for the waste in question, and, as appropriate, the concentrations in the treatment residual or extract of the treatment residual (using the TCLP) that can be achieved by applying such treatment to the waste." *See* 51 Fed. Reg. 40,572, 40,606 (November 7, 1986).

Consistent with this EPA guidance, we demonstrate in Section 6.2 below that, based on a review of multiple potential treatment technologies, stabilization appears to be the most appropriate technology for SP-ASR. As explained in Section 6.3, NEMR has found a stabilization "recipe" that is able to achieve substantial reductions in the concentration and/or mobility of lead (the only constituent that causes SP-ASR to be hazardous in the first instance), cadmium (the only metal UHC), several other potential metal UHCs, and various organic UHCs and potential UHCs. These reductions satisfy the "minimize threats" standard and thus serve as a suitable basis for alternative treatment standards under a treatability variance. We also note the alternative treatment standards we are proposing are far more stringent than treatment standards that EPA has previously concluded minimize threats for comparable wastes. *See* Section 6.4 below. Finally, as discussed in Section 7, NEMR is proposing additional safeguards to further ensure that threats are minimized.

6.2 *Careful Review of Potentially Relevant Treatment Technologies for SP-ASR Demonstrates that Stabilization is the Most Appropriate Technology for the Waste*

NEMR has conducted a thorough review of potentially relevant treatment technologies for SP-ASR and concluded that stabilization is the only technology that is technically and environmentally appropriate. As discussed in detail in Section 5 above, combustion is not appropriate for SP-ASR, given that a metal (lead) is the primary constituent of concern and would not be effectively treated by combustion, hazardous organics (which could be treated by combustion) are present only at very low levels, combustion could needlessly result in increased emissions of toxic chemicals (*e.g.*, lead and dioxins) and greenhouse gases, and requiring combustion could have the perverse effect of delaying remediation and perhaps even leading ultimately to a less aggressive remediation. Similarly, as discussed in Section 4.2 above, numerous other technologies are not appropriate, including solvent extraction, thermal desorption, bioremediation, and photocatalytic degradation.

In light of the above, stabilization appears to be the most appropriate treatment technology for SP-ASR. While it is not able to achieve all of the generally applicable LDR treatment standards (as discussed in Section 4.1 above), it is capable of achieving such treatment standards for many of the constituents of concern – including, but not limited to, the one of primary concern (*i.e.*, lead). Moreover, as discussed below, stabilization is capable of achieving substantial reductions in the concentrations and/or mobility of other UHCs and potential UHCs.

6.3 *Stabilization of SP-ASR Is Capable of Achieving Substantial Reductions in the Concentration or Mobility of Lead and UHCs, and Thereby Satisfying the "Minimize Threats" Standard*

In order to determine the levels of performance achievable using stabilization, NEMR initially sought to identify the most effective stabilization recipe (*i.e.*, stabilization reagent(s) in specific concentrations and/or combinations) by performing preliminary treatability studies for a variety of recipes. It was determined that the most effective recipe was to use a stabilization agent known as TerraBond® Mg in a concentration of 10% by weight, in part because it was one of the only recipes capable of simultaneously treating the two metals of primary concern (*i.e.*, lead and cadmium) below their respective UTSs.

Once this recipe was identified as the optimal choice for SP-ASR, NEMR performed a more in-depth treatability study, in order to understand more fully its capability to treat lead and all the relevant UHCs and potential UHCs. The Treatability Study Report in Appendix A provides a discussion of the study methods and results, as well as supporting documentation. Below, we summarize the results and demonstrate how the treatment levels achieved satisfy the statutory and regulatory "minimize threats" requirement, for each category of constituent of concern and overall.

6.3.1 *Metals*

As discussed in Section 2.3.2 above, there is only one metal – lead – which is sometimes present in SP-ASR in concentrations above the characteristic level of 5.0 mg/L (TCLP) and therefore may cause the material to be a regulated hazardous waste. In addition, only one other metal – cadmium – has sometimes been found in the hazardous SP-ASR above its UTS level of 0.11 mg/L (TCLP) such that it qualifies as a UHC in the SP-ASR. NEMR has also conservatively identified 7 other metals as potential UHCs, as discussed in Section 2.3.2 above. NEMR's treatability study demonstrated that the stabilization recipe selected by the Company is consistently able to meet the UTS levels for all of these metals. *See* Treatability Study Report at 2 and Table 1. Indeed, this recipe is able in most cases to treat lead, cadmium, and the other 7 metals to non-detectable TCLP levels. *Id*. at Table 1. Given that stabilization is able to meet and surpass LDR treatment requirements, it clearly satisfies the "minimize threats" standard with respect to these metals.

6.3.2 *Phthalate UHCs*

As discussed in Section 2.3.2 above, many of the hazardous SP-ASR samples contained one or two phthalate compounds (specifically BEHP and/or DNOP) above their respective UTSs, such that these two phthalates qualify as UHCs. As discussed below, the same stabilization recipe that was able to effectively treat lead and cadmium (as discussed above) was also able to achieve substantial reductions in the total concentrations of both phthalates.

As an initial matter, it is important to note that none of the SP-ASR samples tested had detectable levels of *leachable* BEHP or DNOP (under the TCLP) either before or after stabilization. *See* Treatability Study Report at 3 and Table 2. Given that these compounds are essentially incapable of being mobilized from SP-ASR into the environment, it is questionable whether BEHP and DNOP in the SP-ASR pose a meaningful threat to human health or the environment in the first instance. As the D.C. Circuit has cautioned, "EPA is [not] free, under [the LDR program], to require generators to treat their waste beyond the point at which there is no 'threat' to human health and the environment." *See HWTC v. EPA,* 886 F.2d at 362. Accordingly, NEMR believes there is no need for NHDES to establish numerical treatment standards for BEHP or DNOP in these wastes.

To the extent that NHDES may, nevertheless, be inclined to address BEHP and DNOP further, NEMR's treatability study demonstrates that stabilization is able to effectively treat these compounds. We briefly discuss each phthalate separately below:

- BEHP: The treatability test data show that stabilization using the recipe discussed above almost always resulted in substantial reductions in the total concentration of BEHP, by a factor ranging from about 40% to 70%. *See* Treatability Study Report, Table 2. Importantly, these reductions were substantially more than one would expect if constituents were merely being diluted by the stabilization reagent (since, as discussed above, the weight of the reagent added was only 10% the weight of the SP-ASR being treated). Thus, true treatment was clearly taking place. While there was one sample in which the total concentration of BEHP appeared to *increase* following treatment, that was almost certainly merely an artifact of the variability of the SP-ASR materials within the sample. *Id*., at 2-3 and Table 2 (discussing sample TREAT-10). It is known that the SP-ASR materials are non-homogeneous, and there is no known mechanism by which the addition of a stabilization reagent to any waste could cause the total concentrations of constituents to increase. Even though none of the samples were able to be treated to the UTS level for BEHP, stabilization was clearly able to achieve substantial treatment, such that it satisfies the "minimize threat" standard for BEHP.

- DNOP: The treatability test data show that stabilization using the recipe discussed above almost always resulted in substantial reductions in the total concentration of DNOP, by a factor typically ranging from about 50% to 85% (although only 20% in one sample) -- again, far more than one would expect through simple dilution. *See* Treatability Study Report, Table 2. There was one sample in which the total concentration of DNOP appeared to *increase* following treatment, just as there was a (different) sample that showed a similar effect for BEHP. *See id.* at 3 and Table 2 (discussing sample TREAT-8). However, for the same reasons discussed above in the context of BEHP, the apparent increase was almost certainly merely an artifact of the variability of the SP-ASR materials. In all cases, except this one outlier, the total concentration of DNOP in the stabilized material was well below the UTS (*i.e.*, 28 mg/kg). Accordingly, stabilization appears to satisfy the "minimize threats" standard for DNOP.

In light of the above, stabilization is clearly able to achieve substantial reductions in the total concentrations of BEHP and DNOP, such that the minimize threats standard would be satisfied for these constituents.

6.3.3 *Other Organic UHCs (PCBs)*

As discussed in Section 2.3.2 above, NEMR has identified PCBs as UHCs because a small number of hazardous SP-ASR samples from the 2018 waste characterization study contained total PCBs above the UTS level. However, the recent treatability study testing showed that none of the SP-ASR samples tested had detectable *leachable* levels of PCBs (under the TCLP) either before or after stabilization. *See* Treatability Study Report at 3 and Table 3. As discussed above in the context of phthalates, in this type of situation, NEMR believes that there is no meaningful environmental "threat" to be minimized, and thus there should be no need for NHDES to establish numerical treatment standards for these constituents in these wastes.

To the extent that NHDES may, nevertheless, be inclined to address PCBs further, NEMR's treatability study indicated that stabilization had limited effect on total PCBs concentrations. *Id*. While most of the samples tested did show reductions in total PCB levels (ranging from 5% to 45%), two of the 10 samples showed *increases* in total PCB levels (32%). The average change was a decrease of 14%,

which is only slightly more than the 10% reduction one would expect as a result of simple dilution (since the stabilizing agent was added at a level of 10%).

As discussed in Section 6.3.5 below, NEMR does not believe that the limited effectiveness of the PCB treatment in any way diminishes the conclusion that stabilization satisfies the minimize threats standard – especially given the discussion in Sections 6.3.1 and 6.3.2 above, showing that stabilization is capable of achieving substantial reductions in the concentration and/or mobility of lead, cadmium, all the other potential metal UHCs, and both BEHP and DNOP, which are the primary organic UHCs (and also given the discussion immediately below in Section 6.3.4, showing that stabilization effectively treats PAHs). Moreover, as noted above, the PCBs present in SP-ASR do not leach, suggesting that they do not pose a meaningful threat to be minimized.

6.3.4 *Potential Additional Organic UHCs (PAHs)*

As discussed in Section 2.3.2 above, even though PAHs were found above UTS levels in a very limited number of samples during the 2018 waste characterization testing, NEMR believes that was most likely due to contamination by asphalt in the vicinity where these samples were collected (adjacent to asphalt-paved areas). Accordingly, the Company does not believe that PAHs are "reasonably expected to be present" in SP-ASR above UTS levels, as required under the definition of UHCs. Nevertheless, in an abundance of caution, we have designated the relevant PAHs as "potential UHCs,"

In the recent treatability study testing, none of the SP-ASR samples tested had PAHs that were leachable at quantifiable levels (under the TCLP) either before or after stabilization. *See* Treatability Study Report at 2 and Table 2. As discussed above in the context of phthalates and PCBs, in this type of situation, NEMR believes that there is no meaningful environmental "threat" to be minimized, and thus there should be no need for NHDES to establish numerical treatment standards for these constituents in these wastes. That is especially the case here, where the PAH constituents do not appear to be UHCs in the first instance.

To the extent that NHDES may, nevertheless, be inclined to address PAHs further, NEMR's treatability study demonstrates that stabilization is able to effectively treat these compounds. In all of the treated samples, the total concentration of each PAH tested was below its respective UTS. Importantly, that was true even in cases where the corresponding untreated samples had total concentrations of some PAHs that were above their UTSs. *See* Treatability Study Repot at 2 and Table 2. Moreover, in these cases, treatment resulted in substantial reductions in the total concentrations of the PAHs, by a factor ranging from 66% to 97% -- far more than one expect through simple dilution. *Id*. Given that stabilization is able to meet and surpass LDR treatment requirements, it clearly satisfies the "minimize threats" standard with respect to these PAHs.

6.3.5 *Overall Performance*

In light of the discussion above, it is clear that stabilization is capable of achieving the generally applicable treatment standards for (i) lead (the main constituent of concern, since it is the only constituent that causes some of the SP-ASR to be hazardous in the first instance), (ii) cadmium (the only metal UHC), (iii) the 7 metals identified as potential UHCs, and (iv) all of the PAHs identified as potential UHCs in the waste. While NEMR has not found a stabilization recipe capable of achieving the UTS levels for BEHP, DNOP, or PCBs, none of those constituents appears capable of leaching from SP-ASR into the environment, suggesting that there is no meaningful threat to human health or the environment from these constituents that might need to be minimized. *See HWTC v. EPA,* 886 F.2d at 362 ("EPA is [not] free, under [the LDR program], to require generators to treat their waste beyond the point at which there is no 'threat' to human health and the environment. That Congress's concern in adopting 3004(m) was with health and the environment would necessarily make it unreasonable for EPA to promulgate

treatment standards wholly without regard to whether there might be a threat to man or nature.”). Moreover, NEMR’s treatability study demonstrates that stabilization is able to achieve substantial reductions in the total concentrations of two of these constituents (*i.e.*, BEHP and DNOP).

EPA has previously determined that treatment methods with similar performance characteristics satisfy the “minimize threats” requirement, and has granted LDR treatability variances on this basis. For example, in 1996, the Agency granted a variance to CITGO for certain refinery sludges being managed as part of a remediation project. *See generally* 61 Fed. Reg. 55,718 (October 28, 1996). The sludges in that case contained a variety of UHCs, including metals (*i.e.*, chromium and nickel), volatile organics (*e.g.*, benzene, toluene, xylene, and ethylbenzene), cyanides, and semi-volatile organics (*e.g.*, the same type of PAHs at issue here). *Id*. at 55,722-23. While the generally applicable treatment standards likely would have required the sludges to be burned and the resulting residues to be stabilized, EPA granted a variance based on sparging to remove volatile organics, followed by stabilization to address all the other UHCs. *Id*. at 55,724. The Agency noted that this methodology was capable of achieving the generally applicable treatment standards for the metals, cyanides, and some – but not all – of the volatile organics. The treatment was not able to achieve the generally applicable treatment standards for the semi-volatile organics (*e.g.*, PAHs) or even for some of the volatile organics. However, EPA concluded that the technology met the “minimize threats” standard. With respect to the PAHs, the Agency reasoned as follows: “Although the proposed treatment system was not designed for semivolatile organics (e.g. anthracene, chrysene), data from CITGO’s variance petition shows that the treatment system does yield reductions in concentrations of these constituents. In addition, the semivolatile constituents which remain in the treated sludge will be much less mobile after the waste is solidified.” *Id*.

In the present case, SP-ASR does not contain any volatile organic UHCs or cyanides. However, like the CITGO sludges, the SP-ASR contains both metals and semi-volatile organics such as PAHs. In the absence of volatile organics, sparging would clearly not be warranted, as it was for the CITGO sludges. However, NEMR is proposing to stabilize the SP-ASR, much as CITGO proposed to stabilize its sludges (after sparging). NEMR has been able to find a stabilization recipe that achieves the generally applicable treatment standards for the metals. Moreover, even better than in the CITGO case, the stabilization recipe is capable of achieving the generally applicable treatment standards for PAHs (and the PAHs in SP-ASR are immobile, unlike the PAHs in the CITGO sludges). While NEMR has not found a recipe capable of achieving the generally applicable treatment standards for BEHP and DNOP, the best recipe it has identified is capable of achieving substantial reductions in the total concentrations of these constituents (and, again, such constituents do not appear to be leachable from even untreated SP-ASR). The Company has not found a stabilization recipe that achieves more than a limited reduction in the total concentration of the one remaining UHC (*i.e.*, PCBs), but PCBs do not appear to leach from SP-ASR (treated or untreated). Furthermore, as EPA stressed in the CITGO case, “EPA’s interpretation of ‘minimize threats’ does not necessarily require … treatment of all regulated constituents in every prohibited waste.” *See* 61 Fed. Reg. at 55,724; *see also* 55 Fed. Reg. 6640, 6641, note 1 (February 26, 1990) (“the Agency does not believe that [the ‘minimize threats’] standard requires the elimination of every conceivable threat posed by disposal of a prohibited hazardous waste.”).

Given that EPA concluded that stabilization in the CITGO case (plus sparging to address volatile organics that are not present in SP-ASR) satisfied the “minimize threats” standard, NEMR’s proposed stabilization of SP-ASR – which appears to be considerably more effective – should also be deemed to meet that standard.

6.3.6 *Calculation of Proposed Alternative Treatment Standards*

As noted in Section 6.1 above, EPA has stated that “treatment variances must result in an alternative treatment standard which would have to be satisfied before the waste could be land disposed.” *See* 62 Fed. Reg. 26,041, 26,060 (May 12, 1997). Given that stabilization appears to be capable of meeting the UTSs for metals and PAHs (as discussed above), the UTSs can serve as the treatment standards for these constituents under a variance. For the 3 remaining UHCs (*i.e.*, BEHP, DNOP, and PCBs), however, alternative standards must be developed.

EPA generally calculates such alternative standards by analyzing the performance data for treatment of the waste at issue using the same methodology that EPA originally used in calculating the UTSs. *See, e.g.*, 61 Fed. Reg. 55,718, 55,722 (October 22, 1996) (calculating alternative standards by "multipl[ying] the mean treated concentration … by a variability factor calculated as per the equation established by *Final BDAT Background Document for Quality Assurance/Quality Control Procedures and Methodology,* Appendix D"). The referenced BDAT Background Document (dated October 23, 1991) specifies on pages 3-10 and 3-11 that calculation of the "maximum acceptable constituent levels in treatment residuals … is done by multiplying the average treatment value observed in the acceptable available data by a factor known as the 'variability factor.' … EPA calculates the variability factor for each selected constituent of concern using the statistical methods described in Appendix D." Appendix D of that Document, in turn, provides a formula on page D-2 for calculating the variability factor ("VF") from the standard deviation of the lognormal-transformed performance data.

NEMR has used this EPA methodology to calculate alternative treatment standards for the 3 UHCs for which the UTSs could not be achieved, as indicated below:

Constituent	Mean of Performance Data (mg/kg)	Variability Factor	Treatment Standard (mg/kg)
BEHP	124.2	6.15	763.8
DNOP	23.1	6.85	158.2
PCBs (total)	11.78	3.36	39.6

Based on these calculations, and the UTSs for lead and all the other UHCs and potential UHCs, NEMR is proposing the following alternative treatment standards for the hazardous SP-ASR material at issue:

Constituent	Current Treatment Standard	Proposed Alternative Standard	Basis for Proposal
Characteristic Metal			
Lead	0.75 mg/L (TCLP)	0.75 mg/L (TCLP)	Same as current (UTS)
Metal UHC			
Cadmium	0.11 mg/L (TCLP)	0.11 mg/L (TCLP)	Same as current (UTS)
Potential Additional Metal UHCs			
Antimony	1.15 mg/L (TCLP)	1.15 mg/L (TCLP)	Same as current (UTS)
Barium	21 mg/L (TCLP)	21 mg/L (TCLP)	Same as current (UTS)
Beryllium	1.22 mg/L (TCLP)	1.22 mg/L (TCLP)	Same as current (UTS)
Mercury	0.025 mg/L (TCLP)	0.025 mg/L (TCLP)	Same as current (UTS)
Nickel	11 mg/L (TCLP)	11 mg/L (TCLP)	Same as current (UTS)
Silver	0.14 mg/L (TCLP)	0.14 mg/L (TCLP)	Same as current (UTS)
Thallium	0.20 mg/L (TCLP)	0.20 mg/L (TCLP)	Same as current (UTS)
Phthalate UHCs			
Bis(2-ethylhexyl)phthalate ("BEHP")	28.0	763.8	EPA BDAT Methodology (see above)
Di-*n*-octyl phthalate ("DNOP")	28.0	158.2	EPA BDAT Methodology (see above)
Other Organic UHCs			
PCBs (total)	10.0	39.6	EPA BDAT Methodology (see above)
Potential Additional Organic UHCs (PAHs)			
Anthracene	3.4	3.4	Same as current (UTS)
Benz(a)anthracene	3.4	3.4	Same as current (UTS)
Benzo(a)pyrene	3.4	3.4	Same as current (UTS)

Benzo(b)fluoranthene	6.8	6.8	Same as current (UTS)
Benzo(g, h, i)perylene	1.8	1.8	Same as current (UTS)
Chrysene	3.4	3.4	Same as current (UTS)
Fluoranthene	3.4	3.4	Same as current (UTS)
Indeno(1,2.3-c,d)pyrene	3.4	3.4	Same as current (UTS)
Phenanthrene	5.6	5.6	Same as current (UTS)
Pyrene	8.2	8.2	Same as current (UTS)

6.4 *The Proposed Alternative Treatment Standards Also Minimize Threats Because They Are More Stringent than Levels that EPA has Previously Concluded Minimize Threats for Comparable Wastes*

An additional reason that stabilization to meet the proposed alternative treatment standards should be deemed to satisfy the LDR "minimize threats" requirement is that EPA has previously concluded that stabilization of closely related wastes to meet even *less* stringent standards satisfies that requirement. In particular, ASR meeting the definition of debris – including the ASR from which the SP-ASR was derived, when the ASR was processed through simple screening for the environmentally beneficial purpose of recovering metal – can meet LDR requirements (and be rendered suitable for land disposal as non-hazardous waste) simply by stabilizing it to meet the 5.0 mg/L (TCLP) characteristic level for lead. *See* Section 2.2 above (discussing treatment standards for hazardous debris from the ETP Area at the Madbury site); 40 C.F.R. § 268.45, Table 1, incorporated by reference in Env-Hw 1202.01 (identifying immobilization, including stabilization, as a sufficient treatment method under the LDR program for all forms of hazardous debris and contaminants (including lead)). The stabilized debris would be deemed to satisfy the LDR "minimize threats" requirement, without meeting the lower UTS for lead (0.75 mg/L (TCLP)) or any of the UTSs for other underlying hazardous constituents. *See* 40 C.F.R. § 268.45(b)(1), incorporated by reference in Env-Hw 1202.01 (stating that the only "contaminants subject to treatment" for debris exhibiting the characteristic of toxicity are the constituents that cause the debris to be hazardous (here, only lead)).

While the SP-ASR material, by definition, is not debris, it differs from ASR debris only in that it has been screened to recover valuable metals. It is also worth noting that EPA guidance states that SP-ASR resulting from screening to recover metals can be recombined with ASR debris and continue to be managed as debris (as long as more than 50% of the combined material has a particle size greater than 60 mm, such that the combined material qualifies as debris). *See* Letter from Elizabeth Cotsworth, Director, Office of Solid Waste, EPA, to Tracy Mattson, Institute of Scrap Recycling Industries, Inc. (October 27, 1999) (RCRA Online #14525). If SP-ASR can meet the "minimize threats" requirement by simply combining it with ASR debris and stabilizing the mixture to below 5.0 mg/L lead, it seems clear that stabilizing uncombined SP-ASR to meet the 0.75 mg/L UTS level for lead, the UTS for cadmium (and other potential metal UHCs), and substantially lower levels of organic hazardous constituents should also be deemed to minimize threats.

Finally, we note that, in recent years, the common practice in the auto shredding industry has been to use certain reagents during the shredding process (*i.e.*, before any ASR waste is generated) which have the effect of reducing leachable lead levels in the ASR waste that is ultimately generated below the characteristic level. In this way, the LDR requirements are never triggered, and the ASR waste can be disposed "as is" into a non-hazardous waste landfill. This is effectively the same result as the one described above for ASR debris, or SP-ASR recombined with ASR debris (*i.e.*, that it can be rendered non-characteristic (below 5.0 mg/L lead) using reagents and disposed as non-hazardous waste), thus underscoring the reasonableness of the conclusion that the alternative treatment standards proposed here – which are far more stringent – are adequate to minimize threats. This is especially true given that the wastes here are being managed in the context of remediation, and EPA has long stated that more flexibility should be given under the LDR program to remediation wastes, as opposed to wastes generated through ongoing production operations. *See, e.g.*, 61 Fed. Reg. 55,718, 55,722 (October 28,

1996) ("treatability variances are often warranted for wastes generated in the context of remediation," even if they might not be warranted for wastes that are continuing to be generated).

7 Additional Safeguards Should Help Ensure that the "Minimize Threats" Requirement Is Satisfied

In many of the LDR variances that EPA has granted to date, the Agency has included not only alternative treatment standards but also additional safeguards to help ensure that the "minimize threats" standard is achieved. NEMR has reviewed these safeguards and is proposing several similar safeguards here, as discussed below:

o Time Limitation

In at least one past variance that was granted in part on the ground that requiring compliance with the generally applicable LDR treatment standards would delay remediation, EPA limited the validity of the variance to 24 months from the time that the facility received approval for its remediation plan. *See* 61 Fed. Reg. 55,718, 55,725 (October 28, 1996). The Agency reasoned that "[c]ontrol of timing here is necessary to assure that the expected environmental benefits [of facilitating remediation], which are the reason for approving the petition, actually accrue. Allowing … unlimited time [for the variance] would contradict EPA's assertion that it is approving this variance, in part, to ensure that … remediation [is] completed as soon as possible." *Id*.

In the present case, as discussed in Section 5.2 above, avoiding delay in remediation is one of the rationales for the variance NEMR is seeking. Accordingly, the Company believes a time limit is warranted. Although the relevant part of the remediation is expected to be completed during the Spring and Summer of 2021 (assuming this variance petition is granted by March 1, 2021, and all other permits/authorizations necessary are also issued by that date), in order to cover potential delays, NEMR believes a remediation completion deadline of October 30, 2022 is appropriate here. We also note that, in the variance mentioned above, EPA stated that the company "may petition for additional time if … unforeseen delays occur, provided [it] can demonstrate a good faith effort to complete the remediation." *Id*. (explaining that "EPA recognizes that unforeseen circumstances, such as accidents, equipment malfunctions, or natural disasters, may prevent [the company] from completing this remediation within the established time limit. Under such extenuating circumstances, the Agency would not want the time limit to act as a disincentive to the completion of the [remediation] operation"). To the extent that NHDES may decide to include a time limit on the variance, NEMR believes that similar provisions for an extension (covering pandemics, in addition to the other circumstances mentioned above) should be included.

o Environmental Controls for the Treatment Process

In at least one past LDR variance, EPA has included a provision requiring compliance with applicable air emission control requirements, so as to ensure that volatile organic UHCs would not simply be transferred into the atmosphere. *See* 61 Fed. Reg. 55,718, 55,723 (October 28,1996) ("In order to ensure protection of human health and the environment, … the treatment system must be operated in accordance with applicable air emission standards.").

In the present case, the organic UHCs are only semi-volatile, making air emissions much less of a concern. Nevertheless, NEMR plans to perform the stabilization process and related activities (*e.g.*, sampling for purposes of confirmatory testing, and holding the stabilized material until the testing is complete) within containment building(s) that are constructed and operated in

accordance with applicable requirements of 40 C.F.R. Part 265, Subpart DD, as incorporated by reference in Env-Hw 507.01(c) and 509.01(a)(9), as well as a design plan that is approved by NHDES.

o Reagent-to-Waste Mixing Ratio Limit

In some of the variances that EPA has granted based on stabilization technologies, the Agency has cautioned that the reagent-to-waste ratios must be kept within "acceptable bounds" to ensure that the treatment standards are not simply being achieved through impermissible dilution. *See, e.g.*, 64 Fed. Reg. 28,387, 28,389 (May 26, 1999) ("to avoid questions of impermissible dilution, [the company] will need to keep the reagent to waste ratios within acceptable bounds"). Even in these cases, EPA has generally refrained from mandating specific ratios, out of concern for unduly limiting the company's flexibility in treatment. *Id.* ("No specific ratios are being established in today's rule because the Agency does not typically circumscribe a treater's flexibility in this manner").

In the present case, there does not appear to be a significant concern about impermissible dilution given that, as discussed above, stabilization yields substantial reductions in the total concentrations of most of the relevant organics – far greater a reduction than could be accounted for by simple dilution. Moreover, as a practical matter, NEMR would not be able to use excessive amounts of the stabilization reagent, since that might cause the treated material to have a pH greater than 12.5, such that it would be classified as a corrosive hazardous waste. Nevertheless, NEMR recognizes that it cannot achieve the alternative treatment standards through impermissible dilution, and accordingly it is prepared to commit to keeping reagent-to-waste ratios within reasonable bounds.

o Waste Analysis and Retreatment as Necessary

Under 40 C.F.R. § 268.44(k), as incorporated by reference in Env-Hw 1202.01, "[a] generator, treatment facility, or disposal facility that is managing a waste covered by a site-specific variance from a treatment standard must comply with the waste analysis requirements for restricted wastes found under § 268.7." Subsection (a)(5) of the referenced § 268.7 states that "[i]f a generator is managing and treating prohibited waste … in tanks, containers, or containment buildings … to meet applicable LDR treatment standards … the generator must develop and follow a written waste analysis plan which describes the procedures they will carry out to comply with the treatment standards."

Consistent with these provisions, NEMR has developed a waste analysis plan ("WAP") for the stabilized SP-ASR, which specifies sampling methods and frequency, parameters to be analyzed, analytical methods to be used, quality assurance/quality control procedures, recordkeeping, and storage of the treated material pending analytical results confirming that the material meets the alternative treatment standards established under the variance. *See* Appendix B. As noted in the WAP, in the event that any of the treated SP-ASR does not meet the alternative treatment standards, NEMR will re-treat and re-sample the material to attempt to achieve the alternative treatment standards (subject to the limitation discussed above against use of excessive quantities of reagent that could potentially cause concerns about whether the SP-ASR is being impermissibly diluted). In the unlikely event a standard is not achieved after multiple treatment events, and it is concluded that additional treatment is not likely to achieve the required standard, the stockpile will be segregated for disposal at an alternative receiving facility permitted to accept the material.

o Subtitle D Landfill Requirements

EPA has stated that "in a remediation setting, it is appropriate (and likely necessary) to consider risks posed by leaving previously land disposed waste in place as well as *risks posed by land disposal of the waste after it is removed and treated*." *See* 62 Fed. Reg. 64,504, 64,506 (December 5, 1997) (emphasis added). Indeed, EPA has often considered the safeguards provided by a landfill in deciding if the "minimize threats" standard will be met. *See, e.g.*, 61 Fed. Reg. 55,718, 55,724 (October 28, 1996) (noting that hazardous constituents in sludge will be less mobile after stabilization and will be "further safeguarded" by disposal in a protective landfill).

In the present case, NEMR intends to dispose of the solidified SP-ASR in the Waste Management, Inc. Turnkey Landfill in Rochester, New Hampshire, which is equipped with liners, leachate collection systems, and other safeguards that comply with all applicable federal and state standards. To provide assurance that these types of safeguards will be in place to help minimize threats, the Company proposes that the variance be conditioned on disposal of the treated SP-ASR in the Turnkey Landfill or another landfill with similar safeguards.

8 Conclusion and Request for Variance

As discussed in detail above, if (as NHDES has asserted) the hazardous SP-ASR material at the NEMR Madbury site is not eligible for the LDR treatment standards applicable to debris, the material would be subject to the generally applicable treatment standards for lead, cadmium, and several organic UHCs. The only way that all of these standards could *potentially* be met would be to burn the materials and then stabilize the resulting residues. However, combustion of these materials would be both technically and environmentally inappropriate.

NEMR has determined that stabilization is the most appropriate treatment for these wastes, and identified one stabilization recipe that is able to meet the generally applicable treatment standards for lead, cadmium, other potential metal UHCs, and several organic UHCs or potential UHCs. While such treatment is not able to achieve the generally applicable standards for a few organic UHCs, it is able to achieve substantial reductions in the concentrations of such constituents, each of which has also been determined to be non-leachable through TCLP testing, and thereby meets the LDR requirement that treatment "minimize threats" to human health and the environment.

NEMR is proposing alternative treatment standards based on the levels it has shown should be achievable through stabilization of the ASR materials at issue. The Company is also proposing additional safeguards to help ensure that the "minimize threats" standard is satisfied. We hereby request that NHDES grant a site-specific LDR variance on this basis. For your convenience, we have provided a proposal of the specific language that we envision might be included in a variance, in Appendix C to this petition.

The Company appreciates NHDES's consideration of this petition, especially during these difficult times. If you would like to discuss any aspects of this petition, or if you need any additional information, please do not hesitate to reach out to us. We share NHDES' goals of completing the remediation in an expeditious, reasonable and protective manner.

CERTIFICATION

Pursuant to 40 C.F.R. § 268.44(c), as incorporated by reference in Env-Hw 1202.01, I certify under penalty of law that I have personally examined and am familiar with the information submitted in this petition and all attached documents, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and

complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Pursuant to Env-Hw 207.02, I further certify that, to the best of my knowledge and belief, the contents of this submission are true, complete, and not misleading. I understand that a violation of this certification may subject an individual to the penalties found in Env-Hw 207.04.

Scott B. Sloan, R.G., L.Hg.
Environmental Vice President
New England Metal Recycling LLC

Appendix A

Treatability Study Report

TETRA TECH

October 16, 2020

Wendy S. Bonner, Interim Administrator
Hazardous Waste Management Bureau
New Hampshire Department of Environmental Services
29 Hazen Drive
Concord, NH 03301

Re: Treatability Study Report
Feasibility Study (FS) Area
NEMR of Madbury, New Hampshire
290 Knox Marsh Road
Madbury, New Hampshire
DES Site 198705022, Project #8795

Dear Ms. Bonner:

Tetra Tech, Inc. (Tetra Tech) has prepared this Treatability Study Report on behalf of our client, NEMR of Madbury, New Hampshire, LLC (NEMR), to present the results of sampling, bench-scale treatment and laboratory analysis conducted to evaluate the effectiveness of the use of TerraBond® Mg for stabilization and treatment of material in the Feasibility Study (FS) Area at the referenced property (the Site). This treatment approach was selected based on initial treatability testing which demonstrated that 10% TerraBond® Mg by weight was the most effective approach for treating toxicity characteristic leaching procedure (TCLP) lead and cadmium, and substantially reducing the concentrations of other Underlying Hazardous Constituents (UHCs) and potential UHCs. The material in the FS Area which is the subject of this report has a particle size of less than 60 mm (2.36 inches).

Sample Collection

Ten samples (TREAT-1 to TREAT-10) of the non-native material in the FS Area where laboratory analytical results reported for disposal characterization samples collected in August and September 2018 indicated that TCLP lead concentrations equaled or exceeded the threshold of 5.0 milligrams per liter (mg/l) were obtained from the locations shown on the attached Figure 1 on March 11, 2020. At each location a test pit was excavated using a backhoe, and a sample that was representative of the vertical thickness of non-native material was collected. After sample collection the excavated material was returned to each test pit by placing the material at approximately the same depth below the ground surface from which it was excavated. Logs for each test pit are attached.

The samples were shipped under a Chain-of-Custody to Eurofins/Test America Laboratory in Pittsburgh, PA (Eurofins/Test America) in accordance with Env-Hw 401.3(b)(14) and 40 CFR 261.4(e). Eurofins/Test America routinely does treatability testing, previously provided the 45-day notification required by 40 CFR 261.4(f), and has an EPA Identification Number. The letter providing notification to the Pennsylvania Department of Environmental Protection (PADEP) is attached to this letter, and their EPA ID Number is PAD990824666.

Marlborough Technology Park
100 Nickerson Road, Marlborough, MA 01752
Tel 508.786.2200 Fax 508.786.2201 tetratech.com

Sample Analysis and Treatment

After delivery of the samples to Eurofins/Test America, each sample was homogenized and a representative portion of each untreated sample was analyzed for total and TCLP semi-volatile organic compounds (SVOCs) (specifically, those SVOCs which exceeded their respective Universal Treatment Standard (UTS) in one or more of the disposal characterization samples, including certain polynuclear aromatic hydrocarbons (PAHs), bis(2-ethylhexyl phthalate (BEHP) and di-*n*-octyl phthalate (DNOP)), total and TCLP p,p'-DDT, total and TCLP polychlorinated biphenyls (PCBs), and total and TCLP metals (antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, nickel, silver and thallium). Each untreated sample was also analyzed for corrosivity of a solid matrix.

Eurofins/Test America treated a portion of each sample by mixing with TerraBond® Mg at a ratio of 10% by weight and analyzing the treated samples for the same parameters listed above for which the untreated samples were analyzed. The treatability testing, including sample processing and laboratory analysis of untreated and treated samples, was conducted by Eurofins/Test America in accordance with Env-Hw 401.3(b)(14) and 40 CFR 261.4(f). Each treated sample was also analyzed for corrosivity of a solid.

Laboratory Analysis Results

The laboratory analysis results for the untreated and treated samples (total and TCLP) for metals, SVOCs, PCBs and pesticides are presented in the attached Tables 1 to 4, respectively, and the corrosivity results are presented in Table 5. The laboratory certificates of analysis are attached.

As shown on the tables, treatment with 10% TerraBond® Mg by weight had the following results:

- **Metals** – The results for all the treated samples indicated TCLP metals concentrations were below their respective UTS, including TCLP lead and TCLP cadmium. The TCLP lead and cadmium results are significant because the material is classified as a characteristic hazardous waste solely because of the TCLP lead results reported for the disposal characterization samples, and TCLP cadmium is often difficult to reduce to below its UTS using many commercially available treatment technologies.

- **SVOCs** – The SVOC results include PAHs which exceeded their UTS in one or more disposal characterization samples and are likely attributable to the presence of asphalt, and phthalates (specifically BEHP and DNOP) which are likely related to plasticizers in some of the materials which were historically shredded at the facility. The material present in the FS Area is believed to be sourced primarily from the non-metallic portion of materials historically processed through the site's former metal shredder. Each of these categories of SVOC are discussed below.

    - **PAHs** – Total PAH concentrations in all the treated samples were below their respective UTS, including those samples for which total PAH concentrations in the corresponding untreated samples exceeded one or more UTS. The TCLP PAH concentrations were below detection limits in both the untreated and treated samples, indicating they will not leach in a landfill environment.

    - **Phthalates** – Total BEHP concentrations were lower in nine of the ten treated samples compared to the untreated samples, although only treated samples FSA-TREAT-1 and FSA-TREAT-4 contained BEHP concentrations below the UTS of 28 milligrams per kilogram (mg/kg). The total BEHP concentration in the untreated sample FSA-TREAT-10 was 110 mg/kg, while the total BEHP concentration in the treated sample from that location was 160 mg/kg. The higher concentration in the treated sample compared to the untreated sample is believed to be related to heterogeneity in the sample matrix, despite the effort by the

laboratory to homogenize the samples prior to analysis. Total DNOP concentrations exceeded the UTS of 28 mg/kg in four of the ten untreated samples (FSA-TREAT- 2, 6, 7 and 9), and in all of these but FSA-TREAT-6 the total DNOP in the treated samples were reduced to below the UTS. In sample TREAT-6, the total DNOP concentration was also reduced, but not to the UTS level. In sample FSA-TREAT-8 the total DNOP concentration in the treated sample (84 mg/kg) was higher compared to the untreated sample (26 mg/kg). Similar to the BEHP result discussed above for sample FSA-TREAT-10, the higher concentration in the treated sample compared to the untreated sample is believed to be related to heterogeneity in the sample matrix. Based on these results we believe treatment has substantially reduced BEHP and DNOP concentrations. The TCLP BEHP and DNOP concentrations were below detection limits in both the untreated and treated samples, indicating they will not leach in a landfill environment.

- **PCBs** – The total PCB concentrations in the treated samples were only marginally lower than the total PCB concentrations in the untreated samples, indicating that treatment is of limited effectiveness for PCBs. The TCLP PCB concentrations were below detection limits in both the untreated and treated samples, indicating they will not leach in a landfill environment.

- **Pesticides** – With one exception, total and TCLP pesticide concentrations were non-detectable in the untreated and treated samples, consistent with the results for the disposal characterization samples which indicated only occasional detection of pesticides and at concentrations indicative of use in accordance with manufacturer's application instructions. The exception was the total 4,4' DDD concentration of 0.110 mg/kg reported for the treated sample FSA-TREAT-1, which slightly exceeded the UTS of 0.087 mg/kg. Based on the sporadic detection of pesticides at the Site, and the fact that their presence is unrelated to the ASR, we believe pesticides should not be deemed UHCs. The TCLP pesticide concentrations were less than detection limits in both the untreated and treated samples, indicating they will not leach in a landfill environment.

- **Corrosivity** – The pH of the treated samples ranged from 10.8 to 12.1, all below a pH of 12.5 which would otherwise result in the treated material being classified as a hazardous waste because of the New Hampshire characteristic of corrosivity.

Conclusions

Based on the results for the samples discussed herein, we believe that treatment of material in the FS Area at the Site with TerraBond® Mg at a rate of 10% by weight will result in stabilization of TCLP lead to below 0.75 mg/l, TCLP cadmium to below 0.11 mg/l, and will substantially reduce concentrations of other UHCs and potential UHCs.

Please contact the undersigned if you have any questions.

Very truly yours,

Raymond C Johnson

Raymond C. Johnson, P.G., L.S.P.
Senior Vice President

Attachments: Safety Data Sheet for TerraBond® Mg
Figure 1 – Test Pit Locations
Eurofins/Test America Notification Letter to PADEP
Table 1 – Laboratory Analysis Results for Metals

Table 2 – Laboratory Analysis Results for SVOCs
Table 3 – Laboratory Analysis Results for PCBs
Table 4 – Laboratory Analysis Results for Pesticides
Table 5 – Laboratory Analysis Results for Corrosivity
Laboratory Certificates of Analysis

C: Paul Rydel, NHDES – WMD, HWRB
Zachary Lorch, NHDES – WMD, HWMB
Scott B. Sloan, R.G., L.Hg., NEMR of Madbury, New Hampshire
Gary Raddatz, NEMR of Madbury, New Hampshire

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SAFETY DATA SHEET

TerraBond®Mg

1. Product And Company Identification

Remedium Services Group, LLC
d/b/a Terra Materials
11711 N. College Avenue, Suite 170
Carmel, IN 46032

Company Contact: Tom McCullough
Telephone Number: (317) 660-6868
Web Site: www.terramaterials.com

Supplier Emergency Contacts & Phone Number
Terra Materials: (317) 660-6868

Issue Date: 7/26/12
Revision Date: 5/14/18

Product Name: TerraBond®Mg
Chemical Formula: Proprietary Formulation

2. Hazards Identification

Pictograms:

Signal Word: Warning

Hazard Statements:
H315 May cause skin irritation
H319 May cause eye irritation
H335 May cause respiratory irritation

Precautionary Statements:
P280 Wear Protective gloves and eye protection
P305 & P351 If in eye rinse cautiously with water for several minutes.
P337 & P313 If eye irritation persists, get medical advice/attention.
P302 & P352 If on skin wash with plenty of soap and water.
P261 Avoid breathing dust

3. Composition/Information On Ingredients

Ingredient Name	CAS Number		Percent of Total Weight
Propprietary Magnesiuim/Calcium Blend	N/A		90-99
Silica Quartz	14808-60-7		1-10

SAFETY DATA SHEET

TerraBond®Mg

4. First Aid Measures

Eye

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician

Skin

Wash off promptly when exposure ceases. Do not allow dried sludge to remain on skin for prolonged periods as this may cause skin irritation.

Ingestion

Drink plenty of water. **Do not induce vomiting unless directed by a physician**

Inhalation

Remove from exposure. Get medical attention if experiencing cough, irritation or difficulty breathing.

5. Fire Fighting Measures

Fire and Explosion Hazards

Material is not considered to be combustible.

Extinguishing Media

Any means suitable for extinguishing surrounding fire.

6. Accidental Release Measure

Absorb with suitable material and dispose of in accordance with regulations. Ventilate if necessary.

7. Handling And Storage

Handling And Storage Precautions

Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes.

8. Exposure Controls/Personal Protection

Eye/Face Protection

Safety glasses or safety goggles.

Skin Protection

Chemical resistant gloves. Sufficient protective clothing to minimize skin exposure. Launder contaminated clothing before reuse

Respiratory Protection

None required if adequate ventilation is provided.

SAFETY DATA SHEET

TerraBond®Mg

9. Physical And Chemical Properties

Appearance	Tan colored powder
Odor	Odorless
Density:	90 to 105 lbs/ft3
Vapor Density:	Not applicable
Solubility:	Slightly soluble
pH	10-11

10. Stability and Reactivity

Chemical Stability

Stable under normal temperature and pressures.

Hazardous Polymerization

Has not been reported

Conditions To Avoid (Stability)

None known

Incompatible Materials

None known.

11. Toxicological Information

Component Information:

Proprietary Formulation: No information availabld

SAFETY DATA SHEET

TerraBond®Mg

12. Ecological Information

Ecotoxicity:

No Data Found

13. Disposal Considerations

Dispose of in accordance with local, state and federal regulations.

14. Transport Information

Proper Shipping Name:

Non-Hazardous, Non-Regulated Solid

15. Regulatory Information

CERCLA

Not applicable- contains no hazardous substances at or above de minimis concentrations.

SARA TITLE III:

Section 302 Extremely Hazardous Substances: None at or above de minimis concentrations.

Section 311/312 Health and Physical Hazards: Delayed (chronic) health hazard from long-term inhalation of dust.

Section 313 Toxic Chemicals: None at or above de minimis concentrations.

16. NFPA

Health – 1 **Flammability – 0** **Reactivity – 0** **Special Hazard=None**

17. Disclaimer

Terra Materials provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. The information is based upon our current knowledge and experience of our product and is not exhaustive. It applies to the product as defined by the specifications. In case of combinations or mixtures with other chemicals, one must confirm that no new hazards are likely to exist. In any case, the user is not exempt from observing all legal, administrative, and regulatory procedures relating to the product, personal hygiene, and integrity of the work environment.

This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose and does not relate to the use of this product in combination with any other substance or other process.

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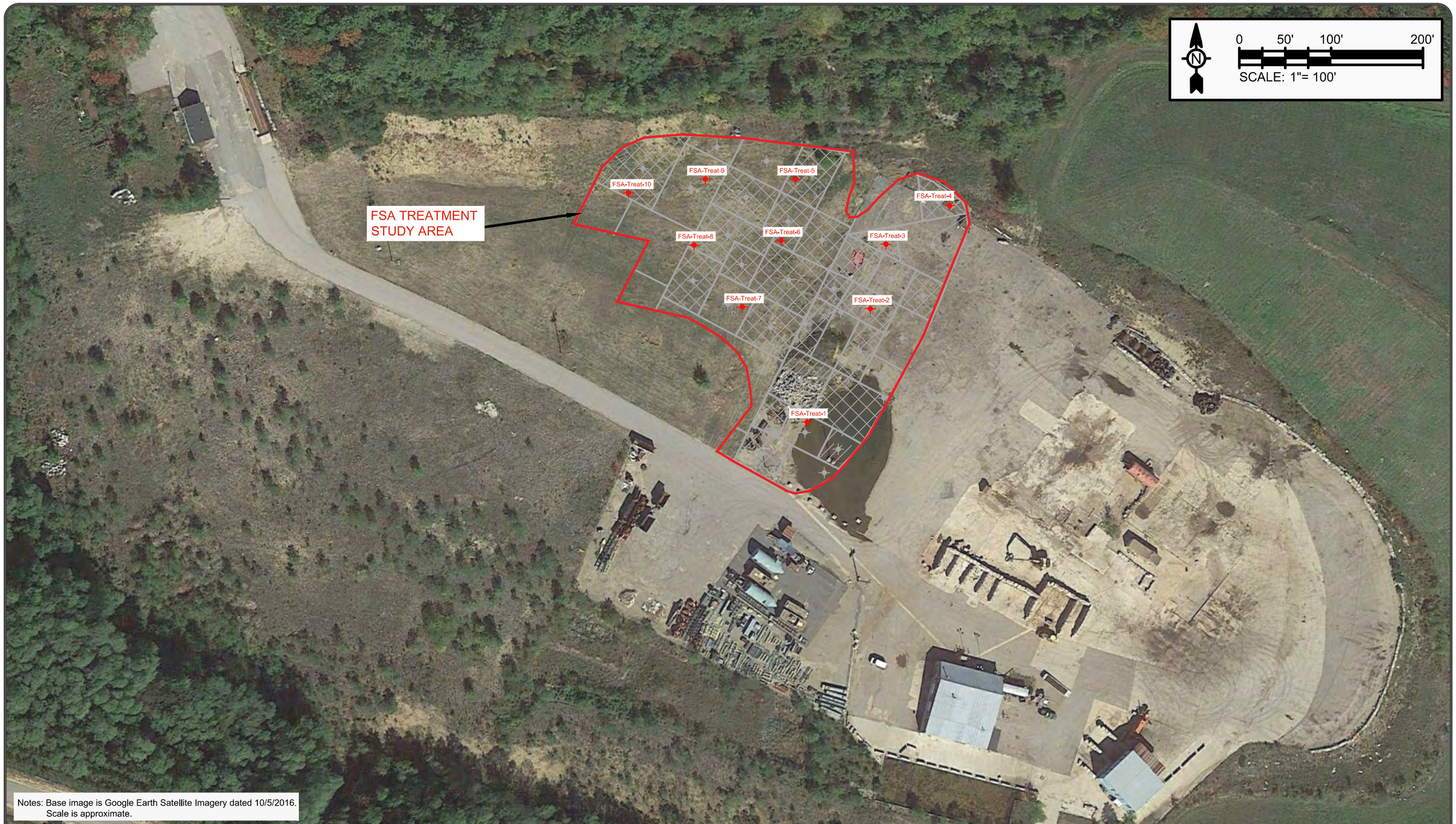

Notes: Base image is Google Earth Satellite Imagery dated 10/5/2016.
Scale is approximate.

LEGEND

- FSA Treatment Analysis Sample
- Failed TCLP for Lead
- Not Sampled - ASR Not Encountered
- Extent of stabilization

TETRA TECH
www.tetratech.com
100 Nickerson Road
Marlborough, MA 01752
Phone: (508) 786-2200 Fax: (508) 786-2201

MARK	DATE	DESCRIPTION	BY

NEMR of Madbury

290 Knox Marsh Road
Madbury, New Hampshire

FSA Treatment Study Area

Project No.:	143-145286-18001
Designed By:	RCJ
Drawn By:	KMC
Checked By:	RCJ
Figure:	1

Bar Measures 1 inch

3/17/2020 7:17:30 PM - C:\USERS\JON.FIORE\DESKTOP\TREATMENT STUDY AREA.DWG - FIORE, JON

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

4/24/14
PA Department of Environmental Protection
Division of Hazardous waste Management
RCSOB-14th Floor
PO Box 69170
Harrisburg, PA 17106-9170

To Whom it may concern,

I am writing as notification that TESTAMERICA Pittsburgh located at 301 Alpha Drive Pittsburgh PA 15238 intends to conduct treatability studies for clients in compliance of 40 CFR Part 261.4(F) (Samples undergoing Treatability Studies at Laboratories and Testing Facilities).

Kind Regards

Steve Jackson
Regional Environmental Coordinator
4101 Shuffel Street
North Canton, Ohio 44720

Table 1 **Soil Analytical Data - Metals**

Client ID	FSA-TREAT-1/ FSA-TREAT-1 10% TerraBond MG			FSA-TREAT-2/ FSA-TREAT-2 10% TerraBond MG			FSA-TREAT-3/FSA-TREAT-3 10% TerraBond MG		
Lab Sample ID	180-103654-1/180-103654-32			180-103654-2/180-103654-25			180-103654-3/180-103654-33		
Sampling Date	17-Mar-20			17-Mar-20			17-Mar-20		
Units	mg/kg (Total); mg/l (TCLP)			mg/kg (Total); mg/l (TCLP)			mg/kg (Total); mg/l (TCLP)		
	Untreated Total/TCLP	Treated Total/TCLP	% Reduction for TCLP	Untreated Total/TCLP	Treated Total/TCLP	% Reduction for TCLP	Untreated Total/TCLP	Treated Total/TCLP	% Reduction for TCLP
Antimony	57/<0.034	9.6/<0.034	-	30/<0.034	16/<0.034	-	14.0/<0.034	19/<0.034	-
Arsenic	15/0.043J	16/<0.041	-	11/<0.041	12/<0.041	-	9.5/0.043J	14/<0.041	-
Barium	340/6.2	340/0.45J	93%	730/5.0	600/0.50J	90%	390/4.0	480/0.31J	92%
Beryllium	<10/<0.0033	0.55/<0.0033	-	<5.8/<0.0033	0.51/<0.0033	-	<3.9/<0.0033	0.51J/<0.0033	-
Cadmium	13/0.19J	10/<0.0028	-	14/0.40J	11/<0.0028	-	8.1/0.35J	15/<0.0028	-
Chromium	100/0.011J	68/<0.0078	-	240/0.0097J	210/<0.0078	-	69/<0.0078	100/<0.0078	-
Lead	26,000/18	830/<0.029	-	1,100/7.0	1,200/<0.029	-	600/5.3	1,000/<0.029	-
Nickel	320/1.5	380/0.020J	99%	410/0.73	180/<0.015	-	820/0.70	140/<0.015	-
Silver	5.4J/<0.0085	1.1/<0.0085	-	2.6J/<0.0085	1.5/<0.0085	-	1.6J/<0.0085	2.2/<0.0085	-
Thallium	<10/<0.033	<0.54/<0.033	-	<5.8/<0.033	0.13/<0.033	-	<3.9/<0.033	<0.57/<0.033	-
Mercury	1.4/<0.00010	0.76/<0.00010	-	1.9/<0.00010	1.1/<0.00010	-	1.6/<0.00010	1.0/<0.00010	-

Notes:
ND: Not Detected

J: Indicates the result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.

Table 1 **Soil Analytical Data - Metals**

Client ID	FSA-TREAT-4/ FSA-TREAT-4 10% TerraBond MG			FSA-TREAT-5/ FSA-TREAT-5 10% TerraBond MG			FSA-TREAT-6/ FSA-TREAT-6 10% TerraBond MG		
Lab Sample ID	180-103654-4/180-103654-34			180-103654-5/180-103654-26			180-103654-6/180-103654-35		
Sampling Date	17-Mar-20			17-Mar-20			17-Mar-20		
Units	mg/kg (Total); mg/l (TCLP)			mg/kg (Total); mg/l (TCLP)			mg/kg (Total); mg/l (TCLP)		
	Untreated Total/TCLP	Treated Total/TCLP	% Reduction for TCLP	Untreated Total/TCLP	Treated Total/TCLP	% Reduction for TCLP	Untreated Total/TCLP	Treated Total/TCLP	% Reduction for TCLP
Antimony	28/<0.034	39/<0.034	-	25/<0.034	32/<0.034	-	24/<0.034	22/<0.034	-
Arsenic	16/0.045J	16/<0.041	-	17/<0.041	12/<0.041	-	9.7/0.054J	17/<0.041	-
Barium	620/5.4	470/0.70J	87%	560/2.3	270/0.24J	90%	830/5.0	790/0.29J	94%
Beryllium	<5.7/<0.0033	0.43J/<0.0033	-	<4.8/<0.0033	0.43/<0.0033	-	<6.4/<0.0033	0.51J/<0.0033	-
Cadmium	44/0.28J	15/<0.0028	-	9.2/0.16J	7.6/<0.0028	-	13/0.063J	20/0.0036J	94%
Chromium	270/0.0091J	150/<0.0078	-	5,000/0.0096J	58/<0.0078	-	120/0.024J	350/<0.0078	-
Lead	1,300/4.2	1,300/<0.029	-	960/6.2	740/<0.029	-	1,200/5.2	1,300/<0.029	-
Nickel	240/0.85	1,100/<0.015	-	2,400/0.60	93/0.016J	97%	150/2.2	2,000/0.035J	98%
Silver	1.5J/<0.0085	1.4/<0.0085	-	1.4J/<0.0085	0.96/<0.0085	-	2.3J/<0.0085	1.4/<0.0085	-
Thallium	<5.7/<0.033	<0.52/<0.033	-	<4.8/<0.033	0.14/<0.033	-	<6.4/<0.033	<0.59/<0.033	-
Mercury	1.2/<0.00010	1.1/<0.00010	-	0.92/<0.00010	0.73/<0.00010	-	2.1/<0.00010	1.6/<0.00010	-

Notes:
ND: Not Detected

J: Indicates the result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.

Table 1 **Soil Analytical Data - Metals**

Client ID	FSA-TREAT-7/ FSA-TREAT-7 10% TerraBond MG			FSA-TREAT-8/FSA-TREAT-8 10% TerraBond MG			FSA-TREAT-9/FSA-TREAT-9 10% TerraBond MG			FSA-TREAT-10/FSA-TREAT-10 10% TerraBond MG		
Lab Sample ID	180-103654-7/180-103654-27			180-103654-8/180-103654-4/180-103654-31			180-103654-9/180-103654-36			180-103654-10/180-103654-28		
Sampling Date	17-Mar-20			17-Mar-20			17-Mar-20			17-Mar-20		
Units	mg/kg (Total); mg/l (TCLP)			mg/kg (Total); mg/l (TCLP)			mg/kg (Total); mg/l (TCLP)			mg/kg (Total); mg/l (TCLP)		
	Untreated Total/TCLP	Treated Total/TCLP	% Reduction for TCLP	Untreated Total/TCLP	Treated Total/TCLP	% Reduction for TCLP	Untreated Total/TCLP	Treated Total/TCLP	% Reduction for TCLP	Untreated Total/TCLP	Treated Total/TCLP	% Reduction for TCLP
Antimony	24/<0.034	22.0/0.036J	-	16/<0.034	19/0.038J	-	37/<0.034	28/<0.034	-	19/<0.034	38.0/<0.034	-
Arsenic	12/<0.041	17/<0.041	-	8.1/0.047J	12/<0.041	-	19/<0.041	18/<0.041	-	12/0.059J	12/<0.041	-
Barium	3,300/7.5	1,100/0.29J	96%	470/4.4	570/0.31J	93%	910/13	840/0.38J	97%	730/9.2	580/0.36J	96%
Beryllium	<5.3/<0.0033	0.41/<0.0033	-	<4.4/0.0094J	0.38J/<0.0033	-	<12/<0.0033	0.44J/<0.0033	-	<3.6/<0.0033	0.43/<0.0033	-
Cadmium	16/0.41J	21/<0.0028	-	10/0.29J	13/0.0043J	99%	36/0.31J	27/<0.0028	-	13/0.27J	12/<0.0028	-
Chromium	87/<0.50	110/<0.0078	-	100/0.023J	120/<0.0078	-	120/<0.0078	160/<0.0078	-	97/<0.0078	64/<0.0078	-
Lead	1,000/6.1	1,500/<0.029	-	760/4.7	1,100/<0.029	-	1,800/9.3	1,600/<0.029	-	1,100/7.5	1,300/<0.029	-
Nickel	150/1.4	240/0.020J	99%	110/1.8	160/0.085J	95%	260/1.9	330/0.022J	99%	180/1.8	200/0.015J	99%
Silver	<5.3/<0.0085	2.3/<0.0085	-	1.6/<0.0085	2.2/<0.0085	-	4.7J/<0.0085	1.5/<0.0085	-	1.5J/<0.0085	2.6/<0.0085	-
Thallium	<5.3/<0.033	0.14/<0.033	-	<4.4/<0.033	<0.53/<0.20	-	<12/<0.033	<0.55/<0.033	-	<3.6/<0.033	0.14/<0.033	-
Mercury	2.0/<0.00010	1.5/0.00010	-	2.3/<0.00010	1.7/<0.00010	-	1.1/<0.00010	0.93/<0.00010	-	0.92/<0.00010	0.85/<0.00010	-

Notes:
ND: Not Detected

J: Indicates the result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.

Table 2 **Soil Analytical Data - SVOCs**

Client ID	FSA-TREAT-1/ FSA-TREAT-1 10% TerraBond MG			FSA-TREAT-2/ FSA-TREAT-2 10% TerraBond MG			FSA-TREAT-3/FSA-TREAT-3 10% TerraBond MG			FSA-TREAT-4/ FSA-TREAT-4 10% TerraBond MG			FSA-TREAT-5/ FSA-TREAT-5 10% TerraBond MG		
Lab Sample ID	180-103654-1/180-103654-32			180-103654-2/180-103654-25			180-103654-3/180-103654-33			180-103654-4/180-103654-34			180-103654-5/180-103654-26		
Sampling Date	17-Mar-20			17-Mar-20			17-Mar-20			17-Mar-20			17-Mar-20		
Units	mg/kg (Total); mg/l (TCLP)			mg/kg (Total); mg/l (TCLP)			mg/kg (Total); mg/l (TCLP)			mg/kg (Total); mg/l (TCLP)			mg/kg (Total); mg/l (TCLP)		
	Untreated Total/TCLP	Treated Total/TCLP	% Reduction for Totals	Untreated Total/TCLP	Treated Total/TCLP	% Reduction for Totals	Untreated Total/TCLP	Treated Total/TCLP	% Reduction for Totals	Untreated Total/TCLP	Treated Total/TCLP	% Reduction for Totals	Untreated Total/TCLP	Treated Total/TCLP	% Reduction for Totals
Anthracene	0.21J/<0.00050	0.12J/<0.00048	43%	0.36J/<0.00050	0.28J/<0.00052	22%	0.25J/<0.00050	<0.20/<0.00048	-	<0.13/<0.00050	<0.20/<0.00048	-	0.27J/<0.00050	0.15J/<0.00048	44%
Benzo[a]anthracene	0.99/<0.00076	0.59/<0.00073	40%	0.91J/0.0009J	0.73/<0.00079	20%	0.63J/<0.00076	0.47J/<0.00073	25%	0.32J/<0.00076	0.43J/<0.00073	-34%	0.80J/<0.00076	0.47/<0.00073	41%
Benzo[a]pyrene	1.4/<0.00054	0.77/<0.00052	45%	1.2J/0.00073J	1.0/<0.00056	17%	0.75J/<0.00054	0.55J/<0.00073	27%	0.38J/<0.00054	0.48J/<0.00073	-26%	0.65J/<0.00054	0.53/<0.00052	18%
Benzo[b]fluoranthene	1.7/<0.00098	0.88/<0.00094	48%	1.5/0.0021	1.2/<0.0010	20%	0.81J/<0.00098	<0.77/<0.00094	-	0.48J/<0.00098	0.54J/<0.00094	-13%	0.80J/<0.00098	0.66/<0.00094	18%
Benzo[g,h,i]perylene	1.4/<0.00070	0.81/<0.00067	42%	1.2J/0.0021	0.75/<0.00073	38%	0.84J/<0.00070	0.58J/<0.00067	31%	0.75/<0.0007	0.55J/<0.00067	27%	0.69J/<0.00070	0.53/<0.00067	23%
Bis(2-ethylhexyl) phthalate	48/<0.062	26/<0.060	46%	140/<0.062	53/<0.065	62%	210/<0.062	63/<0.0.060	70%	28/<0.062	14J/<0.060	50%	110/<0.062	36/<0.0.060	67%
Chrysene	1.1/<0.00082	0.69/<0.00079	37%	0.92J/0.0022	0.76/<0.00085	17%	0.72J/<0.00082	0.45J/<0.00079	38%	0.38J/<0.00082	0.42J/<0.00079	-11%	0.78J/<0.00082	0.57/<0.00079	27%
Di-n-octyl phthalate	<2.4/<0.0069	<0.84/<0.0066	-	38/<0.0069	5.4/<0.0071	86%	18/<0.0069	7.3/<0.0066	59%	3.5/<0.0069	<2.3/<0.0066	-	12/<0.0069	3.1/<0.0066	74%
Fluoranthene	1.5/<0.00060	0.79/<0.00058	47%	1.8/<0.00060	1.4/<0.00063	22%	1.1/<0.00060	0.77/<0.00058	30%	0.47J/<0.00060	0.59J/<0.00058	-26%	1.5/<0.00060	0.76/<0.00058	49%
Indeno[1,2,3-cd]pyrene	1.1/<0.00086	0.58/<0.00083	47%	0.95J/0.0018J	0.59/<0.00090	-	0.60J/<0.00086	0.45J/<0.00083	25%	0.45J/<0.00086	0.36J/<0.00083	20%	0.55J/<0.00086	0.36J/<0.00083	35%
Methylphenol, 3 & 4	<1.2/0.0077J	<0.43/<0.0036	-	<1.8/<0.0037	<0.57/<0.0039	-	<3.1/<0.0037	<1.1/<0.0036	-	<0.71/<0.0037	<1.2/<0.0036	-	<1.2/<0.0037	<0.56/<0.0.0036	-
Phenanthrene	0.41J/<0.00056	0.23J/<0.00054	44%	0.85J/<0.00056	0.74/<0.00058	-	0.74J/<0.00056	0.57J/<0.00054	23%	0.20J/<0.00056	0.30J/<0.00054	-50%	0.78J/<0.00056	0.36J/<0.00054	54%
Pyrene	1.5/<0.00054	0.85/<0.00052	43%	1.8/<0.00054	1.2/<0.00056	-	1.2/<0.00054	<0.18/<0.00052	-	0.51/<0.00054	0.62J/<0.00052	-22%	1.5/<0.00054	0.80/<0.00052	47%
Total SVOCs	59.31/0.0077	32.31/ND	NA	189.49/0.00983	67.05/ND	NA	235.64/ND	74.14/ND	NA	35.44/ND	18.29/ND	NA	130.32/ND	44.29/ND	NA

Notes:

ND: Not Detected

J: Indicates the result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.

Table 2 **Soil Analytical Data - SVOCs**

Client ID	FSA-TREAT-6/ FSA-TREAT-6 10% TerraBond MG			FSA-TREAT-7/ FSA-TREAT-7 10% TerraBond MG			FSA-TREAT-8/ FSA-TREAT-8 10% TerraBond MG			FSA-TREAT-9/FSA-TREAT-9 10% TerraBond MG			FSA-TREAT-10/ FSA-TREAT-10 10% TerraBond MG		
Lab Sample ID	180-103654-6/180-103654-35			180-103654-7/180-103654-27			180-103654-8/180-103654-4/180-103654-31			180-103654-9/180-103654-36			180-103654-10/180-103654-28		
Sampling Date	17-Mar-20			17-Mar-20			17-Mar-20			17-Mar-20			17-Mar-20		
Units	mg/kg (Total); mg/l (TCLP)			mg/kg (Total); mg/l (TCLP)			mg/kg (Total); mg/l (TCLP)			mg/kg (Total); mg/l (TCLP)			mg/kg (Total); mg/l (TCLP)		
	Untreated Total/TCLP	Treated Total/TCLP	% Reduction for Totals	Untreated Total/TCLP	Treated Total/TCLP	% Reduction for Totals	Untreated Total/TCLP	Treated Total/TCLP	% Reduction for Totals	Untreated Total/TCLP	Treated Total/TCLP	% Reduction for Totals	Untreated Total/TCLP	Treated Total/TCLP	% Reduction for Totals
Anthracene	1.8J/<0.00050	0.38J/<0.00048	71%	0.50J/<0.00050	0.30J/<0.00048	40%	9.0/<0.00050	<0.65/<0.00046	-	0.27J/<0.00050	<0.21/<0.00048	-	0.53J/<0.00050	0.19J/<0.00048	64%
Benzo[a]anthracene	3.5J/<0.00076	1.2/<0.00073	66%	1.5J/<0.00076	0.67J/<0.00073	55%	19/<0.00076	1.2J/<0.00070	94%	1.2J/<0.00076	0.44J/<0.00073	63%	1.5/<0.00076	0.62J/<0.00073	59%
Benzo[a]pyrene	2.3J/<0.00054	0.99/<0.00052	57%	1.3J/<0.00054	0.63J/<0.00052	52%	13/<0.00054	0.96J/<0.00050	93%	1.1J/<0.00054	0.46J/<0.00052	58%	1.3/<0.00054	0.64J/<0.00052	51%
Benzo[b]fluoranthene	2.5J/<0.00098	1.6/<0.00094	36%	1.6J/<0.00098	0.82/<0.00094	49%	15/<0.00098	1.5J/<0.00091	90%	1.5J/<0.00098	0.61J/<0.00094	59%	1.7/<0.00098	0.89J/<0.00094	48%
Benzo[g,h,i]perylene	1.7J/<0.00070	0.93/<0.00067	45%	1.5J/<0.00070	0.71/<0.00067	53%	7.1/<0.00070	0.79J/<00.00065	89%	1.3J/<0.00070	0.60J/<0.00067	54%	1.2/<0.00070	0.67/<0.00067	44%
Bis(2-ethylhexyl) phthalate	910/<0.062	390/<0.060	57%	510/<0.062	140/<0.060	73%	320/<0.062	200/<0.058	38%	490/<0.062	160/<0.060	67%	110/<0.062	160/<0.060	-45%
Chrysene	3.4J/<0.00082	0.84/<0.00079	75%	1.9J/<0.00082	0.86J/<0.00079	55%	16/<0.00082	1.2J/<0.00076	93%	1.5J/<0.00082	0.47J/<0.00079	69%	1.5/<0.00082	0.82J/<0.00079	45%
Di-n-octyl phthalate	66/<0.0069	53/<0.0066	20%	33/<0.0069	12/<0.0066	64%	26/<0.0069	84/<0.0064	-223%	35/<0.0069	14/<0.0066	60%	11/<0.0069	6.0/<0.0066	45%
Fluoranthene	8.2/<0.00060	2.4/<0.00058	71%	2.8J/<0.00060	1.3/<0.00058	54%	43/<0.00060	1.9J/<0.00056	96%	2.2J/<0.00060	0.79J/<0.00058	64%	3.4/<0.00060	1.1J/<0.00058	68%
Indeno[1,2,3-cd]pyrene	1.3J/<0.00086	0.70J/<0.00083	46%	0.85J/<0.00086	0.45/<0.00083	47%	7.0/<0.00086	0.54J/<0.00080	92%	0.77J/<0.00086	0.34J/<0.00083	56%	0.93/<0.00086	0.43/<0.00083	54%
Methylphenol, 3 & 4	2.6J/0.0070J	1.4J/<0.0036	46%	<5.4/<0.0037	<1.8/<0.0036	-	<3.0/<0.0037	<3.7/<0.0034	-	<6.0/<0.0037	<1.2/<0.0036	-	<1.1/<0.0037	<1.7/<0.0036	-
Phenanthrene	7.7/0.00058J	1.2/<0.00054	84%	1.5J/<0.00056	0.73J/<0.00054	51%	24/<0.00056	0.78J/<0.00052	97%	1.4J/<0.00056	0.39J/<0.00054	72%	1.5/<0.00056	0.50J/<0.00054	67%
Pyrene	8.1/<0.00054	2.9J/<0.00052	64%	3.8/<0.00054	1.8/<0.00052	53%	33/<0.00054	2.0J/<0.00050	94%	2.8J/<0.00054	0.96/<0.00052	66%	3.0/<0.00054	1.5/<0.00052	50%
Total SVOCs	1,019/0.00758	457.54/ND	NA	560.25/ND	160.27/ND	NA	532.10/ND	294.87/ND	NA	539.04/ND	179.06/ND	NA	137.56/ND	173.36/ND	NA

Notes:

ND: Not Detected

J: Indicates the result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.

Table 3 **Soil Analytical Data - PCBs**

Client ID	FSA-TREAT-1/ FSA-TREAT-1 10% TerraBond MG			FSA-TREAT-2/ FSA-TREAT-2 10% TerraBond MG			FSA-TREAT-3/FSA-TREAT-3 10% TerraBond MG			FSA-TREAT-4/ FSA-TREAT-4 10% TerraBond MG			FSA-TREAT-5/ FSA-TREAT-5 10% TerraBond MG		
Lab Sample ID	180-103654-1/180-103654-32			180-103654-2/180-103654-25			180-103654-3/180-103654-33			180-103654-4/180-103654-34			180-103654-5/180-103654-26		
Sampling Date	17-Mar-20			17-Mar-20			17-Mar-20			17-Mar-20			17-Mar-20		
Units	mg/kg (Total); mg/l (TCLP)			mg/kg (Total); mg/l (TCLP)			mg/kg (Total); mg/l (TCLP)			mg/kg (Total); mg/l (TCLP)			mg/kg (Total); mg/l (TCLP)		
	Untreated Total/TCLP	Treated Total/TCLP	% Reduction for Totals	Untreated Total/TCLP	Treated Total/TCLP	% Reduction for Totals	Untreated Total/TCLP	Treated Total/TCLP	% Reduction for Totals	Untreated Total/TCLP	Treated Total/TCLP	% Reduction for Totals	Untreated Total/TCLP	Treated Total/TCLP	% Reduction for Totals
PCB-1016	<0.095/<0.00039	<0.018/<0.00038	-	<0.20/<0.00040	<0.19/<0.00038	-	<0.099/<0.00039	<0.18/<0.00039	-	<0.097/<0.00039	<0.020/<0.00038	-	<0.047/<0.00039	<0.019/<0.00038	-
PCB-1221	<0.095/<0.00039	<0.018/<0.00038	-	<0.20/<0.00040	<0.19/<0.00038	-	<0.099/<0.00039	<0.18/<0.00039	-	<0.097/<0.00039	<0.020/<0.00038	-	<0.047/<0.00039	<0.019/<0.00038	-
PCB-1232	<0.095/<0.00039	<0.018/<0.00038	-	<0.20/<0.00040	<0.19/<0.00038	-	<0.099/<0.00039	<0.18/<0.00039	-	<0.097/<0.00039	<0.020/<0.00038	-	<0.047/<0.00039	<0.019/<0.00038	-
PCB-1242	<0.095/<0.00039	<0.018/<0.00038	-	20/<0.00040	13/<0.00038	35%	6.1/<0.00039	4.4/<0.00039	28%	<0.097/<0.00039	<0.020/<0.00038	-	3.0/<0.00039	3.9/<0.00038	-30%
PCB-1248	<0.095/<0.00039	<0.018/<0.00038	-	<0.20/<0.00040	<0.19/<0.00038	-	<0.099/<0.00039	<0.18/<0.00039	-	<0.097/<0.00039	2.5/<0.0038	-	<0.047/<0.00039	<0.019/<0.00038	-
PCB-1254	5.8/<0.00039	3.6/<0.00038	38%	5.3/<0.00040	4.4/<0.00038	17%	3.7/<0.00039	3.3/<0.00039	11%	5.0/<0.00039	<0.020/<0.00038	-	1.7/<0.00039	2.3/<0.00038	-35%
PCB-1260	<0.095/<0.00039	<0.018/<0.00038	-	<0.20/<0.00040	<0.19/<0.00038	-	<0.099/<0.00039	<0.18/<0.00039	-	<0.097/<0.00039	1.6/<0.00038	-	<0.047/<0.00039	<0.019/<0.00038	-
Total PCB	5.8/ND	3.6/ND	38%	25.3/ND	17.4/ND	31%	9.8/ND	7.7/ND	21%	5.0/ND	4.1/ND	18%	4.7/ND	6.2/ND	-32%

Notes:

ND: Not Detected

J: Indicates the result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.

Table 3 **Soil Analytical Data - PCBs**

Client ID	FSA-TREAT-6/ FSA-TREAT-6 10% TerraBond MG			FSA-TREAT-7/ FSA-TREAT-7 10% TerraBond MG			FSA-TREAT-8/ FSA-TREAT-8 10% TerraBond MG			FSA-TREAT-9/FSA-TREAT-9 10% TerraBond MG			FSA-TREAT-10/ FSA-TREAT-10 10% TerraBond MG		
Lab Sample ID	180-103654-6/180-103654-35			180-103654-7/180-103654-27			180-103654-8/180-103654-4/180-103654-31			180-103654-9/180-103654-36			180-103654-10/180-103654-28		
Sampling Date	17-Mar-20			17-Mar-20			17-Mar-20			17-Mar-20			17-Mar-20		
Units	mg/kg (Total); mg/l (TCLP)			mg/kg (Total); mg/l (TCLP)			mg/kg (Total); mg/l (TCLP)			mg/kg (Total); mg/l (TCLP)			mg/kg (Total); mg/l (TCLP)		
	Untreated Total/TCLP	Treated Total/TCLP	% Reduction for Totals	Untreated Total/TCLP	Treated Total/TCLP	% Reduction for Totals	Untreated Total/TCLP	Treated Total/TCLP	% Reduction for Totals	Untreated Total/TCLP	Treated Total/TCLP	% Reduction for Totals	Untreated Total/TCLP	Treated Total/TCLP	% Reduction for Totals
PCB-1016	<0.22/<0.00039	<0.20/<0.00039	-	<0.20/<0.00039	<0.21/<0.00038	-	<0.21/<0.00039	<0.19/<0.00038	-	<0.20/<0.00040	<0.02/<0.00038	-	<0.19/<0.00039	<0.19/<0.00038	-
PCB-1221	<0.22/<0.00039	<0.20/<0.00039	-	<0.20/<0.00039	<0.21/<0.00038	-	<0.21/<0.00039	<0.19/<0.00038	-	<0.20/<0.00040	<0.02/<0.00038	-	<0.19/<0.00039	<0.19/<0.00038	-
PCB-1232	<0.22/<0.00039	<0.20/<0.00039	-	<0.20/<0.00039	<0.21/<0.00038	-	<0.21/<0.00039	<0.19/<0.00038	-	<0.20/<0.00040	<0.02/<0.00038	-	<0.19/<0.00039	<0.19/<0.00038	-
PCB-1242	15/<0.00039	12/<0.0039	20%	11/<0.00039	10/<0.00038	9%	13/<0.00039	11/<0.00038	15%	11/<0.00040	4.3/<0.00038	61%	5.9/<0.00039	7.1/<0.00038	-20%
PCB-1248	<0.22/<0.00039	<0.20/<0.00039	-	<0.20/<0.00039	<0.21/<0.00038	-	<0.21/<0.00039	<0.19/<0.00038	-	<0.20/<0.00040	<0.02/<0.00038	-	<0.19/<0.00039	<0.19/<0.00038	-
PCB-1254	5.7/<0.00039	5.2/<0.00039	9%	10/<0.00039	10/<0.00038	0%	6.4/<0.00039	<0.19/<0.00038	-	11/<0.00040	7.9/<0.00038	28%	5.9/<0.00039	8.5/<0.00038	-44%
PCB-1260	<0.22/<0.00039	<0.20/<0.00039	-	<0.20/<0.00039	<0.21/<0.00038	-	<0.21/<0.00039	2.8/<0.00038	-	<0.20/<0.00040	<0.02/<0.00038	-	<0.19/<0.00039	<0.19/<0.00038	-
Total PCB	20.7/ND	17.2/ND	17%	21/ND	20/ND	5%	19.4/ND	13.8/ND	29%	22/ND	12.2/ND	45%	11.8/ND	15.6/ND	-32%

Notes:

ND: Not Detected

J: Indicates the result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.

Table 4 **Soil Analytical Data - Pesticides**

Client ID	FSA-TREAT-1/ FSA-TREAT-1 10% TerraBond MG		FSA-TREAT-2/ FSA-TREAT-2 10% TerraBond MG		FSA-TREAT-3/FSA-TREAT-3 10% TerraBond MG		FSA-TREAT-4/ FSA-TREAT-4 10% TerraBond MG		FSA-TREAT-5/ FSA-TREAT-5 10% TerraBond MG	
Lab Sample ID	180-103654-1/180-103654-32		180-103654-2/180-103654-25		180-103654-3/180-103654-33		180-103654-4/180-103654-34		180-103654-5/180-103654-26	
Sampling Date	17-Mar-20		17-Mar-20		17-Mar-20		17-Mar-20		17-Mar-20	
Units	mg/kg (Total); mg/l (TCLP)		mg/kg (Total); mg/l (TCLP)		mg/kg (Total); mg/l (TCLP)		mg/kg (Total); mg/l (TCLP)		mg/kg (Total); mg/l (TCLP)	
	Untreated Total/TCLP	Treated Total/TCLP	Untreated Total/TCLP	Treated Total/TCLP	Untreated Total/TCLP	Treated Total/TCLP	Untreated Total/TCLP	Treated Total/TCLP	Untreated Total/TCLP	Treated Total/TCLP
4,4'-DDD	<0.019/<0.00050	0.11/<0.00050	<0.020/<0.00050	<0.002/<0.00050	<0.020/<0.00050	<0.0098/<0.00050	<0.019/<0.00050	<0.010/<0.00050	<0.019/<0.00050	<0.002/<0.00050
4,4'-DDE	<0.019/<0.00050	<0.0095/<0.00050	<0.020/<0.00050	<0.002/<0.00050	<0.020/<0.00050	<0.0098/<0.00050	<0.019/<0.00050	<0.010/<0.00050	<0.019/<0.00050	<0.002/<0.00050
4,4'-DDT	<0.019/<0.00050	<0.0095/<0.00050	<0.020/<0.00050	<0.002/<0.00050	<0.020/<0.00050	<0.0098/<0.00050	<0.019/<0.00050	<0.010/<0.00050	<0.019/<0.00050	<0.002/<0.00050

Notes:
ND: Not Detected
J: Indicates the result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.

Table 4 **Soil Analytical Data - Pesticides**

Client ID	FSA-TREAT-6/ FSA-TREAT-6 10% TerraBond MG		FSA-TREAT-7/ FSA-TREAT-7 10% TerraBond MG		FSA-TREAT-8/ FSA-TREAT-8 10% TerraBond MG		FSA-TREAT-9/FSA-TREAT-9 10% TerraBond MG		FSA-TREAT-10/ FSA-TREAT-10 10% TerraBond MG	
Lab Sample ID	180-103654-6/180-103654-35		180-103654-7/180-103654-27		180-103654-8/180-103654-4/180-103654-31		180-103654-9/180-103654-36		180-103654-10/180-103654-28	
Sampling Date	17-Mar-20		17-Mar-20		17-Mar-20		17-Mar-20		17-Mar-20	
Units	mg/kg (Total); mg/l (TCLP)		mg/kg (Total); mg/l (TCLP)		mg/kg (Total); mg/l (TCLP)		mg/kg (Total); mg/l (TCLP)		mg/kg (Total); mg/l (TCLP)	
	Untreated Total/TCLP	Treated Total/TCLP	Untreated Total/TCLP	Treated Total/TCLP	Untreated Total/TCLP	Treated Total/TCLP	Untreated Total/TCLP	Treated Total/TCLP	Untreated Total/TCLP	Treated Total/TCLP
4,4'-DDD	<0.022/<0.00050	<0.010/<0.00050	<0.020/<0.00050	<0.0021/<0.00050	<0.021/<0.00050	<0.010/<0.00050	<0.020/<0.00050	<0.010/<0.00050	<0.019/<0.00050	<0.002/<0.00050
4,4'-DDE	<0.022/<0.00050	<0.010/<0.00050	<0.020/<0.00050	<0.0021/<0.00050	<0.021/<0.00050	<0.010/<0.00050	<0.020/<0.00050	<0.010/<0.00050	<0.019/<0.00050	<0.002/<0.00050
4,4'-DDT	<0.022/<0.00050	<0.010/<0.00050	<0.020/<0.00050	<0.0021/<0.00050	<0.021/<0.00050	<0.010/<0.00050	<0.020/<0.00050	<0.010/<0.00050	<0.019/<0.00050	<0.002/<0.00050

Notes:
ND: Not Detected
J: Indicates the result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.

Table 5 **Soil Analytical Data - Corrosivity (pH)**

Client ID	FSA-TREAT-1/ FSA-TREAT-1 10% TerraBond MG		FSA-TREAT-2/ FSA-TREAT-2 10% TerraBond MG		FSA-TREAT-3/FSA-TREAT-3 10% TerraBond MG		FSA-TREAT-4/ FSA-TREAT-4 10% TerraBond MG		FSA-TREAT-5/ FSA-TREAT-5 10% TerraBond MG	
Lab Sample ID	180-103654-1/180-103654-32		180-103654-2/180-103654-25		180-103654-3/180-103654-33		180-103654-4/180-103654-34		180-103654-5/180-103654-26	
Sampling Date	17-Mar-20		17-Mar-20		17-Mar-20		17-Mar-20		17-Mar-20	
Units	SU		SU		SU		SU		SU	
	Untreated	Treated	Untreated	Treated	Untreated	Treated	Untreated	Treated	Untreated	Treated
pH	7.5	11.4	7.6	11.7	7.7	11.6	7.8	11.4	11.8	12.1

Table 5 **Soil Analytical Data - Corrosivity (pH)**

Client ID	FSA-TREAT-6/ FSA-TREAT-6 10% TerraBond MG		FSA-TREAT-7/ FSA-TREAT-7 10% TerraBond MG		FSA-TREAT-8/ FSA-TREAT-8 10% TerraBond MG		FSA-TREAT-9/FSA-TREAT-9 10% TerraBond MG		FSA-TREAT-10/ FSA-TREAT-10 10% TerraBond MG	
Lab Sample ID	180-103654-6/180-103654-35		180-103654-7/180-103654-27		180-103654-8/180-103654-4/180-103654-31		180-103654-9/180-103654-36		180-103654-10/180-103654-28	
Sampling Date	17-Mar-20		17-Mar-20		17-Mar-20		17-Mar-20		17-Mar-20	
Units	SU		SU		SU		SU		SU	
	Untreated	Treated	Untreated	Treated	Untreated	Treated	Untreated	Treated	Untreated	Treated
pH	7.9	10.8	8.2	11.4	7.8	11.0	8.0	11.4	8.3	11.6

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-103654-3
Client Project/Site: Madbury Treatability Study

For:
ENTACT, LLC
5822 Lago Vista Drive
Corpus Christi, Texas 78414

Attn: Mr. Thad Slaughter

Authorized for release by:
7/14/2020 9:37:04 AM

Carrie Gamber, Senior Project Manager
(412)963-2428
Carrie.Gamber@Eurofinset.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416

Table of Contents

Job ID: 180-103654-3

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

CASE NARRATIVE

Client: ENTACT, LLC

Project: Madbury Treatability Study

Report Number: 180-103654-3

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

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

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

RECEIPT
The samples were received on 03/17/2020; the samples arrived in good condition, properly preserved and on ice. The temperatures of the 10 coolers at receipt time were 16.8º C, 17.4º C, 17.6º C, 17.6º C, 18.6º C, 18.6º C, 18.7º C, 19.4º C, 19.8º C and 20.2º C.

SEMIVOLATILES
The following samples were diluted due to the nature of the sample matrix: FSA-TREAT-2 10% TerraBond MG (180-103654-25), FSA-TREAT-5 10% TerraBond MG (180-103654-26), FSA-TREAT-7 10% TerraBond MG (180-103654-27), FSA-TREAT-10 10% TerraBond MG (180-103654-28), FSA-TREAT-2 2% TerraBond and 4% TerraBond MG (180-103654-29), (180-103654-A-25-J MS) and (180-103654-A-25-K MSD). Elevated reporting limits (RLs) are provided.

The following samples were diluted to bring the concentration of target analytes within the calibration range: FSA-TREAT-7 10% TerraBond MG (180-103654-27) and FSA-TREAT-10 10% TerraBond MG (180-103654-28). Elevated reporting limits (RLs) are provided.

Surrogate recovery for the following sample was outside control limits: FSA-TREAT-2 10% TerraBond MG (180-103654-25). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Bis(2-ethylhexyl) phthalate failed the recovery criteria high for the MSD of sample FSA-TREAT-2 10% TerraBond MGMSD (180-103654-25) in batch 180-320498. The presence of the '4' qualifier indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount.

The continuing calibration verification (CCV) associated with batch 180-320498 recovered outside acceptance criteria, low biased, for 2,4,6-Tribromophenol (Surr). A reporting limit (RL) standard was analyzed, and the target analyte was detected. Since the associated samples were non-detect for this analyte, the data have been reported.

PESTICIDES
The following samples has chromatographic interference for the internal standard on the MR-1 column that could adversely impact the quantitation of target analytes: FSA-TREAT-2 10% TerraBond MG (180-103654-25), (180-103654-A-25-D MS) and (180-103654-A-25-E MSD) These interferences could cause false positive and/or false negative results. All primary results are reported from MR-2 column. The sample was non-detect.

Surrogate DCB Decachlorobiphenyl (Surr) recovery for the following samples were outside control limits: FSA-TREAT-2 10% TerraBond MG (180-103654-25), FSA-TREAT-5 10% TerraBond MG (180-103654-26), FSA-TREAT-7 10% TerraBond MG (180-103654-27), FSA-TREAT-10 10% TerraBond MG (180-103654-28), FSA-TREAT-2 2% TerraBond and 4% TerraBond MG (180-103654-29), (180-103654-A-25-D MS) and (180-103654-A-25-E MSD). Evidence of matrix interference is present; therefore, re-extraction and/or

Job ID: 180-103654-3 (Continued)

Laboratory: Eurofins TestAmerica, Pittsburgh (Continued)

re-analysis was not performed.

4,4'-DDT failed the recovery criteria high for the MS of sample FSA-TREAT-2 10% TerraBond MGMS (180-103654-25) in batch 180-320695. 4,4'-DDT failed the recovery criteria high for the MSD of sample FSA-TREAT-2 10% TerraBond MGMSD (180-103654-25) in batch 180-320695.

The Tetrachloro-m-xylene surrogate recovery for the following samples was outside acceptance limits (high biased) on the primary column due to matrix interference: FSA-TREAT-2 10% TerraBond MG (180-103654-25) and FSA-TREAT-2 2% TerraBond and 4% TerraBond MG (180-103654-29). The recovery is within acceptance limits on the other column, indicating that the extraction process was in control.

PCBS

The following samples were diluted due to the abundance of target analytes: FSA-TREAT-2 10% TerraBond MG (180-103654-25), FSA-TREAT-7 10% TerraBond MG (180-103654-27), FSA-TREAT-10 10% TerraBond MG (180-103654-28), FSA-TREAT-2 2% TerraBond and 4% TerraBond MG (180-103654-29), (180-103654-A-25-S MS) and (180-103654-A-25-T MSD).

The following sample(s) contained more than one Aroclor with insufficient separation to quantify individually. The PCBs present are quantified as the predominant Aroclor: FSA-TREAT-2 10% TerraBond MG (180-103654-25), FSA-TREAT-7 10% TerraBond MG (180-103654-27), FSA-TREAT-10 10% TerraBond MG (180-103654-28) and FSA-TREAT-2 2% TerraBond and 4% TerraBond MG (180-103654-29).

Surrogate recovery for the following samples were outside control limits: FSA-TREAT-2 10% TerraBond MG (180-103654-25), FSA-TREAT-5 10% TerraBond MG (180-103654-26), FSA-TREAT-7 10% TerraBond MG (180-103654-27), FSA-TREAT-10 10% TerraBond MG (180-103654-28), FSA-TREAT-2 2% TerraBond and 4% TerraBond MG (180-103654-29), (180-103654-A-25-S MS) and (180-103654-A-25-T MSD). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Second internal standard recovered high. Results for this internal were reported from the passing internal/column. FSA-TREAT-2 2% TerraBond and 4% TerraBond MG (180-103654-29).

Internal standard recovered high. Results for this internal were reported from the passing internal/column. FSA-TREAT-5 10% TerraBond MG (180-103654-26)

PCB-1016 and PCB-1260 failed the recovery criteria high for the MS of sample FSA-TREAT-2 10% TerraBond MGMS (180-103654-25) in batch 180-320792. PCB-1016 and PCB-1260 failed the recovery criteria high for the MSD of sample FSA-TREAT-2 10% TerraBond MGMSD (180-103654-25) in batch 180-320792.

The continuing calibration verification (CCV) associated with batch 320792 recovered above the upper control limit for PCB 1016 and surrogate TCMX. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

METALS

The continuing calibration blank (CCB) associated with batch 180-321088 recovered above the upper control limit for Lead, Aluminum, and Copper. The samples associated with this CCB were 10X the reporting limit for the affected analytes; therefore, the data have been reported.

GENEAL CHEMSITRY

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

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
E	Result exceeded calibration range.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
X	Surrogate recovery exceeds control limits

GC Semi VOA

Qualifier	Qualifier Description
*3	ISTD response or retention time outside acceptable limits.
E	Result exceeded calibration range.
F1	MS and/or MSD recovery exceeds control limits.
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
X	Surrogate recovery exceeds control limits

Metals

Qualifier	Qualifier Description
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-3

Laboratory: Eurofins TestAmerica, Pittsburgh

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New Hampshire	NELAP	2030	04-05-21

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
2540G		Solid	Percent Moisture
2540G		Solid	Percent Solids

Sample Summary

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
180-103654-25	FSA-TREAT-2 10% TerraBond MG	Solid	06/30/20 07:30	03/17/20 09:00	
180-103654-26	FSA-TREAT-5 10% TerraBond MG	Solid	06/30/20 07:30	03/17/20 09:00	
180-103654-27	FSA-TREAT-7 10% TerraBond MG	Solid	06/30/20 07:30	03/17/20 09:00	
180-103654-28	FSA-TREAT-10 10% TerraBond MG	Solid	06/30/20 07:30	03/17/20 09:00	
180-103654-29	FSA-TREAT-2 2% TerraBond and 4% TerraBond MG	Solid	06/30/20 07:30	03/17/20 09:00	

Method Summary

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-3

Method	Method Description	Protocol	Laboratory
EPA 8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL PIT
EPA 8081B	Organochlorine Pesticides (GC)	SW846	TAL PIT
EPA 8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	TAL PIT
EPA 6010D	Metals (ICP)	SW846	TAL PIT
EPA 6020B	Metals (ICP/MS)	SW846	TAL PIT
EPA 7470A	Mercury (CVAA)	SW846	TAL PIT
EPA 7471B	Mercury (CVAA)	SW846	TAL PIT
2540G	SM 2540G	SM22	TAL PIT
EPA 9045D	pH	SW846	TAL PIT
3010A	Preparation, Total Metals	SW846	TAL PIT
3050B	Preparation, Metals	SW846	TAL PIT
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL PIT
3520C	Liquid-Liquid Extraction (Continuous)	SW846	TAL PIT
3541	Automated Soxhlet Extraction	SW846	TAL PIT
3660B	Sulfur Cleanup	SW846	TAL PIT
3665A	Sulfuric Acid/Permanganate Cleanup	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT
7471B	Preparation, Mercury	SW846	TAL PIT
EPA 1311	TCLP Extraction	SW846	TAL PIT

Protocol References:

SM22 = Standard Methods For The Examination Of Water And Wastewater, 22nd Edition

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

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-3

Client Sample ID: FSA-TREAT-2 10% TerraBond MG — Lab Sample ID: 180-103654-25

Date Collected: 06/30/20 07:30 — **Matrix: Solid**
Date Received: 03/17/20 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	EPA 1311			100.23 g	2000 mL	320063	06/30/20 20:45	GRN	TAL PIT
TCLP	Prep	3520C			240 mL	2.5 mL	320559	07/06/20 10:56	BJT	TAL PIT
TCLP	Analysis	EPA 8270D		1	1 mL	1 mL	321180	07/10/20 14:31	VVP	TAL PIT
	Instrument ID:	CH731								
TCLP	Leach	EPA 1311			100.23 g	2000 mL	320063	06/30/20 20:45	GRN	TAL PIT
TCLP	Prep	3510C			100 mL	40.0 mL	320381	07/02/20 12:55	CBY	TAL PIT
TCLP	Analysis	EPA 8081B		1			320591	07/06/20 18:58	DFE	TAL PIT
	Instrument ID:	CHGC17								
TCLP	Leach	EPA 1311			100.23 g	2000 mL	320063	06/30/20 20:45	GRN	TAL PIT
TCLP	Prep	3510C			1050 mL	40.0 mL	320380	07/02/20 12:50	CBY	TAL PIT
TCLP	Analysis	EPA 8082A		1			320696	07/08/20 00:04	JMO	TAL PIT
	Instrument ID:	CHGC10								
TCLP	Leach	EPA 1311			100.23 g	2000 mL	320063	06/30/20 20:45	GRN	TAL PIT
TCLP	Prep	3010A			5 mL	50 mL	320335	07/02/20 08:59	KEM	TAL PIT
TCLP	Analysis	EPA 6010D		1			320636	07/06/20 13:02	RJR	TAL PIT
	Instrument ID:	C								
TCLP	Leach	EPA 1311			100.23 g	2000 mL	320063	06/30/20 20:45	GRN	TAL PIT
TCLP	Prep	7470A			50 mL	50 mL	320267	07/01/20 18:30	NAM	TAL PIT
TCLP	Analysis	EPA 7470A		1			320417	07/02/20 16:40	NAM	TAL PIT
	Instrument ID:	HGZ								
Total/NA	Analysis	2540G		1			320026	06/30/20 11:16	MM1	TAL PIT
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	EPA 9045D		1	20.00 g	20 mL	320419	07/02/20 20:47	PMH	TAL PIT
	Instrument ID:	NOEQUIP								

Client Sample ID: FSA-TREAT-2 10% TerraBond MG — Lab Sample ID: 180-103654-25

Date Collected: 06/30/20 07:30 — **Matrix: Solid**
Date Received: 03/17/20 09:00 — **Percent Solids: 84.0**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3541			15.4 g	5.0 mL	320355	07/02/20 11:09	CDH	TAL PIT
Total/NA	Analysis	EPA 8270D		5	1 mL	1 mL	320498	07/06/20 11:22	VVP	TAL PIT
	Instrument ID:	CH733								
Total/NA	Prep	3541			15.3 g	20.0 mL	320270	07/01/20 18:54	CSC	TAL PIT
Total/NA	Analysis	EPA 8081B		1			320695	07/07/20 12:04	DFE	TAL PIT
	Instrument ID:	CHGC15								
Total/NA	Prep	3541			15.3 g	20.0 mL	320270	07/01/20 18:54	CSC	TAL PIT
Total/NA	Cleanup	3665A			2 mL	2 mL	320540	07/06/20 10:06	DFE	TAL PIT
Total/NA	Cleanup	3660B			2 mL	2 mL	320541	07/06/20 10:07	DFE	TAL PIT
Total/NA	Analysis	EPA 8082A		10			320792	07/08/20 19:31	JMO	TAL PIT
	Instrument ID:	CHGC8								
Total/NA	Prep	3050B			1.12 g	100 mL	320251	07/01/20 14:53	JL	TAL PIT
Total/NA	Analysis	EPA 6020B		1			321088	07/09/20 05:59	RSK	TAL PIT
	Instrument ID:	A								

Lab Chronicle

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-3

Client Sample ID: FSA-TREAT-2 10% TerraBond MG — Lab Sample ID: 180-103654-25

Date Collected: 06/30/20 07:30 — **Matrix: Solid**
Date Received: 03/17/20 09:00 — **Percent Solids: 84.0**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7471B			0.58 g	100 mL	320400	07/02/20 17:30	NAM	TAL PIT
Total/NA	Analysis	EPA 7471B		1			320629	07/06/20 17:50	NAM	TAL PIT
	Instrument ID:	HGZ								

Client Sample ID: FSA-TREAT-5 10% TerraBond MG — Lab Sample ID: 180-103654-26

Date Collected: 06/30/20 07:30 — **Matrix: Solid**
Date Received: 03/17/20 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	EPA 1311			100.04 g	2000 mL	320063	06/30/20 20:45	GRN	TAL PIT
TCLP	Prep	3520C			260 mL	2.5 mL	320559	07/06/20 10:56	BJT	TAL PIT
TCLP	Analysis	EPA 8270D		1	1 mL	1 mL	321180	07/10/20 14:58	VVP	TAL PIT
	Instrument ID:	CH731								
TCLP	Leach	EPA 1311			100.04 g	2000 mL	320063	06/30/20 20:45	GRN	TAL PIT
TCLP	Prep	3510C			100 mL	40.0 mL	320381	07/02/20 12:55	CBY	TAL PIT
TCLP	Analysis	EPA 8081B		1			320591	07/06/20 19:13	DFE	TAL PIT
	Instrument ID:	CHGC17								
TCLP	Leach	EPA 1311			100.04 g	2000 mL	320063	06/30/20 20:45	GRN	TAL PIT
TCLP	Prep	3510C			1050 mL	40.0 mL	320380	07/02/20 12:50	CBY	TAL PIT
TCLP	Analysis	EPA 8082A		1			320696	07/08/20 00:24	JMO	TAL PIT
	Instrument ID:	CHGC10								
TCLP	Leach	EPA 1311			100.04 g	2000 mL	320063	06/30/20 20:45	GRN	TAL PIT
TCLP	Prep	3010A			5 mL	50 mL	320335	07/02/20 08:59	KEM	TAL PIT
TCLP	Analysis	EPA 6010D		1			320636	07/06/20 13:07	RJR	TAL PIT
	Instrument ID:	C								
TCLP	Leach	EPA 1311			100.04 g	2000 mL	320063	06/30/20 20:45	GRN	TAL PIT
TCLP	Prep	7470A			50 mL	50 mL	320267	07/01/20 18:30	NAM	TAL PIT
TCLP	Analysis	EPA 7470A		1			320417	07/02/20 16:41	NAM	TAL PIT
	Instrument ID:	HGZ								
Total/NA	Analysis	2540G		1			320026	06/30/20 11:16	MM1	TAL PIT
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	EPA 9045D		1	20.14 g	20 mL	320419	07/02/20 20:46	PMH	TAL PIT
	Instrument ID:	NOEQUIP								

Client Sample ID: FSA-TREAT-5 10% TerraBond MG — Lab Sample ID: 180-103654-26

Date Collected: 06/30/20 07:30 — **Matrix: Solid**
Date Received: 03/17/20 09:00 — **Percent Solids: 84.4**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3541			15.5 g	5.0 mL	320355	07/02/20 11:09	CDH	TAL PIT
Total/NA	Analysis	EPA 8270D		5	1 mL	1 mL	320498	07/06/20 12:37	VVP	TAL PIT
	Instrument ID:	CH733								
Total/NA	Prep	3541			15.2 g	20.0 mL	320270	07/01/20 18:54	CSC	TAL PIT
Total/NA	Analysis	EPA 8081B		1			320695	07/07/20 12:51	DFE	TAL PIT
	Instrument ID:	CHGC15								

Lab Chronicle

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-3

Client Sample ID: FSA-TREAT-5 10% TerraBond MG

Lab Sample ID: 180-103654-26
Date Collected: 06/30/20 07:30
Matrix: Solid
Date Received: 03/17/20 09:00
Percent Solids: 84.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3541			15.2 g	20.0 mL	320270	07/01/20 18:54	CSC	TAL PIT
Total/NA	Cleanup	3665A			2 mL	2 mL	320540	07/06/20 10:06	DFE	TAL PIT
Total/NA	Cleanup	3660B			2 mL	2 mL	320541	07/06/20 10:07	DFE	TAL PIT
Total/NA	Analysis	EPA 8082A		1			320641	07/07/20 19:15	JMO	TAL PIT
	Instrument ID:	CHGC8								
Total/NA	Prep	3050B			1.06 g	100 mL	320251	07/01/20 14:53	JL	TAL PIT
Total/NA	Analysis	EPA 6020B		1			321088	07/09/20 06:03	RSK	TAL PIT
	Instrument ID:	A								
Total/NA	Prep	7471B			0.58 g	100 mL	320400	07/02/20 17:30	NAM	TAL PIT
Total/NA	Analysis	EPA 7471B		1			320629	07/06/20 17:51	NAM	TAL PIT
	Instrument ID:	HGZ								

Client Sample ID: FSA-TREAT-7 10% TerraBond MG

Lab Sample ID: 180-103654-27
Date Collected: 06/30/20 07:30
Matrix: Solid
Date Received: 03/17/20 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	EPA 1311			100.53 g	2000 mL	320063	06/30/20 20:45	GRN	TAL PIT
TCLP	Prep	3520C			260 mL	2.5 mL	320559	07/06/20 10:56	BJT	TAL PIT
TCLP	Analysis	EPA 8270D		1	1 mL	1 mL	321180	07/10/20 15:25	VVP	TAL PIT
	Instrument ID:	CH731								
TCLP	Leach	EPA 1311			100.53 g	2000 mL	320063	06/30/20 20:45	GRN	TAL PIT
TCLP	Prep	3510C			100 mL	40.0 mL	320381	07/02/20 12:55	CBY	TAL PIT
TCLP	Analysis	EPA 8081B		1			320591	07/06/20 19:29	DFE	TAL PIT
	Instrument ID:	CHGC17								
TCLP	Leach	EPA 1311			100.53 g	2000 mL	320063	06/30/20 20:45	GRN	TAL PIT
TCLP	Prep	3510C			1050 mL	40.0 mL	320380	07/02/20 12:50	CBY	TAL PIT
TCLP	Analysis	EPA 8082A		1			320696	07/08/20 00:44	JMO	TAL PIT
	Instrument ID:	CHGC10								
TCLP	Leach	EPA 1311			100.53 g	2000 mL	320063	06/30/20 20:45	GRN	TAL PIT
TCLP	Prep	3010A			5 mL	50 mL	320335	07/02/20 08:59	KEM	TAL PIT
TCLP	Analysis	EPA 6010D		1			320636	07/06/20 13:12	RJR	TAL PIT
	Instrument ID:	C								
TCLP	Leach	EPA 1311			100.53 g	2000 mL	320063	06/30/20 20:45	GRN	TAL PIT
TCLP	Prep	7470A			50 mL	50 mL	320267	07/01/20 18:30	NAM	TAL PIT
TCLP	Analysis	EPA 7470A		1			320417	07/02/20 16:41	NAM	TAL PIT
	Instrument ID:	HGZ								
Total/NA	Analysis	2540G		1			320026	06/30/20 11:27	MM1	TAL PIT
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	EPA 9045D		1	20.16 g	20 mL	320419	07/02/20 20:45	PMH	TAL PIT
	Instrument ID:	NOEQUIP								

Lab Chronicle

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-3

Client Sample ID: FSA-TREAT-7 10% TerraBond MG

Lab Sample ID: 180-103654-27
Date Collected: 06/30/20 07:30
Matrix: Solid
Date Received: 03/17/20 09:00
Percent Solids: 80.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3541			15.1 g	5.0 mL	320355	07/02/20 11:09	CDH	TAL PIT
Total/NA	Analysis	EPA 8270D		5	1 mL	1 mL	320498	07/06/20 13:02	VVP	TAL PIT
	Instrument ID:	CH733								
Total/NA	Prep	3541	DL		15.1 g	5.0 mL	320355	07/02/20 11:09	CDH	TAL PIT
Total/NA	Analysis	EPA 8270D	DL	15	1 mL	1 mL	320703	07/07/20 15:18	VVP	TAL PIT
	Instrument ID:	CH733								
Total/NA	Prep	3541			15.0 g	20.0 mL	320270	07/01/20 18:54	CSC	TAL PIT
Total/NA	Analysis	EPA 8081B		1			320695	07/07/20 13:06	DFE	TAL PIT
	Instrument ID:	CHGC15								
Total/NA	Prep	3541			15.0 g	20.0 mL	320270	07/01/20 18:54	CSC	TAL PIT
Total/NA	Cleanup	3665A			2 mL	2 mL	320540	07/06/20 10:06	DFE	TAL PIT
Total/NA	Cleanup	3660B			2 mL	2 mL	320541	07/06/20 10:07	DFE	TAL PIT
Total/NA	Analysis	EPA 8082A		10			320792	07/08/20 20:27	JMO	TAL PIT
	Instrument ID:	CHGC8								
Total/NA	Prep	3050B			1.18 g	100 mL	320251	07/01/20 14:53	JL	TAL PIT
Total/NA	Analysis	EPA 6020B		1			321088	07/09/20 06:06	RSK	TAL PIT
	Instrument ID:	A								
Total/NA	Prep	7471B			0.61 g	100 mL	320400	07/02/20 17:30	NAM	TAL PIT
Total/NA	Analysis	EPA 7471B		1			320629	07/06/20 17:52	NAM	TAL PIT
	Instrument ID:	HGZ								

Client Sample ID: FSA-TREAT-10 10% TerraBond MG

Lab Sample ID: 180-103654-28
Date Collected: 06/30/20 07:30
Matrix: Solid
Date Received: 03/17/20 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	EPA 1311			100.02 g	2000 mL	320063	06/30/20 20:45	GRN	TAL PIT
TCLP	Prep	3520C			260 mL	2.5 mL	320559	07/06/20 10:56	BJT	TAL PIT
TCLP	Analysis	EPA 8270D		1	1 mL	1 mL	321180	07/10/20 15:52	VVP	TAL PIT
	Instrument ID:	CH731								
TCLP	Leach	EPA 1311			100.02 g	2000 mL	320063	06/30/20 20:45	GRN	TAL PIT
TCLP	Prep	3510C			100 mL	40.0 mL	320381	07/02/20 12:55	CBY	TAL PIT
TCLP	Analysis	EPA 8081B		1			320591	07/06/20 19:44	DFE	TAL PIT
	Instrument ID:	CHGC17								
TCLP	Leach	EPA 1311			100.02 g	2000 mL	320063	06/30/20 20:45	GRN	TAL PIT
TCLP	Prep	3510C			1050 mL	40.0 mL	320380	07/02/20 12:50	CBY	TAL PIT
TCLP	Analysis	EPA 8082A		1			320696	07/08/20 01:05	JMO	TAL PIT
	Instrument ID:	CHGC10								
TCLP	Leach	EPA 1311			100.02 g	2000 mL	320063	06/30/20 20:45	GRN	TAL PIT
TCLP	Prep	3010A			5 mL	50 mL	320335	07/02/20 08:59	KEM	TAL PIT
TCLP	Analysis	EPA 6010D		1			320636	07/06/20 13:18	RJR	TAL PIT
	Instrument ID:	C								
TCLP	Leach	EPA 1311			100.02 g	2000 mL	320063	06/30/20 20:45	GRN	TAL PIT
TCLP	Prep	7470A			50 mL	50 mL	320267	07/01/20 18:30	NAM	TAL PIT
TCLP	Analysis	EPA 7470A		1			320417	07/02/20 16:42	NAM	TAL PIT
	Instrument ID:	HGZ								

Lab Chronicle

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-3

Client Sample ID: FSA-TREAT-10 10% TerraBond MG — Lab Sample ID: 180-103654-28

Date Collected: 06/30/20 07:30 — **Matrix: Solid**
Date Received: 03/17/20 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	2540G		1			320026	06/30/20 11:27	MM1	TAL PIT
Total/NA	Analysis	EPA 9045D		1	20.21 g	20 mL	320419	07/02/20 20:44	PMH	TAL PIT
	Instrument ID:	NOEQUIP								

Client Sample ID: FSA-TREAT-10 10% TerraBond MG — Lab Sample ID: 180-103654-28

Date Collected: 06/30/20 07:30 — **Matrix: Solid**
Date Received: 03/17/20 09:00 — **Percent Solids: 86.0**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3541			15.0 g	5.0 mL	320355	07/02/20 11:09	CDH	TAL PIT
Total/NA	Analysis	EPA 8270D		5	1 mL	1 mL	320498	07/06/20 13:27	VVP	TAL PIT
	Instrument ID:	CH733								
Total/NA	Prep	3541	DL		15.0 g	5.0 mL	320355	07/02/20 11:09	CDH	TAL PIT
Total/NA	Analysis	EPA 8270D	DL	15	1 mL	1 mL	320703	07/07/20 15:43	VVP	TAL PIT
	Instrument ID:	CH733								
Total/NA	Prep	3541			15.1 g	20.0 mL	320270	07/01/20 18:54	CSC	TAL PIT
Total/NA	Analysis	EPA 8081B		1			320695	07/07/20 13:22	DFE	TAL PIT
	Instrument ID:	CHGC15								
Total/NA	Prep	3541			15.1 g	20.0 mL	320270	07/01/20 18:54	CSC	TAL PIT
Total/NA	Cleanup	3665A			2 mL	2 mL	320540	07/06/20 10:06	DFE	TAL PIT
Total/NA	Cleanup	3660B			2 mL	2 mL	320541	07/06/20 10:07	DFE	TAL PIT
Total/NA	Analysis	EPA 8082A		10			320792	07/08/20 20:45	JMO	TAL PIT
	Instrument ID:	CHGC8								
Total/NA	Prep	3050B			1.10 g	100 mL	320251	07/01/20 14:53	JL	TAL PIT
Total/NA	Analysis	EPA 6020B		1			321088	07/09/20 06:09	RSK	TAL PIT
	Instrument ID:	A								
Total/NA	Prep	7471B			0.56 g	100 mL	320400	07/02/20 17:30	NAM	TAL PIT
Total/NA	Analysis	EPA 7471B		1			320629	07/06/20 17:54	NAM	TAL PIT
	Instrument ID:	HGZ								

Client Sample ID: FSA-TREAT-2 2% TerraBond and 4% TerraBond MG — Lab Sample ID: 180-103654-29

Date Collected: 06/30/20 07:30 — **Matrix: Solid**
Date Received: 03/17/20 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	EPA 1311			100.29 g	2000 mL	320063	06/30/20 20:45	GRN	TAL PIT
TCLP	Prep	3520C			250 mL	2.5 mL	320559	07/06/20 10:56	BJT	TAL PIT
TCLP	Analysis	EPA 8270D		1	1 mL	1 mL	321180	07/10/20 16:20	VVP	TAL PIT
	Instrument ID:	CH731								
TCLP	Leach	EPA 1311			100.29 g	2000 mL	320063	06/30/20 20:45	GRN	TAL PIT
TCLP	Prep	3510C			100 mL	40.0 mL	320381	07/02/20 12:55	CBY	TAL PIT
TCLP	Analysis	EPA 8081B		1			320591	07/06/20 20:00	DFE	TAL PIT
	Instrument ID:	CHGC17								

Lab Chronicle

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-3

Client Sample ID: FSA-TREAT-2 2% TerraBond and 4% TerraBond MG

Lab Sample ID: 180-103654-29

Date Collected: 06/30/20 07:30
Date Received: 03/17/20 09:00

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	EPA 1311			100.29 g	2000 mL	320063	06/30/20 20:45	GRN	TAL PIT
TCLP	Prep	3510C			1050 mL	40.0 mL	320380	07/02/20 12:50	CBY	TAL PIT
TCLP	Analysis	EPA 8082A		1			320696	07/08/20 01:25	JMO	TAL PIT
	Instrument ID:	CHGC10								
TCLP	Leach	EPA 1311			100.29 g	2000 mL	320063	06/30/20 20:45	GRN	TAL PIT
TCLP	Prep	3010A			5 mL	50 mL	320335	07/02/20 08:59	KEM	TAL PIT
TCLP	Analysis	EPA 6010D		1			320636	07/06/20 13:23	RJR	TAL PIT
	Instrument ID:	C								
TCLP	Leach	EPA 1311			100.29 g	2000 mL	320063	06/30/20 20:45	GRN	TAL PIT
TCLP	Prep	7470A			50 mL	50 mL	320267	07/01/20 18:30	NAM	TAL PIT
TCLP	Analysis	EPA 7470A		1			320417	07/02/20 16:43	NAM	TAL PIT
	Instrument ID:	HGZ								
Total/NA	Analysis	2540G		1			320026	06/30/20 11:27	MM1	TAL PIT
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	EPA 9045D		1	20.44 g	20 mL	320419	07/02/20 20:42	PMH	TAL PIT
	Instrument ID:	NOEQUIP								

Client Sample ID: FSA-TREAT-2 2% TerraBond and 4% TerraBond MG

Lab Sample ID: 180-103654-29

Date Collected: 06/30/20 07:30
Date Received: 03/17/20 09:00

Matrix: Solid
Percent Solids: 81.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3541			15.2 g	5.0 mL	320355	07/02/20 11:09	CDH	TAL PIT
Total/NA	Analysis	EPA 8270D		5	1 mL	1 mL	320498	07/06/20 13:52	VVP	TAL PIT
	Instrument ID:	CH733								
Total/NA	Prep	3541			15.2 g	20.0 mL	320270	07/01/20 18:54	CSC	TAL PIT
Total/NA	Analysis	EPA 8081B		1			320695	07/07/20 13:37	DFE	TAL PIT
	Instrument ID:	CHGC15								
Total/NA	Prep	3541			15.2 g	20.0 mL	320270	07/01/20 18:54	CSC	TAL PIT
Total/NA	Cleanup	3665A			2 mL	2 mL	320540	07/06/20 10:06	DFE	TAL PIT
Total/NA	Cleanup	3660B			2 mL	2 mL	320541	07/06/20 10:07	DFE	TAL PIT
Total/NA	Analysis	EPA 8082A		10			320792	07/08/20 21:04	JMO	TAL PIT
	Instrument ID:	CHGC8								
Total/NA	Prep	3050B			1.02 g	100 mL	320251	07/01/20 14:53	JL	TAL PIT
Total/NA	Analysis	EPA 6020B		1			321088	07/09/20 06:13	RSK	TAL PIT
	Instrument ID:	A								
Total/NA	Prep	7471B			0.57 g	100 mL	320400	07/02/20 17:30	NAM	TAL PIT
Total/NA	Analysis	EPA 7471B		1			320629	07/06/20 17:55	NAM	TAL PIT
	Instrument ID:	HGZ								

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Analyst References:

Lab: TAL PIT

Batch Type: Cleanup

DFE = David Eppinger
GRN = Gavin Nicholls

Batch Type: Prep

BJT = Bill Trout
CBY = Charles Yushinski
CDH = Christopher Hayburn
CSC = Chayce Cockroft
JL = James Lyu
KEM = Kimberly Mahoney
NAM = Nicole Marfisi

Batch Type: Analysis

DFE = David Eppinger
JMO = John Oravec
MM1 = Mary Beth Miller
NAM = Nicole Marfisi
PMH = Paloma Hoelzle
RJR = Ron Rosenbaum
RSK = Robert Kurtz
VVP = Vincent Piccolino

Client Sample Results

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-3

Client Sample ID: FSA-TREAT-2 10% TerraBond MG

Lab Sample ID: 180-103654-25
Date Collected: 06/30/20 07:30
Matrix: Solid
Date Received: 03/17/20 09:00

Method: EPA 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylphenol, 3 & 4	ND		0.010	0.0039	mg/L		07/06/20 10:56	07/10/20 14:31	1
Anthracene	ND		0.0021	0.00052	mg/L		07/06/20 10:56	07/10/20 14:31	1
Benzo[a]anthracene	ND		0.0021	0.00079	mg/L		07/06/20 10:56	07/10/20 14:31	1
Benzo[b]fluoranthene	ND		0.0021	0.0010	mg/L		07/06/20 10:56	07/10/20 14:31	1
Benzo[g,h,i]perylene	ND		0.0021	0.00073	mg/L		07/06/20 10:56	07/10/20 14:31	1
Benzo[a]pyrene	ND		0.0021	0.00056	mg/L		07/06/20 10:56	07/10/20 14:31	1
Bis(2-ethylhexyl) phthalate	ND		0.10	0.065	mg/L		07/06/20 10:56	07/10/20 14:31	1
Chrysene	ND		0.0021	0.00085	mg/L		07/06/20 10:56	07/10/20 14:31	1
Di-n-octyl phthalate	ND		0.010	0.0071	mg/L		07/06/20 10:56	07/10/20 14:31	1
Fluoranthene	ND		0.0021	0.00063	mg/L		07/06/20 10:56	07/10/20 14:31	1
Indeno[1,2,3-cd]pyrene	ND		0.0021	0.00090	mg/L		07/06/20 10:56	07/10/20 14:31	1
Phenanthrene	ND		0.0021	0.00058	mg/L		07/06/20 10:56	07/10/20 14:31	1
Pyrene	ND		0.0021	0.00056	mg/L		07/06/20 10:56	07/10/20 14:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*69*		*35 - 115*	*07/06/20 10:56*	*07/10/20 14:31*	*1*
2-Fluorophenol (Surr)	*77*		*20 - 110*	*07/06/20 10:56*	*07/10/20 14:31*	*1*
2,4,6-Tribromophenol (Surr)	*72*		*19 - 138*	*07/06/20 10:56*	*07/10/20 14:31*	*1*
Nitrobenzene-d5 (Surr)	*84*		*39 - 115*	*07/06/20 10:56*	*07/10/20 14:31*	*1*
Phenol-d5 (Surr)	*67*		*30 - 118*	*07/06/20 10:56*	*07/10/20 14:31*	*1*
Terphenyl-d14 (Surr)	*76*		*30 - 143*	*07/06/20 10:56*	*07/10/20 14:31*	*1*

Method: EPA 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.00050	0.00021	mg/L		07/02/20 12:55	07/06/20 18:58	1
4,4'-DDE	ND		0.00050	0.00012	mg/L		07/02/20 12:55	07/06/20 18:58	1
4,4'-DDT	ND		0.00050	0.00012	mg/L		07/02/20 12:55	07/06/20 18:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*103*		*62 - 150*	*07/02/20 12:55*	*07/06/20 18:58*	*1*
DCB Decachlorobiphenyl (Surr)	*99*		*62 - 150*	*07/02/20 12:55*	*07/06/20 18:58*	*1*
Tetrachloro-m-xylene	*95*		*54 - 138*	*07/02/20 12:55*	*07/06/20 18:58*	*1*
Tetrachloro-m-xylene	*86*		*54 - 138*	*07/02/20 12:55*	*07/06/20 18:58*	*1*

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.00038	0.00018	mg/L		07/02/20 12:50	07/08/20 00:04	1
PCB-1221	ND		0.00038	0.00022	mg/L		07/02/20 12:50	07/08/20 00:04	1
PCB-1232	ND		0.00038	0.00020	mg/L		07/02/20 12:50	07/08/20 00:04	1
PCB-1242	ND		0.00038	0.00014	mg/L		07/02/20 12:50	07/08/20 00:04	1
PCB-1248	ND		0.00038	0.00011	mg/L		07/02/20 12:50	07/08/20 00:04	1
PCB-1254	ND		0.00038	0.00017	mg/L		07/02/20 12:50	07/08/20 00:04	1
PCB-1260	ND		0.00038	0.00015	mg/L		07/02/20 12:50	07/08/20 00:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene (Surr)	*85*		*45 - 133*	*07/02/20 12:50*	*07/08/20 00:04*	*1*
Tetrachloro-m-xylene (Surr)	*83*		*45 - 133*	*07/02/20 12:50*	*07/08/20 00:04*	*1*
DCB Decachlorobiphenyl (Surr)	*92*		*59 - 144*	*07/02/20 12:50*	*07/08/20 00:04*	*1*
DCB Decachlorobiphenyl (Surr)	*93*		*59 - 144*	*07/02/20 12:50*	*07/08/20 00:04*	*1*

Client Sample Results

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-3

Client Sample ID: FSA-TREAT-2 10% TerraBond MG

Lab Sample ID: 180-103654-25
Date Collected: 06/30/20 07:30
Matrix: Solid
Date Received: 03/17/20 09:00

Method: EPA 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.50	0.0085	mg/L		07/02/20 08:59	07/06/20 13:02	1
Barium	**0.50**	**J**	2.0	0.026	mg/L		07/02/20 08:59	07/06/20 13:02	1
Cadmium	ND		0.50	0.0028	mg/L		07/02/20 08:59	07/06/20 13:02	1
Chromium	ND		0.50	0.0078	mg/L		07/02/20 08:59	07/06/20 13:02	1
Lead	ND		0.50	0.029	mg/L		07/02/20 08:59	07/06/20 13:02	1
Beryllium	ND		0.040	0.0033	mg/L		07/02/20 08:59	07/06/20 13:02	1
Arsenic	ND		0.50	0.041	mg/L		07/02/20 08:59	07/06/20 13:02	1
Nickel	ND		0.40	0.015	mg/L		07/02/20 08:59	07/06/20 13:02	1
Antimony	ND		0.10	0.034	mg/L		07/02/20 08:59	07/06/20 13:02	1
Thallium	ND		0.20	0.033	mg/L		07/02/20 08:59	07/06/20 13:02	1

Method: EPA 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00010	mg/L		07/01/20 18:30	07/02/20 16:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**16.0**		0.1	0.1	%			06/30/20 11:16	1
Percent Solids	**84.0**		0.1	0.1	%			06/30/20 11:16	1
pH	**11.7**	**HF**	0.1	0.1	SU			07/02/20 20:47	1

Client Sample ID: FSA-TREAT-2 10% TerraBond MG

Lab Sample ID: 180-103654-25
Date Collected: 06/30/20 07:30
Matrix: Solid
Date Received: 03/17/20 09:00
Percent Solids: 84.0

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylphenol, 3 & 4	ND		1900	570	ug/Kg	☼	07/02/20 11:09	07/06/20 11:22	5
Anthracene	**280**	**J**	390	100	ug/Kg	☼	07/02/20 11:09	07/06/20 11:22	5
Benzo[a]anthracene	**730**		390	73	ug/Kg	☼	07/02/20 11:09	07/06/20 11:22	5
Benzo[b]fluoranthene	**1200**		390	95	ug/Kg	☼	07/02/20 11:09	07/06/20 11:22	5
Benzo[g,h,i]perylene	**750**		390	83	ug/Kg	☼	07/02/20 11:09	07/06/20 11:22	5
Benzo[a]pyrene	**1000**		390	84	ug/Kg	☼	07/02/20 11:09	07/06/20 11:22	5
Bis(2-ethylhexyl) phthalate	**53000**		19000	2100	ug/Kg	☼	07/02/20 11:09	07/06/20 11:22	5
Chrysene	**760**		390	76	ug/Kg	☼	07/02/20 11:09	07/06/20 11:22	5
Di-n-octyl phthalate	**5400**		1900	1100	ug/Kg	☼	07/02/20 11:09	07/06/20 11:22	5
Fluoranthene	**1400**		390	100	ug/Kg	☼	07/02/20 11:09	07/06/20 11:22	5
Indeno[1,2,3-cd]pyrene	**590**		390	78	ug/Kg	☼	07/02/20 11:09	07/06/20 11:22	5
Phenanthrene	**740**		390	100	ug/Kg	☼	07/02/20 11:09	07/06/20 11:22	5
Pyrene	**1200**		390	92	ug/Kg	☼	07/02/20 11:09	07/06/20 11:22	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*64*		*45 - 105*	*07/02/20 11:09*	*07/06/20 11:22*	*5*
2-Fluorophenol (Surr)	*58*		*42 - 105*	*07/02/20 11:09*	*07/06/20 11:22*	*5*
2,4,6-Tribromophenol (Surr)	*117*	*X*	*31 - 105*	*07/02/20 11:09*	*07/06/20 11:22*	*5*
Nitrobenzene-d5 (Surr)	*63*		*53 - 105*	*07/02/20 11:09*	*07/06/20 11:22*	*5*
Phenol-d5 (Surr)	*65*		*47 - 105*	*07/02/20 11:09*	*07/06/20 11:22*	*5*
Terphenyl-d14 (Surr)	*65*		*46 - 105*	*07/02/20 11:09*	*07/06/20 11:22*	*5*

Client Sample Results

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-3

Client Sample ID: FSA-TREAT-2 10% TerraBond MG

Lab Sample ID: 180-103654-25
Date Collected: 06/30/20 07:30
Matrix: Solid
Date Received: 03/17/20 09:00
Percent Solids: 84.0

Method: EPA 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		2.0	0.83	ug/Kg	☼	07/01/20 18:54	07/07/20 12:04	1
4,4'-DDE	ND		2.0	0.40	ug/Kg	☼	07/01/20 18:54	07/07/20 12:04	1
4,4'-DDT	ND	F1	2.0	0.77	ug/Kg	☼	07/01/20 18:54	07/07/20 12:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*138*	*X*	*44 - 130*	*07/01/20 18:54*	*07/07/20 12:04*	*1*
Tetrachloro-m-xylene	*98*		*44 - 130*	*07/01/20 18:54*	*07/07/20 12:04*	*1*
DCB Decachlorobiphenyl (Surr)	*0*	*X *3*	*41 - 150*	*07/01/20 18:54*	*07/07/20 12:04*	*1*
DCB Decachlorobiphenyl (Surr)	*0*	*X*	*41 - 150*	*07/01/20 18:54*	*07/07/20 12:04*	*1*

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND	F1	190	63	ug/Kg	☼	07/01/20 18:54	07/08/20 19:31	10
PCB-1221	ND		190	69	ug/Kg	☼	07/01/20 18:54	07/08/20 19:31	10
PCB-1232	ND		190	47	ug/Kg	☼	07/01/20 18:54	07/08/20 19:31	10
PCB-1242	**13000**		190	28	ug/Kg	☼	07/01/20 18:54	07/08/20 19:31	10
PCB-1248	ND		190	47	ug/Kg	☼	07/01/20 18:54	07/08/20 19:31	10
PCB-1254	**4400**		190	58	ug/Kg	☼	07/01/20 18:54	07/08/20 19:31	10
PCB-1260	ND	F1	190	55	ug/Kg	☼	07/01/20 18:54	07/08/20 19:31	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*72*	*p*	*61 - 132*	*07/01/20 18:54*	*07/08/20 19:31*	*10*
DCB Decachlorobiphenyl (Surr)	*230*	*X*	*61 - 132*	*07/01/20 18:54*	*07/08/20 19:31*	*10*
Tetrachloro-m-xylene (Surr)	*88*		*51 - 112*	*07/01/20 18:54*	*07/08/20 19:31*	*10*
Tetrachloro-m-xylene (Surr)	*97*		*51 - 112*	*07/01/20 18:54*	*07/08/20 19:31*	*10*

Method: EPA 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**12**		0.11	0.034	mg/Kg	☼	07/01/20 14:53	07/09/20 05:59	1
Barium	**600**		1.1	0.14	mg/Kg	☼	07/01/20 14:53	07/09/20 05:59	1
Beryllium	**0.51**		0.11	0.075	mg/Kg	☼	07/01/20 14:53	07/09/20 05:59	1
Cadmium	**11**		0.11	0.018	mg/Kg	☼	07/01/20 14:53	07/09/20 05:59	1
Chromium	**210**		0.21	0.088	mg/Kg	☼	07/01/20 14:53	07/09/20 05:59	1
Silver	**1.5**		0.11	0.029	mg/Kg	☼	07/01/20 14:53	07/09/20 05:59	1
Nickel	**180**		0.11	0.099	mg/Kg	☼	07/01/20 14:53	07/09/20 05:59	1
Lead	**1200**	**^**	0.11	0.11	mg/Kg	☼	07/01/20 14:53	07/09/20 05:59	1
Antimony	**16**		0.21	0.046	mg/Kg	☼	07/01/20 14:53	07/09/20 05:59	1
Thallium	**0.13**		0.11	0.073	mg/Kg	☼	07/01/20 14:53	07/09/20 05:59	1

Method: EPA 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**1.1**		0.041	0.026	mg/Kg	☼	07/02/20 17:30	07/06/20 17:50	1

Client Sample ID: FSA-TREAT-5 10% TerraBond MG

Lab Sample ID: 180-103654-26
Date Collected: 06/30/20 07:30
Matrix: Solid
Date Received: 03/17/20 09:00

Method: EPA 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylphenol, 3 & 4	ND		0.0096	0.0036	mg/L		07/06/20 10:56	07/10/20 14:58	1
Anthracene	ND		0.0019	0.00048	mg/L		07/06/20 10:56	07/10/20 14:58	1

Client Sample ID: FSA-TREAT-5 10% TerraBond MG

Lab Sample ID: 180-103654-26

Date Collected: 06/30/20 07:30

Matrix: Solid

Date Received: 03/17/20 09:00

Method: EPA 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.0019	0.00073	mg/L		07/06/20 10:56	07/10/20 14:58	1
Benzo[b]fluoranthene	ND		0.0019	0.00094	mg/L		07/06/20 10:56	07/10/20 14:58	1
Benzo[g,h,i]perylene	ND		0.0019	0.00067	mg/L		07/06/20 10:56	07/10/20 14:58	1
Benzo[a]pyrene	ND		0.0019	0.00052	mg/L		07/06/20 10:56	07/10/20 14:58	1
Bis(2-ethylhexyl) phthalate	ND		0.096	0.060	mg/L		07/06/20 10:56	07/10/20 14:58	1
Chrysene	ND		0.0019	0.00079	mg/L		07/06/20 10:56	07/10/20 14:58	1
Di-n-octyl phthalate	ND		0.0096	0.0066	mg/L		07/06/20 10:56	07/10/20 14:58	1
Fluoranthene	ND		0.0019	0.00058	mg/L		07/06/20 10:56	07/10/20 14:58	1
Indeno[1,2,3-cd]pyrene	ND		0.0019	0.00083	mg/L		07/06/20 10:56	07/10/20 14:58	1
Phenanthrene	ND		0.0019	0.00054	mg/L		07/06/20 10:56	07/10/20 14:58	1
Pyrene	ND		0.0019	0.00052	mg/L		07/06/20 10:56	07/10/20 14:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*71*		*35 - 115*	*07/06/20 10:56*	*07/10/20 14:58*	*1*
2-Fluorophenol (Surr)	*77*		*20 - 110*	*07/06/20 10:56*	*07/10/20 14:58*	*1*
2,4,6-Tribromophenol (Surr)	*72*		*19 - 138*	*07/06/20 10:56*	*07/10/20 14:58*	*1*
Nitrobenzene-d5 (Surr)	*90*		*39 - 115*	*07/06/20 10:56*	*07/10/20 14:58*	*1*
Phenol-d5 (Surr)	*68*		*30 - 118*	*07/06/20 10:56*	*07/10/20 14:58*	*1*
Terphenyl-d14 (Surr)	*77*		*30 - 143*	*07/06/20 10:56*	*07/10/20 14:58*	*1*

Method: EPA 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.00050	0.00021	mg/L		07/02/20 12:55	07/06/20 19:13	1
4,4'-DDE	ND		0.00050	0.00012	mg/L		07/02/20 12:55	07/06/20 19:13	1
4,4'-DDT	ND		0.00050	0.00012	mg/L		07/02/20 12:55	07/06/20 19:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*96*		*62 - 150*	*07/02/20 12:55*	*07/06/20 19:13*	*1*
DCB Decachlorobiphenyl (Surr)	*92*		*62 - 150*	*07/02/20 12:55*	*07/06/20 19:13*	*1*
Tetrachloro-m-xylene	*90*		*54 - 138*	*07/02/20 12:55*	*07/06/20 19:13*	*1*
Tetrachloro-m-xylene	*87*		*54 - 138*	*07/02/20 12:55*	*07/06/20 19:13*	*1*

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.00038	0.00018	mg/L		07/02/20 12:50	07/08/20 00:24	1
PCB-1221	ND		0.00038	0.00022	mg/L		07/02/20 12:50	07/08/20 00:24	1
PCB-1232	ND		0.00038	0.00020	mg/L		07/02/20 12:50	07/08/20 00:24	1
PCB-1242	ND		0.00038	0.00014	mg/L		07/02/20 12:50	07/08/20 00:24	1
PCB-1248	ND		0.00038	0.00011	mg/L		07/02/20 12:50	07/08/20 00:24	1
PCB-1254	ND		0.00038	0.00017	mg/L		07/02/20 12:50	07/08/20 00:24	1
PCB-1260	ND		0.00038	0.00015	mg/L		07/02/20 12:50	07/08/20 00:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene (Surr)	*85*		*45 - 133*	*07/02/20 12:50*	*07/08/20 00:24*	*1*
Tetrachloro-m-xylene (Surr)	*90*		*45 - 133*	*07/02/20 12:50*	*07/08/20 00:24*	*1*
DCB Decachlorobiphenyl (Surr)	*95*		*59 - 144*	*07/02/20 12:50*	*07/08/20 00:24*	*1*
DCB Decachlorobiphenyl (Surr)	*93*		*59 - 144*	*07/02/20 12:50*	*07/08/20 00:24*	*1*

Method: EPA 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.50	0.0085	mg/L		07/02/20 08:59	07/06/20 13:07	1

Client Sample ID: FSA-TREAT-5 10% TerraBond MG

Lab Sample ID: 180-103654-26
Date Collected: 06/30/20 07:30
Matrix: Solid
Date Received: 03/17/20 09:00

Method: EPA 6010D - Metals (ICP) - TCLP (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.24**	**J**	2.0	0.026	mg/L		07/02/20 08:59	07/06/20 13:07	1
Cadmium	ND		0.50	0.0028	mg/L		07/02/20 08:59	07/06/20 13:07	1
Chromium	ND		0.50	0.0078	mg/L		07/02/20 08:59	07/06/20 13:07	1
Lead	ND		0.50	0.029	mg/L		07/02/20 08:59	07/06/20 13:07	1
Beryllium	ND		0.040	0.0033	mg/L		07/02/20 08:59	07/06/20 13:07	1
Arsenic	ND		0.50	0.041	mg/L		07/02/20 08:59	07/06/20 13:07	1
Nickel	**0.016**	**J**	0.40	0.015	mg/L		07/02/20 08:59	07/06/20 13:07	1
Antimony	ND		0.10	0.034	mg/L		07/02/20 08:59	07/06/20 13:07	1
Thallium	ND		0.20	0.033	mg/L		07/02/20 08:59	07/06/20 13:07	1

Method: EPA 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00010	mg/L		07/01/20 18:30	07/02/20 16:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**15.6**		0.1	0.1	%			06/30/20 11:16	1
Percent Solids	**84.4**		0.1	0.1	%			06/30/20 11:16	1
pH	**12.1**	**HF**	0.1	0.1	SU			07/02/20 20:46	1

Client Sample ID: FSA-TREAT-5 10% TerraBond MG

Lab Sample ID: 180-103654-26
Date Collected: 06/30/20 07:30
Matrix: Solid
Date Received: 03/17/20 09:00
Percent Solids: 84.4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylphenol, 3 & 4	ND		1900	560	ug/Kg	☼	07/02/20 11:09	07/06/20 12:37	5
Anthracene	**150**	**J**	380	99	ug/Kg	☼	07/02/20 11:09	07/06/20 12:37	5
Benzo[a]anthracene	**470**		380	72	ug/Kg	☼	07/02/20 11:09	07/06/20 12:37	5
Benzo[b]fluoranthene	**660**		380	94	ug/Kg	☼	07/02/20 11:09	07/06/20 12:37	5
Benzo[g,h,i]perylene	**530**		380	83	ug/Kg	☼	07/02/20 11:09	07/06/20 12:37	5
Benzo[a]pyrene	**530**		380	83	ug/Kg	☼	07/02/20 11:09	07/06/20 12:37	5
Bis(2-ethylhexyl) phthalate	**36000**		19000	2000	ug/Kg	☼	07/02/20 11:09	07/06/20 12:37	5
Chrysene	**570**		380	75	ug/Kg	☼	07/02/20 11:09	07/06/20 12:37	5
Di-n-octyl phthalate	**3100**		1900	1100	ug/Kg	☼	07/02/20 11:09	07/06/20 12:37	5
Fluoranthene	**760**		380	100	ug/Kg	☼	07/02/20 11:09	07/06/20 12:37	5
Indeno[1,2,3-cd]pyrene	**360**	**J**	380	77	ug/Kg	☼	07/02/20 11:09	07/06/20 12:37	5
Phenanthrene	**360**	**J**	380	100	ug/Kg	☼	07/02/20 11:09	07/06/20 12:37	5
Pyrene	**800**		380	91	ug/Kg	☼	07/02/20 11:09	07/06/20 12:37	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*66*		*45 - 105*	*07/02/20 11:09*	*07/06/20 12:37*	*5*
2-Fluorophenol (Surr)	*54*		*42 - 105*	*07/02/20 11:09*	*07/06/20 12:37*	*5*
2,4,6-Tribromophenol (Surr)	*46*		*31 - 105*	*07/02/20 11:09*	*07/06/20 12:37*	*5*
Nitrobenzene-d5 (Surr)	*60*		*53 - 105*	*07/02/20 11:09*	*07/06/20 12:37*	*5*
Phenol-d5 (Surr)	*62*		*47 - 105*	*07/02/20 11:09*	*07/06/20 12:37*	*5*
Terphenyl-d14 (Surr)	*62*		*46 - 105*	*07/02/20 11:09*	*07/06/20 12:37*	*5*

Method: EPA 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		2.0	0.83	ug/Kg	☼	07/01/20 18:54	07/07/20 12:51	1

Client Sample ID: FSA-TREAT-5 10% TerraBond MG — Lab Sample ID: 180-103654-26

Date Collected: 06/30/20 07:30 — **Matrix: Solid**
Date Received: 03/17/20 09:00 — **Percent Solids: 84.4**

Method: EPA 8081B - Organochlorine Pesticides (GC) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDE	ND		2.0	0.40	ug/Kg	☼	07/01/20 18:54	07/07/20 12:51	1
4,4'-DDT	ND		2.0	0.77	ug/Kg	☼	07/01/20 18:54	07/07/20 12:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*86*		*44 - 130*	*07/01/20 18:54*	*07/07/20 12:51*	*1*
Tetrachloro-m-xylene	*78*		*44 - 130*	*07/01/20 18:54*	*07/07/20 12:51*	*1*
DCB Decachlorobiphenyl (Surr)	*0*	*X*	*41 - 150*	*07/01/20 18:54*	*07/07/20 12:51*	*1*
DCB Decachlorobiphenyl (Surr)	*0*	*X*	*41 - 150*	*07/01/20 18:54*	*07/07/20 12:51*	*1*

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		19	6.3	ug/Kg	☼	07/01/20 18:54	07/07/20 19:15	1
PCB-1221	ND		19	6.9	ug/Kg	☼	07/01/20 18:54	07/07/20 19:15	1
PCB-1232	ND		19	4.7	ug/Kg	☼	07/01/20 18:54	07/07/20 19:15	1
PCB-1242	**3900**		19	2.9	ug/Kg	☼	07/01/20 18:54	07/07/20 19:15	1
PCB-1248	ND		19	4.7	ug/Kg	☼	07/01/20 18:54	07/07/20 19:15	1
PCB-1254	**2300**		19	5.8	ug/Kg	☼	07/01/20 18:54	07/07/20 19:15	1
PCB-1260	ND		19	5.5	ug/Kg	☼	07/01/20 18:54	07/07/20 19:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*17*	*X *3 p*	*61 - 132*	*07/01/20 18:54*	*07/07/20 19:15*	*1*
DCB Decachlorobiphenyl (Surr)	*157*	*X*	*61 - 132*	*07/01/20 18:54*	*07/07/20 19:15*	*1*
Tetrachloro-m-xylene (Surr)	*64*		*51 - 112*	*07/01/20 18:54*	*07/07/20 19:15*	*1*
Tetrachloro-m-xylene (Surr)	*62*		*51 - 112*	*07/01/20 18:54*	*07/07/20 19:15*	*1*

Method: EPA 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**12**		0.11	0.036	mg/Kg	☼	07/01/20 14:53	07/09/20 06:03	1
Barium	**270**		1.1	0.14	mg/Kg	☼	07/01/20 14:53	07/09/20 06:03	1
Beryllium	**0.43**		0.11	0.079	mg/Kg	☼	07/01/20 14:53	07/09/20 06:03	1
Cadmium	**7.6**		0.11	0.019	mg/Kg	☼	07/01/20 14:53	07/09/20 06:03	1
Chromium	**58**		0.22	0.093	mg/Kg	☼	07/01/20 14:53	07/09/20 06:03	1
Silver	**0.96**		0.11	0.030	mg/Kg	☼	07/01/20 14:53	07/09/20 06:03	1
Nickel	**93**		0.11	0.10	mg/Kg	☼	07/01/20 14:53	07/09/20 06:03	1
Lead	**740**	**^**	0.11	0.11	mg/Kg	☼	07/01/20 14:53	07/09/20 06:03	1
Antimony	**32**		0.22	0.048	mg/Kg	☼	07/01/20 14:53	07/09/20 06:03	1
Thallium	**0.14**		0.11	0.077	mg/Kg	☼	07/01/20 14:53	07/09/20 06:03	1

Method: EPA 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.73**		0.040	0.026	mg/Kg	☼	07/02/20 17:30	07/06/20 17:51	1

Client Sample ID: FSA-TREAT-7 10% TerraBond MG — Lab Sample ID: 180-103654-27

Date Collected: 06/30/20 07:30 — **Matrix: Solid**
Date Received: 03/17/20 09:00 — **Percent Solids: 80.9**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylphenol, 3 & 4	ND		2000	600	ug/Kg	☼	07/02/20 11:09	07/06/20 13:02	5
Anthracene	**300**	**J**	410	110	ug/Kg	☼	07/02/20 11:09	07/06/20 13:02	5
Benzo[a]anthracene	**600**		410	77	ug/Kg	☼	07/02/20 11:09	07/06/20 13:02	5

Client Sample ID: FSA-TREAT-7 10% TerraBond MG

Lab Sample ID: 180-103654-27

Date Collected: 06/30/20 07:30
Date Received: 03/17/20 09:00

Matrix: Solid
Percent Solids: 80.9

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[b]fluoranthene	820		410	100	ug/Kg	☼	07/02/20 11:09	07/06/20 13:02	5
Benzo[g,h,i]perylene	710		410	88	ug/Kg	☼	07/02/20 11:09	07/06/20 13:02	5
Benzo[a]pyrene	610		410	89	ug/Kg	☼	07/02/20 11:09	07/06/20 13:02	5
Bis(2-ethylhexyl) phthalate	110000	E	20000	2200	ug/Kg	☼	07/02/20 11:09	07/06/20 13:02	5
Chrysene	790		410	80	ug/Kg	☼	07/02/20 11:09	07/06/20 13:02	5
Di-n-octyl phthalate	12000		2000	1200	ug/Kg	☼	07/02/20 11:09	07/06/20 13:02	5
Fluoranthene	1200		410	110	ug/Kg	☼	07/02/20 11:09	07/06/20 13:02	5
Indeno[1,2,3-cd]pyrene	450		410	83	ug/Kg	☼	07/02/20 11:09	07/06/20 13:02	5
Phenanthrene	660		410	110	ug/Kg	☼	07/02/20 11:09	07/06/20 13:02	5
Pyrene	1400		410	97	ug/Kg	☼	07/02/20 11:09	07/06/20 13:02	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*70*		*45 - 105*	*07/02/20 11:09*	*07/06/20 13:02*	*5*
2-Fluorophenol (Surr)	*57*		*42 - 105*	*07/02/20 11:09*	*07/06/20 13:02*	*5*
2,4,6-Tribromophenol (Surr)	*51*		*31 - 105*	*07/02/20 11:09*	*07/06/20 13:02*	*5*
Nitrobenzene-d5 (Surr)	*62*		*53 - 105*	*07/02/20 11:09*	*07/06/20 13:02*	*5*
Phenol-d5 (Surr)	*64*		*47 - 105*	*07/02/20 11:09*	*07/06/20 13:02*	*5*
Terphenyl-d14 (Surr)	*62*		*46 - 105*	*07/02/20 11:09*	*07/06/20 13:02*	*5*

Method: EPA 8270D - Semivolatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylphenol, 3 & 4	ND		6100	1800	ug/Kg	☼	07/02/20 11:09	07/07/20 15:18	15
Anthracene	ND		1200	320	ug/Kg	☼	07/02/20 11:09	07/07/20 15:18	15
Benzo[a]anthracene	670	J	1200	230	ug/Kg	☼	07/02/20 11:09	07/07/20 15:18	15
Benzo[b]fluoranthene	720	J	1200	300	ug/Kg	☼	07/02/20 11:09	07/07/20 15:18	15
Benzo[g,h,i]perylene	630	J	1200	270	ug/Kg	☼	07/02/20 11:09	07/07/20 15:18	15
Benzo[a]pyrene	630	J	1200	270	ug/Kg	☼	07/02/20 11:09	07/07/20 15:18	15
Bis(2-ethylhexyl) phthalate	140000		61000	6500	ug/Kg	☼	07/02/20 11:09	07/07/20 15:18	15
Chrysene	860	J	1200	240	ug/Kg	☼	07/02/20 11:09	07/07/20 15:18	15
Di-n-octyl phthalate	11000		6100	3600	ug/Kg	☼	07/02/20 11:09	07/07/20 15:18	15
Fluoranthene	1300		1200	320	ug/Kg	☼	07/02/20 11:09	07/07/20 15:18	15
Indeno[1,2,3-cd]pyrene	ND		1200	250	ug/Kg	☼	07/02/20 11:09	07/07/20 15:18	15
Phenanthrene	730	J	1200	330	ug/Kg	☼	07/02/20 11:09	07/07/20 15:18	15
Pyrene	1800		1200	290	ug/Kg	☼	07/02/20 11:09	07/07/20 15:18	15

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*71*		*45 - 105*	*07/02/20 11:09*	*07/07/20 15:18*	*15*
2-Fluorophenol (Surr)	*50*		*42 - 105*	*07/02/20 11:09*	*07/07/20 15:18*	*15*
2,4,6-Tribromophenol (Surr)	*39*		*31 - 105*	*07/02/20 11:09*	*07/07/20 15:18*	*15*
Nitrobenzene-d5 (Surr)	*56*		*53 - 105*	*07/02/20 11:09*	*07/07/20 15:18*	*15*
Phenol-d5 (Surr)	*61*		*47 - 105*	*07/02/20 11:09*	*07/07/20 15:18*	*15*
Terphenyl-d14 (Surr)	*77*		*46 - 105*	*07/02/20 11:09*	*07/07/20 15:18*	*15*

Method: EPA 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylphenol, 3 & 4	ND		0.0096	0.0036	mg/L		07/06/20 10:56	07/10/20 15:25	1
Anthracene	ND		0.0019	0.00048	mg/L		07/06/20 10:56	07/10/20 15:25	1
Benzo[a]anthracene	ND		0.0019	0.00073	mg/L		07/06/20 10:56	07/10/20 15:25	1
Benzo[b]fluoranthene	ND		0.0019	0.00094	mg/L		07/06/20 10:56	07/10/20 15:25	1
Benzo[g,h,i]perylene	ND		0.0019	0.00067	mg/L		07/06/20 10:56	07/10/20 15:25	1

Client Sample Results

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-3

Client Sample ID: FSA-TREAT-7 10% TerraBond MG

Lab Sample ID: 180-103654-27
Date Collected: 06/30/20 07:30
Matrix: Solid
Date Received: 03/17/20 09:00
Percent Solids: 80.9

Method: EPA 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]pyrene	ND		0.0019	0.00052	mg/L		07/06/20 10:56	07/10/20 15:25	1
Bis(2-ethylhexyl) phthalate	ND		0.096	0.060	mg/L		07/06/20 10:56	07/10/20 15:25	1
Chrysene	ND		0.0019	0.00079	mg/L		07/06/20 10:56	07/10/20 15:25	1
Di-n-octyl phthalate	ND		0.0096	0.0066	mg/L		07/06/20 10:56	07/10/20 15:25	1
Fluoranthene	ND		0.0019	0.00058	mg/L		07/06/20 10:56	07/10/20 15:25	1
Indeno[1,2,3-cd]pyrene	ND		0.0019	0.00083	mg/L		07/06/20 10:56	07/10/20 15:25	1
Phenanthrene	ND		0.0019	0.00054	mg/L		07/06/20 10:56	07/10/20 15:25	1
Pyrene	ND		0.0019	0.00052	mg/L		07/06/20 10:56	07/10/20 15:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*69*		*35 - 115*	*07/06/20 10:56*	*07/10/20 15:25*	*1*
2-Fluorophenol (Surr)	*72*		*20 - 110*	*07/06/20 10:56*	*07/10/20 15:25*	*1*
2,4,6-Tribromophenol (Surr)	*71*		*19 - 138*	*07/06/20 10:56*	*07/10/20 15:25*	*1*
Nitrobenzene-d5 (Surr)	*90*		*39 - 115*	*07/06/20 10:56*	*07/10/20 15:25*	*1*
Phenol-d5 (Surr)	*67*		*30 - 118*	*07/06/20 10:56*	*07/10/20 15:25*	*1*
Terphenyl-d14 (Surr)	*72*		*30 - 143*	*07/06/20 10:56*	*07/10/20 15:25*	*1*

Method: EPA 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		2.1	0.88	ug/Kg	☼	07/01/20 18:54	07/07/20 13:06	1
4,4'-DDE	ND		2.1	0.42	ug/Kg	☼	07/01/20 18:54	07/07/20 13:06	1
4,4'-DDT	ND		2.1	0.81	ug/Kg	☼	07/01/20 18:54	07/07/20 13:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*113*		*44 - 130*	*07/01/20 18:54*	*07/07/20 13:06*	*1*
Tetrachloro-m-xylene	*91*		*44 - 130*	*07/01/20 18:54*	*07/07/20 13:06*	*1*
DCB Decachlorobiphenyl (Surr)	*0*	*X*	*41 - 150*	*07/01/20 18:54*	*07/07/20 13:06*	*1*
DCB Decachlorobiphenyl (Surr)	*0*	*X*	*41 - 150*	*07/01/20 18:54*	*07/07/20 13:06*	*1*

Method: EPA 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.00050	0.00021	mg/L		07/02/20 12:55	07/06/20 19:29	1
4,4'-DDE	ND		0.00050	0.00012	mg/L		07/02/20 12:55	07/06/20 19:29	1
4,4'-DDT	ND		0.00050	0.00012	mg/L		07/02/20 12:55	07/06/20 19:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*100*		*62 - 150*	*07/02/20 12:55*	*07/06/20 19:29*	*1*
DCB Decachlorobiphenyl (Surr)	*92*		*62 - 150*	*07/02/20 12:55*	*07/06/20 19:29*	*1*
Tetrachloro-m-xylene	*93*		*54 - 138*	*07/02/20 12:55*	*07/06/20 19:29*	*1*
Tetrachloro-m-xylene	*80*		*54 - 138*	*07/02/20 12:55*	*07/06/20 19:29*	*1*

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		210	67	ug/Kg	☼	07/01/20 18:54	07/08/20 20:27	10
PCB-1221	ND		210	73	ug/Kg	☼	07/01/20 18:54	07/08/20 20:27	10
PCB-1232	ND		210	50	ug/Kg	☼	07/01/20 18:54	07/08/20 20:27	10
PCB-1242	**10000**		210	30	ug/Kg	☼	07/01/20 18:54	07/08/20 20:27	10
PCB-1248	ND		210	49	ug/Kg	☼	07/01/20 18:54	07/08/20 20:27	10
PCB-1254	**10000**		210	62	ug/Kg	☼	07/01/20 18:54	07/08/20 20:27	10
PCB-1260	ND		210	59	ug/Kg	☼	07/01/20 18:54	07/08/20 20:27	10

Client Sample Results

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-3

Client Sample ID: FSA-TREAT-7 10% TerraBond MG

Lab Sample ID: 180-103654-27
Date Collected: 06/30/20 07:30
Matrix: Solid
Date Received: 03/17/20 09:00
Percent Solids: 80.9

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	129		61 - 132	07/01/20 18:54	07/08/20 20:27	10
DCB Decachlorobiphenyl (Surr)	184	X	61 - 132	07/01/20 18:54	07/08/20 20:27	10
Tetrachloro-m-xylene (Surr)	89		51 - 112	07/01/20 18:54	07/08/20 20:27	10
Tetrachloro-m-xylene (Surr)	93		51 - 112	07/01/20 18:54	07/08/20 20:27	10

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.00038	0.00018	mg/L		07/02/20 12:50	07/08/20 00:44	1
PCB-1221	ND		0.00038	0.00022	mg/L		07/02/20 12:50	07/08/20 00:44	1
PCB-1232	ND		0.00038	0.00020	mg/L		07/02/20 12:50	07/08/20 00:44	1
PCB-1242	ND		0.00038	0.00014	mg/L		07/02/20 12:50	07/08/20 00:44	1
PCB-1248	ND		0.00038	0.00011	mg/L		07/02/20 12:50	07/08/20 00:44	1
PCB-1254	ND		0.00038	0.00017	mg/L		07/02/20 12:50	07/08/20 00:44	1
PCB-1260	ND		0.00038	0.00015	mg/L		07/02/20 12:50	07/08/20 00:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene (Surr)	81		45 - 133	07/02/20 12:50	07/08/20 00:44	1
Tetrachloro-m-xylene (Surr)	85		45 - 133	07/02/20 12:50	07/08/20 00:44	1
DCB Decachlorobiphenyl (Surr)	96		59 - 144	07/02/20 12:50	07/08/20 00:44	1
DCB Decachlorobiphenyl (Surr)	95		59 - 144	07/02/20 12:50	07/08/20 00:44	1

Method: EPA 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.50	0.0085	mg/L		07/02/20 08:59	07/06/20 13:12	1
Barium	**0.29**	**J**	2.0	0.026	mg/L		07/02/20 08:59	07/06/20 13:12	1
Cadmium	ND		0.50	0.0028	mg/L		07/02/20 08:59	07/06/20 13:12	1
Chromium	ND		0.50	0.0078	mg/L		07/02/20 08:59	07/06/20 13:12	1
Lead	ND		0.50	0.029	mg/L		07/02/20 08:59	07/06/20 13:12	1
Beryllium	ND		0.040	0.0033	mg/L		07/02/20 08:59	07/06/20 13:12	1
Arsenic	ND		0.50	0.041	mg/L		07/02/20 08:59	07/06/20 13:12	1
Nickel	**0.020**	**J**	0.40	0.015	mg/L		07/02/20 08:59	07/06/20 13:12	1
Antimony	**0.036**	**J**	0.10	0.034	mg/L		07/02/20 08:59	07/06/20 13:12	1
Thallium	ND		0.20	0.033	mg/L		07/02/20 08:59	07/06/20 13:12	1

Method: EPA 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**17**		0.10	0.034	mg/Kg	☼	07/01/20 14:53	07/09/20 06:06	1
Barium	**1100**		1.0	0.13	mg/Kg	☼	07/01/20 14:53	07/09/20 06:06	1
Beryllium	**0.41**		0.10	0.074	mg/Kg	☼	07/01/20 14:53	07/09/20 06:06	1
Cadmium	**21**		0.10	0.018	mg/Kg	☼	07/01/20 14:53	07/09/20 06:06	1
Chromium	**110**		0.21	0.087	mg/Kg	☼	07/01/20 14:53	07/09/20 06:06	1
Silver	**2.3**		0.10	0.028	mg/Kg	☼	07/01/20 14:53	07/09/20 06:06	1
Nickel	**240**		0.10	0.097	mg/Kg	☼	07/01/20 14:53	07/09/20 06:06	1
Lead	**1500**	**^**	0.10	0.10	mg/Kg	☼	07/01/20 14:53	07/09/20 06:06	1
Antimony	**22**		0.21	0.045	mg/Kg	☼	07/01/20 14:53	07/09/20 06:06	1
Thallium	**0.14**		0.10	0.072	mg/Kg	☼	07/01/20 14:53	07/09/20 06:06	1

Method: EPA 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00010	mg/L		07/01/20 18:30	07/02/20 16:41	1

Client Sample Results

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-3

Client Sample ID: FSA-TREAT-7 10% TerraBond MG

Lab Sample ID: 180-103654-27
Date Collected: 06/30/20 07:30
Matrix: Solid
Date Received: 03/17/20 09:00
Percent Solids: 80.9

Method: EPA 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	1.5		0.040	0.026	mg/Kg	☼	07/02/20 17:30	07/06/20 17:52	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	19.1		0.1	0.1	%			06/30/20 11:27	1
Percent Solids	80.9		0.1	0.1	%			06/30/20 11:27	1
pH	11.4	HF	0.1	0.1	SU			07/02/20 20:45	1

Client Sample ID: FSA-TREAT-10 10% TerraBond MG

Lab Sample ID: 180-103654-28
Date Collected: 06/30/20 07:30
Matrix: Solid
Date Received: 03/17/20 09:00
Percent Solids: 86.0

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylphenol, 3 & 4	ND		1900	570	ug/Kg	☼	07/02/20 11:09	07/06/20 13:27	5
Anthracene	190	J	390	100	ug/Kg	☼	07/02/20 11:09	07/06/20 13:27	5
Benzo[a]anthracene	570		390	73	ug/Kg	☼	07/02/20 11:09	07/06/20 13:27	5
Benzo[b]fluoranthene	820		390	95	ug/Kg	☼	07/02/20 11:09	07/06/20 13:27	5
Benzo[g,h,i]perylene	670		390	84	ug/Kg	☼	07/02/20 11:09	07/06/20 13:27	5
Benzo[a]pyrene	600		390	84	ug/Kg	☼	07/02/20 11:09	07/06/20 13:27	5
Bis(2-ethylhexyl) phthalate	120000	E	19000	2100	ug/Kg	☼	07/02/20 11:09	07/06/20 13:27	5
Chrysene	740		390	76	ug/Kg	☼	07/02/20 11:09	07/06/20 13:27	5
Di-n-octyl phthalate	4500		1900	1100	ug/Kg	☼	07/02/20 11:09	07/06/20 13:27	5
Fluoranthene	1100		390	100	ug/Kg	☼	07/02/20 11:09	07/06/20 13:27	5
Indeno[1,2,3-cd]pyrene	430		390	79	ug/Kg	☼	07/02/20 11:09	07/06/20 13:27	5
Phenanthrene	490		390	100	ug/Kg	☼	07/02/20 11:09	07/06/20 13:27	5
Pyrene	1200		390	92	ug/Kg	☼	07/02/20 11:09	07/06/20 13:27	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*71*		*45 - 105*	*07/02/20 11:09*	*07/06/20 13:27*	*5*
2-Fluorophenol (Surr)	*55*		*42 - 105*	*07/02/20 11:09*	*07/06/20 13:27*	*5*
2,4,6-Tribromophenol (Surr)	*46*		*31 - 105*	*07/02/20 11:09*	*07/06/20 13:27*	*5*
Nitrobenzene-d5 (Surr)	*64*		*53 - 105*	*07/02/20 11:09*	*07/06/20 13:27*	*5*
Phenol-d5 (Surr)	*65*		*47 - 105*	*07/02/20 11:09*	*07/06/20 13:27*	*5*
Terphenyl-d14 (Surr)	*64*		*46 - 105*	*07/02/20 11:09*	*07/06/20 13:27*	*5*

Method: EPA 8270D - Semivolatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylphenol, 3 & 4	ND		5800	1700	ug/Kg	☼	07/02/20 11:09	07/07/20 15:43	15
Anthracene	ND		1200	300	ug/Kg	☼	07/02/20 11:09	07/07/20 15:43	15
Benzo[a]anthracene	620	J	1200	220	ug/Kg	☼	07/02/20 11:09	07/07/20 15:43	15
Benzo[b]fluoranthene	890	J	1200	290	ug/Kg	☼	07/02/20 11:09	07/07/20 15:43	15
Benzo[g,h,i]perylene	620	J	1200	250	ug/Kg	☼	07/02/20 11:09	07/07/20 15:43	15
Benzo[a]pyrene	640	J	1200	250	ug/Kg	☼	07/02/20 11:09	07/07/20 15:43	15
Bis(2-ethylhexyl) phthalate	160000		58000	6200	ug/Kg	☼	07/02/20 11:09	07/07/20 15:43	15
Chrysene	820	J	1200	230	ug/Kg	☼	07/02/20 11:09	07/07/20 15:43	15
Di-n-octyl phthalate	6000		5800	3400	ug/Kg	☼	07/02/20 11:09	07/07/20 15:43	15
Fluoranthene	1100	J	1200	310	ug/Kg	☼	07/02/20 11:09	07/07/20 15:43	15
Indeno[1,2,3-cd]pyrene	400	J	1200	240	ug/Kg	☼	07/02/20 11:09	07/07/20 15:43	15
Phenanthrene	500	J	1200	310	ug/Kg	☼	07/02/20 11:09	07/07/20 15:43	15
Pyrene	1500		1200	280	ug/Kg	☼	07/02/20 11:09	07/07/20 15:43	15

Client Sample ID: FSA-TREAT-10 10% TerraBond MG

Lab Sample ID: 180-103654-28

Date Collected: 06/30/20 07:30
Date Received: 03/17/20 09:00

Matrix: Solid
Percent Solids: 86.0

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	74		45 - 105	07/02/20 11:09	07/07/20 15:43	15
2-Fluorophenol (Surr)	53		42 - 105	07/02/20 11:09	07/07/20 15:43	15
2,4,6-Tribromophenol (Surr)	39		31 - 105	07/02/20 11:09	07/07/20 15:43	15
Nitrobenzene-d5 (Surr)	60		53 - 105	07/02/20 11:09	07/07/20 15:43	15
Phenol-d5 (Surr)	64		47 - 105	07/02/20 11:09	07/07/20 15:43	15
Terphenyl-d14 (Surr)	79		46 - 105	07/02/20 11:09	07/07/20 15:43	15

Method: EPA 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylphenol, 3 & 4	ND		0.0096	0.0036	mg/L		07/06/20 10:56	07/10/20 15:52	1
Anthracene	ND		0.0019	0.00048	mg/L		07/06/20 10:56	07/10/20 15:52	1
Benzo[a]anthracene	ND		0.0019	0.00073	mg/L		07/06/20 10:56	07/10/20 15:52	1
Benzo[b]fluoranthene	ND		0.0019	0.00094	mg/L		07/06/20 10:56	07/10/20 15:52	1
Benzo[g,h,i]perylene	ND		0.0019	0.00067	mg/L		07/06/20 10:56	07/10/20 15:52	1
Benzo[a]pyrene	ND		0.0019	0.00052	mg/L		07/06/20 10:56	07/10/20 15:52	1
Bis(2-ethylhexyl) phthalate	ND		0.096	0.060	mg/L		07/06/20 10:56	07/10/20 15:52	1
Chrysene	ND		0.0019	0.00079	mg/L		07/06/20 10:56	07/10/20 15:52	1
Di-n-octyl phthalate	ND		0.0096	0.0066	mg/L		07/06/20 10:56	07/10/20 15:52	1
Fluoranthene	ND		0.0019	0.00058	mg/L		07/06/20 10:56	07/10/20 15:52	1
Indeno[1,2,3-cd]pyrene	ND		0.0019	0.00083	mg/L		07/06/20 10:56	07/10/20 15:52	1
Phenanthrene	ND		0.0019	0.00054	mg/L		07/06/20 10:56	07/10/20 15:52	1
Pyrene	ND		0.0019	0.00052	mg/L		07/06/20 10:56	07/10/20 15:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	69		35 - 115	07/06/20 10:56	07/10/20 15:52	1
2-Fluorophenol (Surr)	75		20 - 110	07/06/20 10:56	07/10/20 15:52	1
2,4,6-Tribromophenol (Surr)	68		19 - 138	07/06/20 10:56	07/10/20 15:52	1
Nitrobenzene-d5 (Surr)	87		39 - 115	07/06/20 10:56	07/10/20 15:52	1
Phenol-d5 (Surr)	69		30 - 118	07/06/20 10:56	07/10/20 15:52	1
Terphenyl-d14 (Surr)	74		30 - 143	07/06/20 10:56	07/10/20 15:52	1

Method: EPA 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		2.0	0.83	ug/Kg	☼	07/01/20 18:54	07/07/20 13:22	1
4,4'-DDE	ND		2.0	0.39	ug/Kg	☼	07/01/20 18:54	07/07/20 13:22	1
4,4'-DDT	ND		2.0	0.76	ug/Kg	☼	07/01/20 18:54	07/07/20 13:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	119		44 - 130	07/01/20 18:54	07/07/20 13:22	1
Tetrachloro-m-xylene	102		44 - 130	07/01/20 18:54	07/07/20 13:22	1
DCB Decachlorobiphenyl (Surr)	0	X	41 - 150	07/01/20 18:54	07/07/20 13:22	1
DCB Decachlorobiphenyl (Surr)	0	X	41 - 150	07/01/20 18:54	07/07/20 13:22	1

Method: EPA 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.00050	0.00021	mg/L		07/02/20 12:55	07/06/20 19:44	1
4,4'-DDE	ND		0.00050	0.00012	mg/L		07/02/20 12:55	07/06/20 19:44	1
4,4'-DDT	ND		0.00050	0.00012	mg/L		07/02/20 12:55	07/06/20 19:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	99		62 - 150	07/02/20 12:55	07/06/20 19:44	1

Client Sample ID: FSA-TREAT-10 10% TerraBond MG

Lab Sample ID: 180-103654-28

Date Collected: 06/30/20 07:30
Date Received: 03/17/20 09:00

Matrix: Solid
Percent Solids: 86.0

Method: EPA 8081B - Organochlorine Pesticides (GC) - TCLP (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	95		62 - 150	07/02/20 12:55	07/06/20 19:44	1
Tetrachloro-m-xylene	93		54 - 138	07/02/20 12:55	07/06/20 19:44	1
Tetrachloro-m-xylene	74		54 - 138	07/02/20 12:55	07/06/20 19:44	1

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		190	63	ug/Kg	☼	07/01/20 18:54	07/08/20 20:45	10
PCB-1221	ND		190	68	ug/Kg	☼	07/01/20 18:54	07/08/20 20:45	10
PCB-1232	ND		190	47	ug/Kg	☼	07/01/20 18:54	07/08/20 20:45	10
PCB-1242	**7100**		190	28	ug/Kg	☼	07/01/20 18:54	07/08/20 20:45	10
PCB-1248	ND		190	46	ug/Kg	☼	07/01/20 18:54	07/08/20 20:45	10
PCB-1254	**8500**		190	58	ug/Kg	☼	07/01/20 18:54	07/08/20 20:45	10
PCB-1260	ND		190	55	ug/Kg	☼	07/01/20 18:54	07/08/20 20:45	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	128	p	61 - 132	07/01/20 18:54	07/08/20 20:45	10
DCB Decachlorobiphenyl (Surr)	223	X	61 - 132	07/01/20 18:54	07/08/20 20:45	10
Tetrachloro-m-xylene (Surr)	101		51 - 112	07/01/20 18:54	07/08/20 20:45	10
Tetrachloro-m-xylene (Surr)	100		51 - 112	07/01/20 18:54	07/08/20 20:45	10

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.00038	0.00018	mg/L		07/02/20 12:50	07/08/20 01:05	1
PCB-1221	ND		0.00038	0.00022	mg/L		07/02/20 12:50	07/08/20 01:05	1
PCB-1232	ND		0.00038	0.00020	mg/L		07/02/20 12:50	07/08/20 01:05	1
PCB-1242	ND		0.00038	0.00014	mg/L		07/02/20 12:50	07/08/20 01:05	1
PCB-1248	ND		0.00038	0.00011	mg/L		07/02/20 12:50	07/08/20 01:05	1
PCB-1254	ND		0.00038	0.00017	mg/L		07/02/20 12:50	07/08/20 01:05	1
PCB-1260	ND		0.00038	0.00015	mg/L		07/02/20 12:50	07/08/20 01:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene (Surr)	85		45 - 133	07/02/20 12:50	07/08/20 01:05	1
Tetrachloro-m-xylene (Surr)	76		45 - 133	07/02/20 12:50	07/08/20 01:05	1
DCB Decachlorobiphenyl (Surr)	94		59 - 144	07/02/20 12:50	07/08/20 01:05	1
DCB Decachlorobiphenyl (Surr)	95		59 - 144	07/02/20 12:50	07/08/20 01:05	1

Method: EPA 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.50	0.0085	mg/L		07/02/20 08:59	07/06/20 13:18	1
Barium	**0.36**	**J**	2.0	0.026	mg/L		07/02/20 08:59	07/06/20 13:18	1
Cadmium	ND		0.50	0.0028	mg/L		07/02/20 08:59	07/06/20 13:18	1
Chromium	ND		0.50	0.0078	mg/L		07/02/20 08:59	07/06/20 13:18	1
Lead	ND		0.50	0.029	mg/L		07/02/20 08:59	07/06/20 13:18	1
Beryllium	ND		0.040	0.0033	mg/L		07/02/20 08:59	07/06/20 13:18	1
Arsenic	ND		0.50	0.041	mg/L		07/02/20 08:59	07/06/20 13:18	1
Nickel	**0.015**	**J**	0.40	0.015	mg/L		07/02/20 08:59	07/06/20 13:18	1
Antimony	ND		0.10	0.034	mg/L		07/02/20 08:59	07/06/20 13:18	1
Thallium	ND		0.20	0.033	mg/L		07/02/20 08:59	07/06/20 13:18	1

Client Sample Results

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-3

Client Sample ID: FSA-TREAT-10 10% TerraBond MG

Lab Sample ID: 180-103654-28

Date Collected: 06/30/20 07:30
Date Received: 03/17/20 09:00

Matrix: Solid
Percent Solids: 86.0

Method: EPA 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	12		0.11	0.034	mg/Kg	☼	07/01/20 14:53	07/09/20 06:09	1
Barium	580		1.1	0.14	mg/Kg	☼	07/01/20 14:53	07/09/20 06:09	1
Beryllium	0.43		0.11	0.075	mg/Kg	☼	07/01/20 14:53	07/09/20 06:09	1
Cadmium	12		0.11	0.018	mg/Kg	☼	07/01/20 14:53	07/09/20 06:09	1
Chromium	64		0.21	0.088	mg/Kg	☼	07/01/20 14:53	07/09/20 06:09	1
Silver	2.6		0.11	0.029	mg/Kg	☼	07/01/20 14:53	07/09/20 06:09	1
Nickel	200		0.11	0.098	mg/Kg	☼	07/01/20 14:53	07/09/20 06:09	1
Lead	1300	^	0.11	0.11	mg/Kg	☼	07/01/20 14:53	07/09/20 06:09	1
Antimony	38		0.21	0.045	mg/Kg	☼	07/01/20 14:53	07/09/20 06:09	1
Thallium	0.14		0.11	0.073	mg/Kg	☼	07/01/20 14:53	07/09/20 06:09	1

Method: EPA 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00010	mg/L		07/01/20 18:30	07/02/20 16:42	1

Method: EPA 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.85		0.041	0.026	mg/Kg	☼	07/02/20 17:30	07/06/20 17:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	14.0		0.1	0.1	%			06/30/20 11:27	1
Percent Solids	86.0		0.1	0.1	%			06/30/20 11:27	1
pH	11.6	HF	0.1	0.1	SU			07/02/20 20:44	1

Client Sample ID: FSA-TREAT-2 2% TerraBond and 4% TerraBond MG

Lab Sample ID: 180-103654-29

Date Collected: 06/30/20 07:30
Date Received: 03/17/20 09:00

Matrix: Solid

Method: EPA 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylphenol, 3 & 4	ND		0.010	0.0037	mg/L		07/06/20 10:56	07/10/20 16:20	1
Anthracene	ND		0.0020	0.00050	mg/L		07/06/20 10:56	07/10/20 16:20	1
Benzo[a]anthracene	ND		0.0020	0.00076	mg/L		07/06/20 10:56	07/10/20 16:20	1
Benzo[b]fluoranthene	ND		0.0020	0.00098	mg/L		07/06/20 10:56	07/10/20 16:20	1
Benzo[g,h,i]perylene	ND		0.0020	0.00070	mg/L		07/06/20 10:56	07/10/20 16:20	1
Benzo[a]pyrene	ND		0.0020	0.00054	mg/L		07/06/20 10:56	07/10/20 16:20	1
Bis(2-ethylhexyl) phthalate	ND		0.10	0.062	mg/L		07/06/20 10:56	07/10/20 16:20	1
Chrysene	ND		0.0020	0.00082	mg/L		07/06/20 10:56	07/10/20 16:20	1
Di-n-octyl phthalate	ND		0.010	0.0069	mg/L		07/06/20 10:56	07/10/20 16:20	1
Fluoranthene	ND		0.0020	0.00060	mg/L		07/06/20 10:56	07/10/20 16:20	1
Indeno[1,2,3-cd]pyrene	ND		0.0020	0.00086	mg/L		07/06/20 10:56	07/10/20 16:20	1
Phenanthrene	ND		0.0020	0.00056	mg/L		07/06/20 10:56	07/10/20 16:20	1
Pyrene	ND		0.0020	0.00054	mg/L		07/06/20 10:56	07/10/20 16:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*66*		*35 - 115*	*07/06/20 10:56*	*07/10/20 16:20*	*1*
2-Fluorophenol (Surr)	*69*		*20 - 110*	*07/06/20 10:56*	*07/10/20 16:20*	*1*
2,4,6-Tribromophenol (Surr)	*66*		*19 - 138*	*07/06/20 10:56*	*07/10/20 16:20*	*1*
Nitrobenzene-d5 (Surr)	*84*		*39 - 115*	*07/06/20 10:56*	*07/10/20 16:20*	*1*

Client Sample ID: FSA-TREAT-2 2% TerraBond and 4% TerraBond MG

Lab Sample ID: 180-103654-29

Date Collected: 06/30/20 07:30
Date Received: 03/17/20 09:00

Matrix: Solid

Method: EPA 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Phenol-d5 (Surr)	64		30 - 118	07/06/20 10:56	07/10/20 16:20	1
Terphenyl-d14 (Surr)	75		30 - 143	07/06/20 10:56	07/10/20 16:20	1

Method: EPA 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.00050	0.00021	mg/L		07/02/20 12:55	07/06/20 20:00	1
4,4'-DDE	ND		0.00050	0.00012	mg/L		07/02/20 12:55	07/06/20 20:00	1
4,4'-DDT	ND		0.00050	0.00012	mg/L		07/02/20 12:55	07/06/20 20:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	97		62 - 150	07/02/20 12:55	07/06/20 20:00	1
DCB Decachlorobiphenyl (Surr)	91		62 - 150	07/02/20 12:55	07/06/20 20:00	1
Tetrachloro-m-xylene	90		54 - 138	07/02/20 12:55	07/06/20 20:00	1
Tetrachloro-m-xylene	83		54 - 138	07/02/20 12:55	07/06/20 20:00	1

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.00038	0.00018	mg/L		07/02/20 12:50	07/08/20 01:25	1
PCB-1221	ND		0.00038	0.00022	mg/L		07/02/20 12:50	07/08/20 01:25	1
PCB-1232	ND		0.00038	0.00020	mg/L		07/02/20 12:50	07/08/20 01:25	1
PCB-1242	ND		0.00038	0.00014	mg/L		07/02/20 12:50	07/08/20 01:25	1
PCB-1248	ND		0.00038	0.00011	mg/L		07/02/20 12:50	07/08/20 01:25	1
PCB-1254	ND		0.00038	0.00017	mg/L		07/02/20 12:50	07/08/20 01:25	1
PCB-1260	ND		0.00038	0.00015	mg/L		07/02/20 12:50	07/08/20 01:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene (Surr)	87		45 - 133	07/02/20 12:50	07/08/20 01:25	1
Tetrachloro-m-xylene (Surr)	92		45 - 133	07/02/20 12:50	07/08/20 01:25	1
DCB Decachlorobiphenyl (Surr)	94		59 - 144	07/02/20 12:50	07/08/20 01:25	1
DCB Decachlorobiphenyl (Surr)	93		59 - 144	07/02/20 12:50	07/08/20 01:25	1

Method: EPA 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.50	0.0085	mg/L		07/02/20 08:59	07/06/20 13:23	1
Barium	**0.16**	**J**	2.0	0.026	mg/L		07/02/20 08:59	07/06/20 13:23	1
Cadmium	**0.13**	**J**	0.50	0.0028	mg/L		07/02/20 08:59	07/06/20 13:23	1
Chromium	ND		0.50	0.0078	mg/L		07/02/20 08:59	07/06/20 13:23	1
Lead	**0.052**	**J**	0.50	0.029	mg/L		07/02/20 08:59	07/06/20 13:23	1
Beryllium	ND		0.040	0.0033	mg/L		07/02/20 08:59	07/06/20 13:23	1
Arsenic	ND		0.50	0.041	mg/L		07/02/20 08:59	07/06/20 13:23	1
Nickel	**0.25**	**J**	0.40	0.015	mg/L		07/02/20 08:59	07/06/20 13:23	1
Antimony	ND		0.10	0.034	mg/L		07/02/20 08:59	07/06/20 13:23	1
Thallium	ND		0.20	0.033	mg/L		07/02/20 08:59	07/06/20 13:23	1

Method: EPA 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00010	mg/L		07/01/20 18:30	07/02/20 16:43	1

Client Sample Results

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-3

Client Sample ID: FSA-TREAT-2 2% TerraBond and 4% TerraBond MG

Lab Sample ID: 180-103654-29

Date Collected: 06/30/20 07:30
Date Received: 03/17/20 09:00

Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	18.1		0.1	0.1	%			06/30/20 11:27	1
Percent Solids	81.9		0.1	0.1	%			06/30/20 11:27	1
pH	11.1	HF	0.1	0.1	SU			07/02/20 20:42	1

Client Sample ID: FSA-TREAT-2 2% TerraBond and 4% TerraBond MG

Lab Sample ID: 180-103654-29

Date Collected: 06/30/20 07:30
Date Received: 03/17/20 09:00

Matrix: Solid
Percent Solids: 81.9

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylphenol, 3 & 4	ND		2000	590	ug/Kg	☼	07/02/20 11:09	07/06/20 13:52	5
Anthracene	1400		400	100	ug/Kg	☼	07/02/20 11:09	07/06/20 13:52	5
Benzo[a]anthracene	6800		400	76	ug/Kg	☼	07/02/20 11:09	07/06/20 13:52	5
Benzo[b]fluoranthene	7600		400	99	ug/Kg	☼	07/02/20 11:09	07/06/20 13:52	5
Benzo[g,h,i]perylene	4700		400	87	ug/Kg	☼	07/02/20 11:09	07/06/20 13:52	5
Benzo[a]pyrene	6600		400	87	ug/Kg	☼	07/02/20 11:09	07/06/20 13:52	5
Bis(2-ethylhexyl) phthalate	66000		20000	2100	ug/Kg	☼	07/02/20 11:09	07/06/20 13:52	5
Chrysene	7200		400	79	ug/Kg	☼	07/02/20 11:09	07/06/20 13:52	5
Di-n-octyl phthalate	5800		2000	1200	ug/Kg	☼	07/02/20 11:09	07/06/20 13:52	5
Fluoranthene	11000		400	110	ug/Kg	☼	07/02/20 11:09	07/06/20 13:52	5
Indeno[1,2,3-cd]pyrene	4000		400	81	ug/Kg	☼	07/02/20 11:09	07/06/20 13:52	5
Phenanthrene	3500		400	110	ug/Kg	☼	07/02/20 11:09	07/06/20 13:52	5
Pyrene	8900		400	95	ug/Kg	☼	07/02/20 11:09	07/06/20 13:52	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*71*		*45 - 105*	*07/02/20 11:09*	*07/06/20 13:52*	*5*
2-Fluorophenol (Surr)	*56*		*42 - 105*	*07/02/20 11:09*	*07/06/20 13:52*	*5*
2,4,6-Tribromophenol (Surr)	*52*		*31 - 105*	*07/02/20 11:09*	*07/06/20 13:52*	*5*
Nitrobenzene-d5 (Surr)	*64*		*53 - 105*	*07/02/20 11:09*	*07/06/20 13:52*	*5*
Phenol-d5 (Surr)	*63*		*47 - 105*	*07/02/20 11:09*	*07/06/20 13:52*	*5*
Terphenyl-d14 (Surr)	*64*		*46 - 105*	*07/02/20 11:09*	*07/06/20 13:52*	*5*

Method: EPA 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		2.0	0.86	ug/Kg	☼	07/01/20 18:54	07/07/20 13:37	1
4,4'-DDE	ND		2.0	0.41	ug/Kg	☼	07/01/20 18:54	07/07/20 13:37	1
4,4'-DDT	ND		2.0	0.79	ug/Kg	☼	07/01/20 18:54	07/07/20 13:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*131*	*X*	*44 - 130*	*07/01/20 18:54*	*07/07/20 13:37*	*1*
Tetrachloro-m-xylene	*91*		*44 - 130*	*07/01/20 18:54*	*07/07/20 13:37*	*1*
DCB Decachlorobiphenyl (Surr)	*0*	*X*	*41 - 150*	*07/01/20 18:54*	*07/07/20 13:37*	*1*
DCB Decachlorobiphenyl (Surr)	*0*	*X*	*41 - 150*	*07/01/20 18:54*	*07/07/20 13:37*	*1*

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		200	65	ug/Kg	☼	07/01/20 18:54	07/08/20 21:04	10
PCB-1221	ND		200	71	ug/Kg	☼	07/01/20 18:54	07/08/20 21:04	10

Client Sample Results

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-3

Client Sample ID: FSA-TREAT-2 2% TerraBond and 4% TerraBond MG

Lab Sample ID: 180-103654-29

Date Collected: 06/30/20 07:30
Date Received: 03/17/20 09:00

Matrix: Solid
Percent Solids: 81.9

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1232	ND		200	49	ug/Kg	☼	07/01/20 18:54	07/08/20 21:04	10
PCB-1242	**13000**		200	29	ug/Kg	☼	07/01/20 18:54	07/08/20 21:04	10
PCB-1248	ND		200	48	ug/Kg	☼	07/01/20 18:54	07/08/20 21:04	10
PCB-1254	**6800**		200	60	ug/Kg	☼	07/01/20 18:54	07/08/20 21:04	10
PCB-1260	ND		200	57	ug/Kg	☼	07/01/20 18:54	07/08/20 21:04	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*79*	*p *3*	*61 - 132*	*07/01/20 18:54*	*07/08/20 21:04*	*10*
DCB Decachlorobiphenyl (Surr)	*272*	*X*	*61 - 132*	*07/01/20 18:54*	*07/08/20 21:04*	*10*
Tetrachloro-m-xylene (Surr)	*91*		*51 - 112*	*07/01/20 18:54*	*07/08/20 21:04*	*10*
Tetrachloro-m-xylene (Surr)	*91*		*51 - 112*	*07/01/20 18:54*	*07/08/20 21:04*	*10*

Method: EPA 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**9.0**		0.12	0.038	mg/Kg	☼	07/01/20 14:53	07/09/20 06:13	1
Barium	**410**		1.2	0.15	mg/Kg	☼	07/01/20 14:53	07/09/20 06:13	1
Beryllium	**0.23**		0.12	0.085	mg/Kg	☼	07/01/20 14:53	07/09/20 06:13	1
Cadmium	**10**		0.12	0.020	mg/Kg	☼	07/01/20 14:53	07/09/20 06:13	1
Chromium	**100**		0.24	0.099	mg/Kg	☼	07/01/20 14:53	07/09/20 06:13	1
Silver	**1.4**		0.12	0.032	mg/Kg	☼	07/01/20 14:53	07/09/20 06:13	1
Nickel	**110**		0.12	0.11	mg/Kg	☼	07/01/20 14:53	07/09/20 06:13	1
Lead	**1300**	**^**	0.12	0.12	mg/Kg	☼	07/01/20 14:53	07/09/20 06:13	1
Antimony	**14**		0.24	0.051	mg/Kg	☼	07/01/20 14:53	07/09/20 06:13	1
Thallium	ND		0.12	0.083	mg/Kg	☼	07/01/20 14:53	07/09/20 06:13	1

Method: EPA 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**2.0**		0.042	0.027	mg/Kg	☼	07/02/20 17:30	07/06/20 17:55	1

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

Lab Sample ID: MB 180-320355/1-A
Matrix: Solid
Analysis Batch: 320498

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 320355

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylphenol, 3 & 4	ND		330	98	ug/Kg		07/02/20 11:09	07/06/20 09:17	1
Anthracene	ND		67	17	ug/Kg		07/02/20 11:09	07/06/20 09:17	1
Benzo[a]anthracene	ND		67	13	ug/Kg		07/02/20 11:09	07/06/20 09:17	1
Benzo[b]fluoranthene	ND		67	16	ug/Kg		07/02/20 11:09	07/06/20 09:17	1
Benzo[g,h,i]perylene	ND		67	14	ug/Kg		07/02/20 11:09	07/06/20 09:17	1
Benzo[a]pyrene	ND		67	15	ug/Kg		07/02/20 11:09	07/06/20 09:17	1
Bis(2-ethylhexyl) phthalate	ND		3300	360	ug/Kg		07/02/20 11:09	07/06/20 09:17	1
Chrysene	ND		67	13	ug/Kg		07/02/20 11:09	07/06/20 09:17	1
Di-n-octyl phthalate	ND		330	190	ug/Kg		07/02/20 11:09	07/06/20 09:17	1
Fluoranthene	ND		67	18	ug/Kg		07/02/20 11:09	07/06/20 09:17	1
Indeno[1,2,3-cd]pyrene	ND		67	14	ug/Kg		07/02/20 11:09	07/06/20 09:17	1
Phenanthrene	ND		67	18	ug/Kg		07/02/20 11:09	07/06/20 09:17	1
Pyrene	ND		67	16	ug/Kg		07/02/20 11:09	07/06/20 09:17	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*58*		*45 - 105*	*07/02/20 11:09*	*07/06/20 09:17*	*1*
2-Fluorophenol (Surr)	*54*		*42 - 105*	*07/02/20 11:09*	*07/06/20 09:17*	*1*
2,4,6-Tribromophenol (Surr)	*43*		*31 - 105*	*07/02/20 11:09*	*07/06/20 09:17*	*1*
Nitrobenzene-d5 (Surr)	*56*		*53 - 105*	*07/02/20 11:09*	*07/06/20 09:17*	*1*
Phenol-d5 (Surr)	*62*		*47 - 105*	*07/02/20 11:09*	*07/06/20 09:17*	*1*
Terphenyl-d14 (Surr)	*70*		*46 - 105*	*07/02/20 11:09*	*07/06/20 09:17*	*1*

Lab Sample ID: LCS 180-320355/2-A
Matrix: Solid
Analysis Batch: 320498

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 320355

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methylphenol, 3 & 4	6670	4000		ug/Kg		60	54 - 100
Anthracene	6670	4010		ug/Kg		60	47 - 116
Benzo[a]anthracene	6670	4190		ug/Kg		63	48 - 101
Benzo[b]fluoranthene	6670	4370		ug/Kg		66	46 - 100
Benzo[g,h,i]perylene	6670	3940		ug/Kg		59	49 - 111
Benzo[a]pyrene	6670	4240		ug/Kg		64	46 - 114
Bis(2-ethylhexyl) phthalate	6670	4500		ug/Kg		67	45 - 113
Chrysene	6670	4220		ug/Kg		63	49 - 100
Di-n-octyl phthalate	6670	4470		ug/Kg		67	43 - 117
Fluoranthene	6670	4340		ug/Kg		65	54 - 105
Indeno[1,2,3-cd]pyrene	6670	4210		ug/Kg		63	49 - 112
Phenanthrene	6670	3930		ug/Kg		59	46 - 111
Pyrene	6670	4390		ug/Kg		66	49 - 100

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*58*		*45 - 105*
2-Fluorophenol (Surr)	*54*		*42 - 105*
2,4,6-Tribromophenol (Surr)	*47*		*31 - 105*
Nitrobenzene-d5 (Surr)	*57*		*53 - 105*
Phenol-d5 (Surr)	*58*		*47 - 105*
Terphenyl-d14 (Surr)	*69*		*46 - 105*

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

Lab Sample ID: 180-103654-25 MS
Matrix: Solid
Analysis Batch: 320498

Client Sample ID: FSA-TREAT-2 10% TerraBond MG
Prep Type: Total/NA
Prep Batch: 320355

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Methylphenol, 3 & 4	ND		7930	6090		ug/Kg	☼	77	54 - 100
Anthracene	280	J	7930	5940		ug/Kg	☼	71	47 - 116
Benzo[a]anthracene	730		7930	5780		ug/Kg	☼	64	48 - 101
Benzo[b]fluoranthene	1200		7930	5870		ug/Kg	☼	59	46 - 100
Benzo[g,h,i]perylene	750		7930	6670		ug/Kg	☼	75	49 - 111
Benzo[a]pyrene	1000		7930	5780		ug/Kg	☼	60	46 - 114
Bis(2-ethylhexyl) phthalate	53000		7930	61900	4	ug/Kg	☼	110	45 - 113
Chrysene	760		7930	5860		ug/Kg	☼	64	49 - 100
Di-n-octyl phthalate	5400		7930	11700		ug/Kg	☼	80	43 - 117
Fluoranthene	1400		7930	6560		ug/Kg	☼	65	54 - 105
Indeno[1,2,3-cd]pyrene	590		7930	6420		ug/Kg	☼	73	49 - 112
Phenanthrene	740		7930	6040		ug/Kg	☼	67	46 - 111
Pyrene	1200		7930	6200		ug/Kg	☼	63	49 - 100

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorobiphenyl	*72*		*45 - 105*
2-Fluorophenol (Surr)	*63*		*42 - 105*
2,4,6-Tribromophenol (Surr)	*60*		*31 - 105*
Nitrobenzene-d5 (Surr)	*72*		*53 - 105*
Phenol-d5 (Surr)	*68*		*47 - 105*
Terphenyl-d14 (Surr)	*71*		*46 - 105*

Lab Sample ID: 180-103654-25 MSD
Matrix: Solid
Analysis Batch: 320498

Client Sample ID: FSA-TREAT-2 10% TerraBond MG
Prep Type: Total/NA
Prep Batch: 320355

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methylphenol, 3 & 4	ND		7930	6560		ug/Kg	☼	83	54 - 100	7	19
Anthracene	280	J	7930	6200		ug/Kg	☼	75	47 - 116	4	20
Benzo[a]anthracene	730		7930	6100		ug/Kg	☼	68	48 - 101	5	21
Benzo[b]fluoranthene	1200		7930	6320		ug/Kg	☼	65	46 - 100	8	20
Benzo[g,h,i]perylene	750		7930	7400		ug/Kg	☼	84	49 - 111	10	19
Benzo[a]pyrene	1000		7930	5870		ug/Kg	☼	61	46 - 114	2	20
Bis(2-ethylhexyl) phthalate	53000		7930	63900	4	ug/Kg	☼	136	45 - 113	3	20
Chrysene	760		7930	6590		ug/Kg	☼	73	49 - 100	12	20
Di-n-octyl phthalate	5400		7930	10200		ug/Kg	☼	61	43 - 117	14	18
Fluoranthene	1400		7930	7190		ug/Kg	☼	73	54 - 105	9	20
Indeno[1,2,3-cd]pyrene	590		7930	7150		ug/Kg	☼	83	49 - 112	11	19
Phenanthrene	740		7930	6370		ug/Kg	☼	71	46 - 111	5	20
Pyrene	1200		7930	7250		ug/Kg	☼	76	49 - 100	16	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2-Fluorobiphenyl	*74*		*45 - 105*
2-Fluorophenol (Surr)	*67*		*42 - 105*
2,4,6-Tribromophenol (Surr)	*60*		*31 - 105*
Nitrobenzene-d5 (Surr)	*72*		*53 - 105*
Phenol-d5 (Surr)	*73*		*47 - 105*
Terphenyl-d14 (Surr)	*80*		*46 - 105*

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

Lab Sample ID: MB 180-320559/1-A
Matrix: Solid
Analysis Batch: 321180

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 320559

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylphenol, 3 & 4	ND		0.010	0.0037	mg/L		07/06/20 10:56	07/10/20 11:21	1
Anthracene	ND		0.0020	0.00050	mg/L		07/06/20 10:56	07/10/20 11:21	1
Benzo[a]anthracene	ND		0.0020	0.00076	mg/L		07/06/20 10:56	07/10/20 11:21	1
Benzo[b]fluoranthene	ND		0.0020	0.00098	mg/L		07/06/20 10:56	07/10/20 11:21	1
Benzo[g,h,i]perylene	ND		0.0020	0.00070	mg/L		07/06/20 10:56	07/10/20 11:21	1
Benzo[a]pyrene	ND		0.0020	0.00054	mg/L		07/06/20 10:56	07/10/20 11:21	1
Bis(2-ethylhexyl) phthalate	ND		0.10	0.062	mg/L		07/06/20 10:56	07/10/20 11:21	1
Chrysene	ND		0.0020	0.00082	mg/L		07/06/20 10:56	07/10/20 11:21	1
Di-n-octyl phthalate	ND		0.010	0.0069	mg/L		07/06/20 10:56	07/10/20 11:21	1
Fluoranthene	ND		0.0020	0.00060	mg/L		07/06/20 10:56	07/10/20 11:21	1
Indeno[1,2,3-cd]pyrene	ND		0.0020	0.00086	mg/L		07/06/20 10:56	07/10/20 11:21	1
Phenanthrene	ND		0.0020	0.00056	mg/L		07/06/20 10:56	07/10/20 11:21	1
Pyrene	ND		0.0020	0.00054	mg/L		07/06/20 10:56	07/10/20 11:21	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*66*		*35 - 115*	*07/06/20 10:56*	*07/10/20 11:21*	*1*
2-Fluorophenol (Surr)	*75*		*20 - 110*	*07/06/20 10:56*	*07/10/20 11:21*	*1*
2,4,6-Tribromophenol (Surr)	*72*		*19 - 138*	*07/06/20 10:56*	*07/10/20 11:21*	*1*
Nitrobenzene-d5 (Surr)	*84*		*39 - 115*	*07/06/20 10:56*	*07/10/20 11:21*	*1*
Phenol-d5 (Surr)	*66*		*30 - 118*	*07/06/20 10:56*	*07/10/20 11:21*	*1*
Terphenyl-d14 (Surr)	*75*		*30 - 143*	*07/06/20 10:56*	*07/10/20 11:21*	*1*

Lab Sample ID: LCS 180-320559/2-A
Matrix: Solid
Analysis Batch: 321180

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 320559

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methylphenol, 3 & 4	0.160	0.0966		mg/L		60	30 - 121
Anthracene	0.160	0.140		mg/L		88	49 - 115
Benzo[a]anthracene	0.160	0.142		mg/L		89	49 - 115
Benzo[b]fluoranthene	0.160	0.146		mg/L		91	37 - 115
Benzo[g,h,i]perylene	0.160	0.140		mg/L		88	46 - 115
Benzo[a]pyrene	0.160	0.150		mg/L		94	44 - 115
Bis(2-ethylhexyl) phthalate	0.160	0.167		mg/L		104	49 - 115
Chrysene	0.160	0.138		mg/L		86	46 - 115
Di-n-octyl phthalate	0.160	0.159		mg/L		100	41 - 116
Fluoranthene	0.160	0.144		mg/L		90	44 - 115
Indeno[1,2,3-cd]pyrene	0.160	0.145		mg/L		91	45 - 115
Phenanthrene	0.160	0.136		mg/L		85	50 - 115
Pyrene	0.160	0.142		mg/L		89	35 - 127

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*72*		*35 - 115*
2-Fluorophenol (Surr)	*68*		*20 - 110*
2,4,6-Tribromophenol (Surr)	*90*		*19 - 138*
Nitrobenzene-d5 (Surr)	*77*		*39 - 115*
Phenol-d5 (Surr)	*61*		*30 - 118*
Terphenyl-d14 (Surr)	*96*		*30 - 143*

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

Lab Sample ID: LCSD 180-320559/3-A
Matrix: Solid
Analysis Batch: 321180

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 320559

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methylphenol, 3 & 4			0.160	0.0873		mg/L		55	30 - 121	10	35
Anthracene			0.160	0.130		mg/L		82	49 - 115	7	22
Benzo[a]anthracene			0.160	0.134		mg/L		84	49 - 115	6	23
Benzo[b]fluoranthene			0.160	0.143		mg/L		89	37 - 115	2	28
Benzo[g,h,i]perylene			0.160	0.132		mg/L		82	46 - 115	6	50
Benzo[a]pyrene			0.160	0.143		mg/L		89	44 - 115	5	31
Bis(2-ethylhexyl) phthalate			0.160	0.156		mg/L		97	49 - 115	7	31
Chrysene			0.160	0.128		mg/L		80	46 - 115	8	31
Di-n-octyl phthalate			0.160	0.154		mg/L		96	41 - 116	3	29
Fluoranthene			0.160	0.132		mg/L		83	44 - 115	9	23
Indeno[1,2,3-cd]pyrene			0.160	0.136		mg/L		85	45 - 115	6	37
Phenanthrene			0.160	0.127		mg/L		79	50 - 115	7	20
Pyrene			0.160	0.136		mg/L		85	35 - 127	5	41

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl	*66*		*35 - 115*
2-Fluorophenol (Surr)	*62*		*20 - 110*
2,4,6-Tribromophenol (Surr)	*87*		*19 - 138*
Nitrobenzene-d5 (Surr)	*78*		*39 - 115*
Phenol-d5 (Surr)	*57*		*30 - 118*
Terphenyl-d14 (Surr)	*92*		*30 - 143*

Lab Sample ID: LB 180-320063/1-I
Matrix: Solid
Analysis Batch: 321180

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 320559

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylphenol, 3 & 4	ND		0.0093	0.0034	mg/L		07/06/20 10:58	07/10/20 12:15	1
Anthracene	ND		0.0019	0.00046	mg/L		07/06/20 10:58	07/10/20 12:15	1
Benzo[a]anthracene	ND		0.0019	0.00070	mg/L		07/06/20 10:58	07/10/20 12:15	1
Benzo[b]fluoranthene	ND		0.0019	0.00091	mg/L		07/06/20 10:58	07/10/20 12:15	1
Benzo[g,h,i]perylene	ND		0.0019	0.00065	mg/L		07/06/20 10:58	07/10/20 12:15	1
Benzo[a]pyrene	ND		0.0019	0.00050	mg/L		07/06/20 10:58	07/10/20 12:15	1
Bis(2-ethylhexyl) phthalate	ND		0.093	0.058	mg/L		07/06/20 10:58	07/10/20 12:15	1
Chrysene	ND		0.0019	0.00076	mg/L		07/06/20 10:58	07/10/20 12:15	1
Di-n-octyl phthalate	ND		0.0093	0.0064	mg/L		07/06/20 10:58	07/10/20 12:15	1
Fluoranthene	ND		0.0019	0.00056	mg/L		07/06/20 10:58	07/10/20 12:15	1
Indeno[1,2,3-cd]pyrene	ND		0.0019	0.00080	mg/L		07/06/20 10:58	07/10/20 12:15	1
Phenanthrene	ND		0.0019	0.00052	mg/L		07/06/20 10:58	07/10/20 12:15	1
Pyrene	ND		0.0019	0.00050	mg/L		07/06/20 10:58	07/10/20 12:15	1

Surrogate	*LB %Recovery*	*LB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*79*		*35 - 115*	*07/06/20 10:58*	*07/10/20 12:15*	*1*
2-Fluorophenol (Surr)	*88*		*20 - 110*	*07/06/20 10:58*	*07/10/20 12:15*	*1*
2,4,6-Tribromophenol (Surr)	*87*		*19 - 138*	*07/06/20 10:58*	*07/10/20 12:15*	*1*
Nitrobenzene-d5 (Surr)	*100*		*39 - 115*	*07/06/20 10:58*	*07/10/20 12:15*	*1*
Phenol-d5 (Surr)	*77*		*30 - 118*	*07/06/20 10:58*	*07/10/20 12:15*	*1*
Terphenyl-d14 (Surr)	*93*		*30 - 143*	*07/06/20 10:58*	*07/10/20 12:15*	*1*

QC Sample Results

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-3

Method: EPA 8081B - Organochlorine Pesticides (GC)

Lab Sample ID: MB 180-320270/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 320695 — **Prep Batch: 320270**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		1.7	0.71	ug/Kg		07/01/20 18:54	07/07/20 11:34	1
4,4'-DDE	ND		1.7	0.34	ug/Kg		07/01/20 18:54	07/07/20 11:34	1
4,4'-DDT	ND		1.7	0.66	ug/Kg		07/01/20 18:54	07/07/20 11:34	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*97*		*44 - 130*	*07/01/20 18:54*	*07/07/20 11:34*	*1*
Tetrachloro-m-xylene	*103*		*44 - 130*	*07/01/20 18:54*	*07/07/20 11:34*	*1*
DCB Decachlorobiphenyl (Surr)	*105*		*41 - 150*	*07/01/20 18:54*	*07/07/20 11:34*	*1*
DCB Decachlorobiphenyl (Surr)	*110*		*41 - 150*	*07/01/20 18:54*	*07/07/20 11:34*	*1*

Lab Sample ID: LCS 180-320270/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 320695 — **Prep Batch: 320270**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4,4'-DDD	33.3	31.9		ug/Kg		96	57 - 149
4,4'-DDE	33.3	33.7		ug/Kg		101	52 - 150
4,4'-DDT	33.3	39.2		ug/Kg		118	56 - 142

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*100*		*44 - 130*
Tetrachloro-m-xylene	*112*		*44 - 130*
DCB Decachlorobiphenyl (Surr)	*105*		*41 - 150*
DCB Decachlorobiphenyl (Surr)	*109*		*41 - 150*

Lab Sample ID: 180-103654-25 MS — **Client Sample ID: FSA-TREAT-2 10% TerraBond MG**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 320695 — **Prep Batch: 320270**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
4,4'-DDD	ND		39.4	48.4	p	ug/Kg	☼	123	57 - 149
4,4'-DDE	ND		39.4	44.6	p	ug/Kg	☼	113	52 - 150
4,4'-DDT	ND	F1	39.4	328	E F1	ug/Kg	☼	832	56 - 142

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tetrachloro-m-xylene	*126*		*44 - 130*
Tetrachloro-m-xylene	*90*		*44 - 130*
DCB Decachlorobiphenyl (Surr)	*0*	*X *3*	*41 - 150*
DCB Decachlorobiphenyl (Surr)	*0*	*X*	*41 - 150*

Lab Sample ID: 180-103654-25 MSD — **Client Sample ID: FSA-TREAT-2 10% TerraBond MG**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 320695 — **Prep Batch: 320270**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4,4'-DDD	ND		39.1	42.2	p	ug/Kg	☼	108	57 - 149	14	16
4,4'-DDE	ND		39.1	42.3	p	ug/Kg	☼	108	52 - 150	5	15
4,4'-DDT	ND	F1	39.1	367	E F1	ug/Kg	☼	938	56 - 142	11	15

Method: EPA 8081B - Organochlorine Pesticides (GC) (Continued)

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Tetrachloro-m-xylene	127		44 - 130
Tetrachloro-m-xylene	92		44 - 130
DCB Decachlorobiphenyl (Surr)	0	X *3	41 - 150
DCB Decachlorobiphenyl (Surr)	0	X	41 - 150

Lab Sample ID: MB 180-320381/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 320591 — **Prep Batch: 320381**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.00050	0.00021	mg/L		07/02/20 12:55	07/06/20 17:55	1
4,4'-DDE	ND		0.00050	0.00012	mg/L		07/02/20 12:55	07/06/20 17:55	1
4,4'-DDT	ND		0.00050	0.00012	mg/L		07/02/20 12:55	07/06/20 17:55	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	90		54 - 138	07/02/20 12:55	07/06/20 17:55	1
Tetrachloro-m-xylene	80		54 - 138	07/02/20 12:55	07/06/20 17:55	1
DCB Decachlorobiphenyl (Surr)	100		62 - 150	07/02/20 12:55	07/06/20 17:55	1
DCB Decachlorobiphenyl (Surr)	95		62 - 150	07/02/20 12:55	07/06/20 17:55	1

Lab Sample ID: LCS 180-320381/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 320591 — **Prep Batch: 320381**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4,4'-DDD	0.0100	0.0117		mg/L		117	71 - 136
4,4'-DDE	0.0100	0.0112		mg/L		112	75 - 133
4,4'-DDT	0.0100	0.0103		mg/L		103	56 - 132

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene	93		54 - 138
Tetrachloro-m-xylene	90		54 - 138
DCB Decachlorobiphenyl (Surr)	101		62 - 150
DCB Decachlorobiphenyl (Surr)	96		62 - 150

Lab Sample ID: LCSD 180-320381/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 320591 — **Prep Batch: 320381**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4,4'-DDD	0.0100	0.0115		mg/L		115	71 - 136	2	18
4,4'-DDE	0.0100	0.0113		mg/L		113	75 - 133	0	16
4,4'-DDT	0.0100	0.0100		mg/L		100	56 - 132	3	18

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Tetrachloro-m-xylene	95		54 - 138
Tetrachloro-m-xylene	84		54 - 138
DCB Decachlorobiphenyl (Surr)	97		62 - 150
DCB Decachlorobiphenyl (Surr)	95		62 - 150

Method: EPA 8081B - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LB 180-320063/1-F
Matrix: Solid
Analysis Batch: 320591

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 320381

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.00050	0.00021	mg/L		07/02/20 12:55	07/06/20 18:42	1
4,4'-DDE	ND		0.00050	0.00012	mg/L		07/02/20 12:55	07/06/20 18:42	1
4,4'-DDT	ND		0.00050	0.00012	mg/L		07/02/20 12:55	07/06/20 18:42	1

Surrogate	*LB %Recovery*	*LB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*92*		*54 - 138*	*07/02/20 12:55*	*07/06/20 18:42*	*1*
Tetrachloro-m-xylene	*88*		*54 - 138*	*07/02/20 12:55*	*07/06/20 18:42*	*1*
DCB Decachlorobiphenyl (Surr)	*102*		*62 - 150*	*07/02/20 12:55*	*07/06/20 18:42*	*1*
DCB Decachlorobiphenyl (Surr)	*94*		*62 - 150*	*07/02/20 12:55*	*07/06/20 18:42*	*1*

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 180-320270/1-C
Matrix: Solid
Analysis Batch: 320641

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 320270

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		17	5.4	ug/Kg		07/01/20 18:54	07/07/20 17:41	1
PCB-1221	ND		17	5.9	ug/Kg		07/01/20 18:54	07/07/20 17:41	1
PCB-1232	ND		17	4.1	ug/Kg		07/01/20 18:54	07/07/20 17:41	1
PCB-1242	ND		17	2.4	ug/Kg		07/01/20 18:54	07/07/20 17:41	1
PCB-1248	ND		17	4.0	ug/Kg		07/01/20 18:54	07/07/20 17:41	1
PCB-1254	ND		17	5.0	ug/Kg		07/01/20 18:54	07/07/20 17:41	1
PCB-1260	ND		17	4.7	ug/Kg		07/01/20 18:54	07/07/20 17:41	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*81*		*61 - 132*	*07/01/20 18:54*	*07/07/20 17:41*	*1*
DCB Decachlorobiphenyl (Surr)	*92*		*61 - 132*	*07/01/20 18:54*	*07/07/20 17:41*	*1*
Tetrachloro-m-xylene (Surr)	*79*		*51 - 112*	*07/01/20 18:54*	*07/07/20 17:41*	*1*
Tetrachloro-m-xylene (Surr)	*76*		*51 - 112*	*07/01/20 18:54*	*07/07/20 17:41*	*1*

Lab Sample ID: LCS 180-320270/5-C
Matrix: Solid
Analysis Batch: 320641

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 320270

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1016	1330	1170		ug/Kg		88	48 - 122
PCB-1260	1330	1110		ug/Kg		83	47 - 127

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*89*		*61 - 132*
DCB Decachlorobiphenyl (Surr)	*91*		*61 - 132*
Tetrachloro-m-xylene (Surr)	*83*		*51 - 112*
Tetrachloro-m-xylene (Surr)	*82*		*51 - 112*

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: 180-103654-25 MS — **Client Sample ID: FSA-TREAT-2 10% TerraBond MG**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 320792 — **Prep Batch: 320270**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1016	ND	F1	1590	16200	F1	ug/Kg	☼	1022	48 - 122
PCB-1260	ND	F1	1590	3040	F1	ug/Kg	☼	192	47 - 127

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*68*	*p*	*61 - 132*
DCB Decachlorobiphenyl (Surr)	*234*	*X*	*61 - 132*
Tetrachloro-m-xylene (Surr)	*85*		*51 - 112*
Tetrachloro-m-xylene (Surr)	*88*		*51 - 112*

Lab Sample ID: 180-103654-25 MSD — **Client Sample ID: FSA-TREAT-2 10% TerraBond MG**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 320792 — **Prep Batch: 320270**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-1016	ND	F1	1590	16500	F1	ug/Kg	☼	1040	48 - 122	2	40
PCB-1260	ND	F1	1590	3170	F1	ug/Kg	☼	200	47 - 127	4	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*73*	*p*	*61 - 132*
DCB Decachlorobiphenyl (Surr)	*207*	*X*	*61 - 132*
Tetrachloro-m-xylene (Surr)	*88*		*51 - 112*
Tetrachloro-m-xylene (Surr)	*89*		*51 - 112*

Lab Sample ID: MB 180-320380/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 320696 — **Prep Batch: 320380**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.00040	0.00019	mg/L		07/02/20 12:50	07/07/20 22:42	1
PCB-1221	ND		0.00040	0.00023	mg/L		07/02/20 12:50	07/07/20 22:42	1
PCB-1232	ND		0.00040	0.00021	mg/L		07/02/20 12:50	07/07/20 22:42	1
PCB-1242	ND		0.00040	0.00014	mg/L		07/02/20 12:50	07/07/20 22:42	1
PCB-1248	ND		0.00040	0.00012	mg/L		07/02/20 12:50	07/07/20 22:42	1
PCB-1254	ND		0.00040	0.00018	mg/L		07/02/20 12:50	07/07/20 22:42	1
PCB-1260	ND		0.00040	0.00016	mg/L		07/02/20 12:50	07/07/20 22:42	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*100*		*59 - 144*	*07/02/20 12:50*	*07/07/20 22:42*	*1*
DCB Decachlorobiphenyl (Surr)	*100*		*59 - 144*	*07/02/20 12:50*	*07/07/20 22:42*	*1*
Tetrachloro-m-xylene (Surr)	*91*		*45 - 133*	*07/02/20 12:50*	*07/07/20 22:42*	*1*
Tetrachloro-m-xylene (Surr)	*95*		*45 - 133*	*07/02/20 12:50*	*07/07/20 22:42*	*1*

Lab Sample ID: LCS 180-320380/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 320696 — **Prep Batch: 320380**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1016	0.0400	0.0383		mg/L		96	55 - 124

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: LCS 180-320380/2-A
Matrix: Solid
Analysis Batch: 320696

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 320380

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
PCB-1260			0.0400	0.0360		mg/L		90	56 - 122		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*97*		*59 - 144*
DCB Decachlorobiphenyl (Surr)	*94*		*59 - 144*
Tetrachloro-m-xylene (Surr)	*87*		*45 - 133*
Tetrachloro-m-xylene (Surr)	*93*		*45 - 133*

Lab Sample ID: LCSD 180-320380/3-A
Matrix: Solid
Analysis Batch: 320696

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 320380

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-1016			0.0400	0.0379		mg/L		95	55 - 124	1	23
PCB-1260			0.0400	0.0355		mg/L		89	56 - 122	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*90*		*59 - 144*
DCB Decachlorobiphenyl (Surr)	*90*		*59 - 144*
Tetrachloro-m-xylene (Surr)	*87*		*45 - 133*
Tetrachloro-m-xylene (Surr)	*92*		*45 - 133*

Lab Sample ID: LB 180-320063/1-E
Matrix: Solid
Analysis Batch: 320696

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 320380

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.00038	0.00018	mg/L		07/02/20 12:50	07/07/20 23:43	1
PCB-1221	ND		0.00038	0.00022	mg/L		07/02/20 12:50	07/07/20 23:43	1
PCB-1232	ND		0.00038	0.00020	mg/L		07/02/20 12:50	07/07/20 23:43	1
PCB-1242	ND		0.00038	0.00014	mg/L		07/02/20 12:50	07/07/20 23:43	1
PCB-1248	ND		0.00038	0.00011	mg/L		07/02/20 12:50	07/07/20 23:43	1
PCB-1254	ND		0.00038	0.00017	mg/L		07/02/20 12:50	07/07/20 23:43	1
PCB-1260	ND		0.00038	0.00015	mg/L		07/02/20 12:50	07/07/20 23:43	1

Surrogate	*LB %Recovery*	*LB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*100*		*59 - 144*	*07/02/20 12:50*	*07/07/20 23:43*	*1*
DCB Decachlorobiphenyl (Surr)	*97*		*59 - 144*	*07/02/20 12:50*	*07/07/20 23:43*	*1*
Tetrachloro-m-xylene (Surr)	*90*		*45 - 133*	*07/02/20 12:50*	*07/07/20 23:43*	*1*
Tetrachloro-m-xylene (Surr)	*84*		*45 - 133*	*07/02/20 12:50*	*07/07/20 23:43*	*1*

QC Sample Results

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-3

Method: EPA 6010D - Metals (ICP)

Lab Sample ID: MB 180-320335/1-A
Matrix: Solid
Analysis Batch: 320636

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 320335

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.050	0.00085	mg/L		07/02/20 08:59	07/06/20 12:00	1
Barium	ND		0.20	0.0026	mg/L		07/02/20 08:59	07/06/20 12:00	1
Cadmium	ND		0.050	0.00028	mg/L		07/02/20 08:59	07/06/20 12:00	1
Chromium	ND		0.050	0.00078	mg/L		07/02/20 08:59	07/06/20 12:00	1
Lead	ND		0.050	0.0029	mg/L		07/02/20 08:59	07/06/20 12:00	1
Beryllium	ND		0.0040	0.00033	mg/L		07/02/20 08:59	07/06/20 12:00	1
Arsenic	ND		0.050	0.0041	mg/L		07/02/20 08:59	07/06/20 12:00	1
Nickel	ND		0.040	0.0015	mg/L		07/02/20 08:59	07/06/20 12:00	1
Antimony	ND		0.010	0.0034	mg/L		07/02/20 08:59	07/06/20 12:00	1
Thallium	ND		0.020	0.0033	mg/L		07/02/20 08:59	07/06/20 12:00	1

Lab Sample ID: LCS 180-320335/2-A
Matrix: Solid
Analysis Batch: 320636

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 320335

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	0.250	0.248		mg/L		99	80 - 120
Barium	1.00	0.976		mg/L		98	80 - 120
Cadmium	0.500	0.508		mg/L		102	80 - 120
Chromium	0.500	0.491		mg/L		98	80 - 120
Lead	0.500	0.500		mg/L		100	80 - 120
Beryllium	0.500	0.502		mg/L		100	80 - 120
Arsenic	1.00	1.04		mg/L		104	80 - 120
Nickel	0.500	0.501		mg/L		100	80 - 120
Antimony	0.250	0.253		mg/L		101	80 - 120
Thallium	1.00	1.02		mg/L		102	80 - 120

Lab Sample ID: LB 180-320063/1-C
Matrix: Solid
Analysis Batch: 320636

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 320335

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.50	0.0085	mg/L		07/02/20 08:59	07/06/20 12:10	1
Barium	ND		2.0	0.026	mg/L		07/02/20 08:59	07/06/20 12:10	1
Cadmium	ND		0.50	0.0028	mg/L		07/02/20 08:59	07/06/20 12:10	1
Chromium	ND		0.50	0.0078	mg/L		07/02/20 08:59	07/06/20 12:10	1
Lead	ND		0.50	0.029	mg/L		07/02/20 08:59	07/06/20 12:10	1
Beryllium	ND		0.040	0.0033	mg/L		07/02/20 08:59	07/06/20 12:10	1
Arsenic	ND		0.50	0.041	mg/L		07/02/20 08:59	07/06/20 12:10	1
Nickel	ND		0.40	0.015	mg/L		07/02/20 08:59	07/06/20 12:10	1
Antimony	ND		0.10	0.034	mg/L		07/02/20 08:59	07/06/20 12:10	1
Thallium	ND		0.20	0.033	mg/L		07/02/20 08:59	07/06/20 12:10	1

Method: EPA 6020B - Metals (ICP/MS)

Lab Sample ID: MB 180-320251/1-A
Matrix: Solid
Analysis Batch: 321088

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 320251

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.10	0.032	mg/Kg		07/01/20 14:53	07/09/20 04:46	1
Barium	ND		1.0	0.13	mg/Kg		07/01/20 14:53	07/09/20 04:46	1
Beryllium	ND		0.10	0.071	mg/Kg		07/01/20 14:53	07/09/20 04:46	1
Cadmium	ND		0.10	0.017	mg/Kg		07/01/20 14:53	07/09/20 04:46	1
Chromium	ND		0.20	0.083	mg/Kg		07/01/20 14:53	07/09/20 04:46	1
Silver	ND		0.10	0.027	mg/Kg		07/01/20 14:53	07/09/20 04:46	1
Nickel	ND		0.10	0.093	mg/Kg		07/01/20 14:53	07/09/20 04:46	1
Lead	ND		0.10	0.10	mg/Kg		07/01/20 14:53	07/09/20 04:46	1
Antimony	ND		0.20	0.043	mg/Kg		07/01/20 14:53	07/09/20 04:46	1
Thallium	ND		0.10	0.069	mg/Kg		07/01/20 14:53	07/09/20 04:46	1

Lab Sample ID: LCS 180-320251/2-A
Matrix: Solid
Analysis Batch: 321088

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 320251

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	100	85.2		mg/Kg		85	80 - 120
Barium	100	95.2		mg/Kg		95	80 - 120
Beryllium	50.0	44.7		mg/Kg		89	80 - 120
Cadmium	50.0	45.0		mg/Kg		90	80 - 120
Chromium	50.0	47.7		mg/Kg		95	80 - 120
Silver	25.0	20.5		mg/Kg		82	80 - 120
Nickel	50.0	47.5		mg/Kg		95	80 - 120
Lead	50.0	46.5		mg/Kg		93	80 - 120
Antimony	25.0	22.2		mg/Kg		89	80 - 120
Thallium	100	97.3		mg/Kg		97	80 - 120

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-320267/1-A
Matrix: Solid
Analysis Batch: 320417

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 320267

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00010	mg/L		07/01/20 18:30	07/02/20 16:37	1

Lab Sample ID: LCS 180-320267/2-A
Matrix: Solid
Analysis Batch: 320417

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 320267

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00250	0.00231		mg/L		92	80 - 120

Lab Sample ID: LB 180-320063/1-B
Matrix: Solid
Analysis Batch: 320417

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 320267

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00010	mg/L		07/01/20 18:30	07/02/20 16:39	1

QC Sample Results

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-3

Method: EPA 7471B - Mercury (CVAA)

Lab Sample ID: MB 180-320400/1-A
Matrix: Solid
Analysis Batch: 320629

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 320400

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.033	0.021	mg/Kg		07/02/20 17:30	07/06/20 17:28	1

Lab Sample ID: LCS 180-320400/2-A
Matrix: Solid
Analysis Batch: 320629

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 320400

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury			0.417	0.420		mg/Kg		101	80 - 120		

Method: EPA 9045D - pH

Lab Sample ID: LCS 180-320419/1
Matrix: Solid
Analysis Batch: 320419

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
pH			7.00	7.0		SU		100	99 - 101		

Lab Sample ID: 180-103654-29 DU
Matrix: Solid
Analysis Batch: 320419

Client Sample ID: FSA-TREAT-2 2% TerraBond and 4% TerraBond MG
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	11.1	HF		10.9		SU				2	2

QC Association Summary

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-3

GC/MS Semi VOA

Leach Batch: 320063

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-25	FSA-TREAT-2 10% TerraBond MG	TCLP	Solid	EPA 1311	
180-103654-26	FSA-TREAT-5 10% TerraBond MG	TCLP	Solid	EPA 1311	
180-103654-27	FSA-TREAT-7 10% TerraBond MG	TCLP	Solid	EPA 1311	
180-103654-28	FSA-TREAT-10 10% TerraBond MG	TCLP	Solid	EPA 1311	
180-103654-29	FSA-TREAT-2 2% TerraBond and 4% TerraBond	TCLP	Solid	EPA 1311	
LB 180-320063/1-I	Method Blank	TCLP	Solid	EPA 1311	

Prep Batch: 320355

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-25	FSA-TREAT-2 10% TerraBond MG	Total/NA	Solid	3541	
180-103654-26	FSA-TREAT-5 10% TerraBond MG	Total/NA	Solid	3541	
180-103654-27 - DL	FSA-TREAT-7 10% TerraBond MG	Total/NA	Solid	3541	
180-103654-27	FSA-TREAT-7 10% TerraBond MG	Total/NA	Solid	3541	
180-103654-28	FSA-TREAT-10 10% TerraBond MG	Total/NA	Solid	3541	
180-103654-28 - DL	FSA-TREAT-10 10% TerraBond MG	Total/NA	Solid	3541	
180-103654-29	FSA-TREAT-2 2% TerraBond and 4% TerraBond	Total/NA	Solid	3541	
MB 180-320355/1-A	Method Blank	Total/NA	Solid	3541	
LCS 180-320355/2-A	Lab Control Sample	Total/NA	Solid	3541	
180-103654-25 MS	FSA-TREAT-2 10% TerraBond MG	Total/NA	Solid	3541	
180-103654-25 MSD	FSA-TREAT-2 10% TerraBond MG	Total/NA	Solid	3541	

Analysis Batch: 320498

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-25	FSA-TREAT-2 10% TerraBond MG	Total/NA	Solid	EPA 8270D	320355
180-103654-26	FSA-TREAT-5 10% TerraBond MG	Total/NA	Solid	EPA 8270D	320355
180-103654-27	FSA-TREAT-7 10% TerraBond MG	Total/NA	Solid	EPA 8270D	320355
180-103654-28	FSA-TREAT-10 10% TerraBond MG	Total/NA	Solid	EPA 8270D	320355
180-103654-29	FSA-TREAT-2 2% TerraBond and 4% TerraBond	Total/NA	Solid	EPA 8270D	320355
MB 180-320355/1-A	Method Blank	Total/NA	Solid	EPA 8270D	320355
LCS 180-320355/2-A	Lab Control Sample	Total/NA	Solid	EPA 8270D	320355
180-103654-25 MS	FSA-TREAT-2 10% TerraBond MG	Total/NA	Solid	EPA 8270D	320355
180-103654-25 MSD	FSA-TREAT-2 10% TerraBond MG	Total/NA	Solid	EPA 8270D	320355

Prep Batch: 320559

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-25	FSA-TREAT-2 10% TerraBond MG	TCLP	Solid	3520C	320063
180-103654-26	FSA-TREAT-5 10% TerraBond MG	TCLP	Solid	3520C	320063
180-103654-27	FSA-TREAT-7 10% TerraBond MG	TCLP	Solid	3520C	320063
180-103654-28	FSA-TREAT-10 10% TerraBond MG	TCLP	Solid	3520C	320063
180-103654-29	FSA-TREAT-2 2% TerraBond and 4% TerraBond	TCLP	Solid	3520C	320063
LB 180-320063/1-I	Method Blank	TCLP	Solid	3520C	320063
MB 180-320559/1-A	Method Blank	Total/NA	Solid	3520C	
LCS 180-320559/2-A	Lab Control Sample	Total/NA	Solid	3520C	
LCSD 180-320559/3-A	Lab Control Sample Dup	Total/NA	Solid	3520C	

Analysis Batch: 320703

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-27 - DL	FSA-TREAT-7 10% TerraBond MG	Total/NA	Solid	EPA 8270D	320355
180-103654-28 - DL	FSA-TREAT-10 10% TerraBond MG	Total/NA	Solid	EPA 8270D	320355

QC Association Summary

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-3

GC/MS Semi VOA

Analysis Batch: 321180

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-25	FSA-TREAT-2 10% TerraBond MG	TCLP	Solid	EPA 8270D	320559
180-103654-26	FSA-TREAT-5 10% TerraBond MG	TCLP	Solid	EPA 8270D	320559
180-103654-27	FSA-TREAT-7 10% TerraBond MG	TCLP	Solid	EPA 8270D	320559
180-103654-28	FSA-TREAT-10 10% TerraBond MG	TCLP	Solid	EPA 8270D	320559
180-103654-29	FSA-TREAT-2 2% TerraBond and 4% TerraBond	TCLP	Solid	EPA 8270D	320559
LB 180-320063/1-I	Method Blank	TCLP	Solid	EPA 8270D	320559
MB 180-320559/1-A	Method Blank	Total/NA	Solid	EPA 8270D	320559
LCS 180-320559/2-A	Lab Control Sample	Total/NA	Solid	EPA 8270D	320559
LCSD 180-320559/3-A	Lab Control Sample Dup	Total/NA	Solid	EPA 8270D	320559

GC Semi VOA

Leach Batch: 320063

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-25	FSA-TREAT-2 10% TerraBond MG	TCLP	Solid	EPA 1311	
180-103654-26	FSA-TREAT-5 10% TerraBond MG	TCLP	Solid	EPA 1311	
180-103654-27	FSA-TREAT-7 10% TerraBond MG	TCLP	Solid	EPA 1311	
180-103654-28	FSA-TREAT-10 10% TerraBond MG	TCLP	Solid	EPA 1311	
180-103654-29	FSA-TREAT-2 2% TerraBond and 4% TerraBond	TCLP	Solid	EPA 1311	
LB 180-320063/1-E	Method Blank	TCLP	Solid	EPA 1311	
LB 180-320063/1-F	Method Blank	TCLP	Solid	EPA 1311	

Prep Batch: 320270

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-25	FSA-TREAT-2 10% TerraBond MG	Total/NA	Solid	3541	
180-103654-26	FSA-TREAT-5 10% TerraBond MG	Total/NA	Solid	3541	
180-103654-27	FSA-TREAT-7 10% TerraBond MG	Total/NA	Solid	3541	
180-103654-28	FSA-TREAT-10 10% TerraBond MG	Total/NA	Solid	3541	
180-103654-29	FSA-TREAT-2 2% TerraBond and 4% TerraBond	Total/NA	Solid	3541	
MB 180-320270/1-A	Method Blank	Total/NA	Solid	3541	
MB 180-320270/1-C	Method Blank	Total/NA	Solid	3541	
LCS 180-320270/2-A	Lab Control Sample	Total/NA	Solid	3541	
LCS 180-320270/5-C	Lab Control Sample	Total/NA	Solid	3541	
180-103654-25 MS	FSA-TREAT-2 10% TerraBond MG	Total/NA	Solid	3541	
180-103654-25 MS	FSA-TREAT-2 10% TerraBond MG	Total/NA	Solid	3541	
180-103654-25 MSD	FSA-TREAT-2 10% TerraBond MG	Total/NA	Solid	3541	
180-103654-25 MSD	FSA-TREAT-2 10% TerraBond MG	Total/NA	Solid	3541	

Prep Batch: 320380

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-25	FSA-TREAT-2 10% TerraBond MG	TCLP	Solid	3510C	320063
180-103654-26	FSA-TREAT-5 10% TerraBond MG	TCLP	Solid	3510C	320063
180-103654-27	FSA-TREAT-7 10% TerraBond MG	TCLP	Solid	3510C	320063
180-103654-28	FSA-TREAT-10 10% TerraBond MG	TCLP	Solid	3510C	320063
180-103654-29	FSA-TREAT-2 2% TerraBond and 4% TerraBond	TCLP	Solid	3510C	320063
LB 180-320063/1-E	Method Blank	TCLP	Solid	3510C	320063
MB 180-320380/1-A	Method Blank	Total/NA	Solid	3510C	
LCS 180-320380/2-A	Lab Control Sample	Total/NA	Solid	3510C	
LCSD 180-320380/3-A	Lab Control Sample Dup	Total/NA	Solid	3510C	

QC Association Summary

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-3

GC Semi VOA

Prep Batch: 320381

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-25	FSA-TREAT-2 10% TerraBond MG	TCLP	Solid	3510C	320063
180-103654-26	FSA-TREAT-5 10% TerraBond MG	TCLP	Solid	3510C	320063
180-103654-27	FSA-TREAT-7 10% TerraBond MG	TCLP	Solid	3510C	320063
180-103654-28	FSA-TREAT-10 10% TerraBond MG	TCLP	Solid	3510C	320063
180-103654-29	FSA-TREAT-2 2% TerraBond and 4% TerraBond	TCLP	Solid	3510C	320063
LB 180-320063/1-F	Method Blank	TCLP	Solid	3510C	320063
MB 180-320381/1-A	Method Blank	Total/NA	Solid	3510C	
LCS 180-320381/2-A	Lab Control Sample	Total/NA	Solid	3510C	
LCSD 180-320381/3-A	Lab Control Sample Dup	Total/NA	Solid	3510C	

Cleanup Batch: 320540

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-25	FSA-TREAT-2 10% TerraBond MG	Total/NA	Solid	3665A	320270
180-103654-26	FSA-TREAT-5 10% TerraBond MG	Total/NA	Solid	3665A	320270
180-103654-27	FSA-TREAT-7 10% TerraBond MG	Total/NA	Solid	3665A	320270
180-103654-28	FSA-TREAT-10 10% TerraBond MG	Total/NA	Solid	3665A	320270
180-103654-29	FSA-TREAT-2 2% TerraBond and 4% TerraBond	Total/NA	Solid	3665A	320270
MB 180-320270/1-C	Method Blank	Total/NA	Solid	3665A	320270
LCS 180-320270/5-C	Lab Control Sample	Total/NA	Solid	3665A	320270
180-103654-25 MS	FSA-TREAT-2 10% TerraBond MG	Total/NA	Solid	3665A	320270
180-103654-25 MSD	FSA-TREAT-2 10% TerraBond MG	Total/NA	Solid	3665A	320270

Cleanup Batch: 320541

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-25	FSA-TREAT-2 10% TerraBond MG	Total/NA	Solid	3660B	320540
180-103654-26	FSA-TREAT-5 10% TerraBond MG	Total/NA	Solid	3660B	320540
180-103654-27	FSA-TREAT-7 10% TerraBond MG	Total/NA	Solid	3660B	320540
180-103654-28	FSA-TREAT-10 10% TerraBond MG	Total/NA	Solid	3660B	320540
180-103654-29	FSA-TREAT-2 2% TerraBond and 4% TerraBond	Total/NA	Solid	3660B	320540
MB 180-320270/1-C	Method Blank	Total/NA	Solid	3660B	320540
LCS 180-320270/5-C	Lab Control Sample	Total/NA	Solid	3660B	320540
180-103654-25 MS	FSA-TREAT-2 10% TerraBond MG	Total/NA	Solid	3660B	320540
180-103654-25 MSD	FSA-TREAT-2 10% TerraBond MG	Total/NA	Solid	3660B	320540

Analysis Batch: 320591

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-25	FSA-TREAT-2 10% TerraBond MG	TCLP	Solid	EPA 8081B	320381
180-103654-26	FSA-TREAT-5 10% TerraBond MG	TCLP	Solid	EPA 8081B	320381
180-103654-27	FSA-TREAT-7 10% TerraBond MG	TCLP	Solid	EPA 8081B	320381
180-103654-28	FSA-TREAT-10 10% TerraBond MG	TCLP	Solid	EPA 8081B	320381
180-103654-29	FSA-TREAT-2 2% TerraBond and 4% TerraBond	TCLP	Solid	EPA 8081B	320381
LB 180-320063/1-F	Method Blank	TCLP	Solid	EPA 8081B	320381
MB 180-320381/1-A	Method Blank	Total/NA	Solid	EPA 8081B	320381
LCS 180-320381/2-A	Lab Control Sample	Total/NA	Solid	EPA 8081B	320381
LCSD 180-320381/3-A	Lab Control Sample Dup	Total/NA	Solid	EPA 8081B	320381

Analysis Batch: 320641

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-26	FSA-TREAT-5 10% TerraBond MG	Total/NA	Solid	EPA 8082A	320541
MB 180-320270/1-C	Method Blank	Total/NA	Solid	EPA 8082A	320541
LCS 180-320270/5-C	Lab Control Sample	Total/NA	Solid	EPA 8082A	320541

QC Association Summary

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-3

GC Semi VOA

Analysis Batch: 320695

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-25	FSA-TREAT-2 10% TerraBond MG	Total/NA	Solid	EPA 8081B	320270
180-103654-26	FSA-TREAT-5 10% TerraBond MG	Total/NA	Solid	EPA 8081B	320270
180-103654-27	FSA-TREAT-7 10% TerraBond MG	Total/NA	Solid	EPA 8081B	320270
180-103654-28	FSA-TREAT-10 10% TerraBond MG	Total/NA	Solid	EPA 8081B	320270
180-103654-29	FSA-TREAT-2 2% TerraBond and 4% TerraBond	Total/NA	Solid	EPA 8081B	320270
MB 180-320270/1-A	Method Blank	Total/NA	Solid	EPA 8081B	320270
LCS 180-320270/2-A	Lab Control Sample	Total/NA	Solid	EPA 8081B	320270
180-103654-25 MS	FSA-TREAT-2 10% TerraBond MG	Total/NA	Solid	EPA 8081B	320270
180-103654-25 MSD	FSA-TREAT-2 10% TerraBond MG	Total/NA	Solid	EPA 8081B	320270

Analysis Batch: 320696

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-25	FSA-TREAT-2 10% TerraBond MG	TCLP	Solid	EPA 8082A	320380
180-103654-26	FSA-TREAT-5 10% TerraBond MG	TCLP	Solid	EPA 8082A	320380
180-103654-27	FSA-TREAT-7 10% TerraBond MG	TCLP	Solid	EPA 8082A	320380
180-103654-28	FSA-TREAT-10 10% TerraBond MG	TCLP	Solid	EPA 8082A	320380
180-103654-29	FSA-TREAT-2 2% TerraBond and 4% TerraBond	TCLP	Solid	EPA 8082A	320380
LB 180-320063/1-E	Method Blank	TCLP	Solid	EPA 8082A	320380
MB 180-320380/1-A	Method Blank	Total/NA	Solid	EPA 8082A	320380
LCS 180-320380/2-A	Lab Control Sample	Total/NA	Solid	EPA 8082A	320380
LCSD 180-320380/3-A	Lab Control Sample Dup	Total/NA	Solid	EPA 8082A	320380

Analysis Batch: 320792

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-25	FSA-TREAT-2 10% TerraBond MG	Total/NA	Solid	EPA 8082A	320541
180-103654-27	FSA-TREAT-7 10% TerraBond MG	Total/NA	Solid	EPA 8082A	320541
180-103654-28	FSA-TREAT-10 10% TerraBond MG	Total/NA	Solid	EPA 8082A	320541
180-103654-29	FSA-TREAT-2 2% TerraBond and 4% TerraBond	Total/NA	Solid	EPA 8082A	320541
180-103654-25 MS	FSA-TREAT-2 10% TerraBond MG	Total/NA	Solid	EPA 8082A	320541
180-103654-25 MSD	FSA-TREAT-2 10% TerraBond MG	Total/NA	Solid	EPA 8082A	320541

Metals

Leach Batch: 320063

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-25	FSA-TREAT-2 10% TerraBond MG	TCLP	Solid	EPA 1311	
180-103654-26	FSA-TREAT-5 10% TerraBond MG	TCLP	Solid	EPA 1311	
180-103654-27	FSA-TREAT-7 10% TerraBond MG	TCLP	Solid	EPA 1311	
180-103654-28	FSA-TREAT-10 10% TerraBond MG	TCLP	Solid	EPA 1311	
180-103654-29	FSA-TREAT-2 2% TerraBond and 4% TerraBond	TCLP	Solid	EPA 1311	
LB 180-320063/1-B	Method Blank	TCLP	Solid	EPA 1311	
LB 180-320063/1-C	Method Blank	TCLP	Solid	EPA 1311	

Prep Batch: 320251

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-25	FSA-TREAT-2 10% TerraBond MG	Total/NA	Solid	3050B	
180-103654-26	FSA-TREAT-5 10% TerraBond MG	Total/NA	Solid	3050B	
180-103654-27	FSA-TREAT-7 10% TerraBond MG	Total/NA	Solid	3050B	
180-103654-28	FSA-TREAT-10 10% TerraBond MG	Total/NA	Solid	3050B	
180-103654-29	FSA-TREAT-2 2% TerraBond and 4% TerraBond	Total/NA	Solid	3050B	
MB 180-320251/1-A	Method Blank	Total/NA	Solid	3050B	

Metals (Continued)

Prep Batch: 320251 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 180-320251/2-A	Lab Control Sample	Total/NA	Solid	3050B	

Prep Batch: 320267

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-25	FSA-TREAT-2 10% TerraBond MG	TCLP	Solid	7470A	320063
180-103654-26	FSA-TREAT-5 10% TerraBond MG	TCLP	Solid	7470A	320063
180-103654-27	FSA-TREAT-7 10% TerraBond MG	TCLP	Solid	7470A	320063
180-103654-28	FSA-TREAT-10 10% TerraBond MG	TCLP	Solid	7470A	320063
180-103654-29	FSA-TREAT-2 2% TerraBond and 4% TerraBond	TCLP	Solid	7470A	320063
LB 180-320063/1-B	Method Blank	TCLP	Solid	7470A	320063
MB 180-320267/1-A	Method Blank	Total/NA	Solid	7470A	
LCS 180-320267/2-A	Lab Control Sample	Total/NA	Solid	7470A	

Prep Batch: 320335

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-25	FSA-TREAT-2 10% TerraBond MG	TCLP	Solid	3010A	320063
180-103654-26	FSA-TREAT-5 10% TerraBond MG	TCLP	Solid	3010A	320063
180-103654-27	FSA-TREAT-7 10% TerraBond MG	TCLP	Solid	3010A	320063
180-103654-28	FSA-TREAT-10 10% TerraBond MG	TCLP	Solid	3010A	320063
180-103654-29	FSA-TREAT-2 2% TerraBond and 4% TerraBond	TCLP	Solid	3010A	320063
LB 180-320063/1-C	Method Blank	TCLP	Solid	3010A	320063
MB 180-320335/1-A	Method Blank	Total/NA	Solid	3010A	
LCS 180-320335/2-A	Lab Control Sample	Total/NA	Solid	3010A	

Prep Batch: 320400

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-25	FSA-TREAT-2 10% TerraBond MG	Total/NA	Solid	7471B	
180-103654-26	FSA-TREAT-5 10% TerraBond MG	Total/NA	Solid	7471B	
180-103654-27	FSA-TREAT-7 10% TerraBond MG	Total/NA	Solid	7471B	
180-103654-28	FSA-TREAT-10 10% TerraBond MG	Total/NA	Solid	7471B	
180-103654-29	FSA-TREAT-2 2% TerraBond and 4% TerraBond	Total/NA	Solid	7471B	
MB 180-320400/1-A	Method Blank	Total/NA	Solid	7471B	
LCS 180-320400/2-A	Lab Control Sample	Total/NA	Solid	7471B	

Analysis Batch: 320417

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-25	FSA-TREAT-2 10% TerraBond MG	TCLP	Solid	EPA 7470A	320267
180-103654-26	FSA-TREAT-5 10% TerraBond MG	TCLP	Solid	EPA 7470A	320267
180-103654-27	FSA-TREAT-7 10% TerraBond MG	TCLP	Solid	EPA 7470A	320267
180-103654-28	FSA-TREAT-10 10% TerraBond MG	TCLP	Solid	EPA 7470A	320267
180-103654-29	FSA-TREAT-2 2% TerraBond and 4% TerraBond	TCLP	Solid	EPA 7470A	320267
LB 180-320063/1-B	Method Blank	TCLP	Solid	EPA 7470A	320267
MB 180-320267/1-A	Method Blank	Total/NA	Solid	EPA 7470A	320267
LCS 180-320267/2-A	Lab Control Sample	Total/NA	Solid	EPA 7470A	320267

Analysis Batch: 320629

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-25	FSA-TREAT-2 10% TerraBond MG	Total/NA	Solid	EPA 7471B	320400
180-103654-26	FSA-TREAT-5 10% TerraBond MG	Total/NA	Solid	EPA 7471B	320400
180-103654-27	FSA-TREAT-7 10% TerraBond MG	Total/NA	Solid	EPA 7471B	320400
180-103654-28	FSA-TREAT-10 10% TerraBond MG	Total/NA	Solid	EPA 7471B	320400

Metals (Continued)

Analysis Batch: 320629 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-29	FSA-TREAT-2 2% TerraBond and 4% TerraBond	Total/NA	Solid	EPA 7471B	320400
MB 180-320400/1-A	Method Blank	Total/NA	Solid	EPA 7471B	320400
LCS 180-320400/2-A	Lab Control Sample	Total/NA	Solid	EPA 7471B	320400

Analysis Batch: 320636

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-25	FSA-TREAT-2 10% TerraBond MG	TCLP	Solid	EPA 6010D	320335
180-103654-26	FSA-TREAT-5 10% TerraBond MG	TCLP	Solid	EPA 6010D	320335
180-103654-27	FSA-TREAT-7 10% TerraBond MG	TCLP	Solid	EPA 6010D	320335
180-103654-28	FSA-TREAT-10 10% TerraBond MG	TCLP	Solid	EPA 6010D	320335
180-103654-29	FSA-TREAT-2 2% TerraBond and 4% TerraBond	TCLP	Solid	EPA 6010D	320335
LB 180-320063/1-C	Method Blank	TCLP	Solid	EPA 6010D	320335
MB 180-320335/1-A	Method Blank	Total/NA	Solid	EPA 6010D	320335
LCS 180-320335/2-A	Lab Control Sample	Total/NA	Solid	EPA 6010D	320335

Analysis Batch: 321088

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-25	FSA-TREAT-2 10% TerraBond MG	Total/NA	Solid	EPA 6020B	320251
180-103654-26	FSA-TREAT-5 10% TerraBond MG	Total/NA	Solid	EPA 6020B	320251
180-103654-27	FSA-TREAT-7 10% TerraBond MG	Total/NA	Solid	EPA 6020B	320251
180-103654-28	FSA-TREAT-10 10% TerraBond MG	Total/NA	Solid	EPA 6020B	320251
180-103654-29	FSA-TREAT-2 2% TerraBond and 4% TerraBond	Total/NA	Solid	EPA 6020B	320251
MB 180-320251/1-A	Method Blank	Total/NA	Solid	EPA 6020B	320251
LCS 180-320251/2-A	Lab Control Sample	Total/NA	Solid	EPA 6020B	320251

General Chemistry

Analysis Batch: 320026

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-25	FSA-TREAT-2 10% TerraBond MG	Total/NA	Solid	2540G	
180-103654-26	FSA-TREAT-5 10% TerraBond MG	Total/NA	Solid	2540G	
180-103654-27	FSA-TREAT-7 10% TerraBond MG	Total/NA	Solid	2540G	
180-103654-28	FSA-TREAT-10 10% TerraBond MG	Total/NA	Solid	2540G	
180-103654-29	FSA-TREAT-2 2% TerraBond and 4% TerraBond	Total/NA	Solid	2540G	

Analysis Batch: 320419

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-25	FSA-TREAT-2 10% TerraBond MG	Total/NA	Solid	EPA 9045D	
180-103654-26	FSA-TREAT-5 10% TerraBond MG	Total/NA	Solid	EPA 9045D	
180-103654-27	FSA-TREAT-7 10% TerraBond MG	Total/NA	Solid	EPA 9045D	
180-103654-28	FSA-TREAT-10 10% TerraBond MG	Total/NA	Solid	EPA 9045D	
180-103654-29	FSA-TREAT-2 2% TerraBond and 4% TerraBond	Total/NA	Solid	EPA 9045D	
LCS 180-320419/1	Lab Control Sample	Total/NA	Solid	EPA 9045D	
180-103654-29 DU	FSA-TREAT-2 2% TerraBond and 4% TerraBond	Total/NA	Solid	EPA 9045D	

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

Chain of Custody Record

eurofins Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☑ Other: **New Hampshire DES**

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Client Contact		**Project Manager:** Thad Slaughter	**Site Contact:** Ray Johnson	**Date:** 3/13/2020	COC No: 1
Company Name	ENTACT	**Tel/Fax:** 214-415-2975	**Lab Contact:**	**Carrier:**	1 of 10 COCs
Address	1 East Oak Hill Drive, Suite 102	**Analysis Turnaround Time**			Sampler:
City/State/Zip	Westmont, IL 60559	☑ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only:**
Phone	214-415-2975	TAT if different from Below _____			Walk-in Client:
FAX		☑ 2 weeks			Lab Sampling:
Project Name:	NEMR of Madbury, NH	☐ 1 week			
Site:	290 Knox Marsh Rd. Madbury, NH	☐ 2 days			Job / SDG No.:
P O #	143-145286-18001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Bis(2-ethylhexyl) phthalate	Di-n-octyl phthalate	3-Methyphenol	PCBs	p, p'-DDT	Corrosivity of a solid	*PAHs	Antimony, Arsenic, Barium,	Beryllium, Cadmium, Chromium,	Lead, Mercury, Nickel, Silver,	Thallium	Sample Specific Notes:
FSA-Treat-1	3/11/2020	0900	C	**ASR	1	N	Y	X	X	X	X	X	X	X	X	X	X	X	*PAHs: anthracene,
																			benzo(a)anthracene, benzo(a)pyrene,
																			benzo(b)fluoranthene,
																			benzo(g,h,i)perylene, chrysene,
																			fluoranthene, indeno(1,2,3-cd)pyrene
																			phenanthrene, and pyrene
																			** processed automotive shredder
																			residue

180-103654 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments: For each analyte, total and TCLP analysis is needed for unstabilized and stabilized samples. If there are any questions please contact Ray Johnson of Tetra Tech at 508-786-2356 or ray.johnson@tetratech.com. Please note, the sample material is a characteristic hazardous waste because of TCLP lead.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ | Therm ID No.:_____

Relinquished by:	Company: TetraTech	Date/Time: 3/13/20 1147	Received by:	Company: TTL	Date/Time: 3/13/20 1147
Relinquished by:	Company: TTL	Date/Time: 3/16/20 1700	Received by:	Company: Bonnie	Date/Time: 3/17/20 900
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.21, dated 4/4/2019

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

Chain of Custody Record

eurofins Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☑ Other: **New Hampshire DES** **TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica**

Client Contact		Project Manager: Thad Slaughter	Site Contact: Ray Johnson	Date: 3/13/2020	COC No: 2
Company Name	ENTACT	Tel/Fax: 214-415-2975	Lab Contact:	Carrier:	2 of 10 COCs
Address	1 East Oak Hill Drive, Suite 102	Analysis Turnaround Time			Sampler:
City/State/Zip	Westmont, IL 60559	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone	214-415-2975	TAT if different from Below _____			Walk-in Client:
FAX		☑ 2 weeks			Lab Sampling:
Project Name:	NEMR of Madbury, NH	☐ 1 week			
Site:	290 Knox Marsh Rd. Madbury, NH	☐ 2 days			Job / SDG No.:
P O #	143-145286-18001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Bis(2-ethylhexyl) phthalate	Di-n-octyl phthalate	3-Methyphenol	PCBs	p, p'-DDT	Corrosivity of a solid	*PAHs	Antimony, Arsenic, Barium,	Beryllium, Cadmium, Chromium,	Lead, Mercury, Nickel, Silver,	Thallium	Sample Specific Notes:
FSA-Treat-2	3/11/2020	0920	C	**ASR	1	N	N	X	X	X	X	X	X	X	X	X	X	X	*PAHs: anthracene,
																			benzo(a)anthracene, benzo(a)pyrene,
																			benzo(b)fluoranthene,
																			benzo(g,h,i)perylene, chrysene,
																			fluoranthene, indeno(1,2,3-cd)pyrene
																			phenanthrene, and pyrene
																			** processed automotive shredder
																			residue

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments: For each analyte, total and TCLP analysis is needed for unstabilized and stabilized samples. If there are any questions please contact Ray Johnson of Tetra Tech at 508-786-2356 or ray.johnson@tetratech.com. Please note, the sample material is a characteristic hazardous waste because of TCLP lead.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company: Tetra Tech	Date/Time: 3/13/20 1147	Received by:	Company: TAL	Date/Time: 3/13/20 1147
Relinquished by:	Company: TAL	Date/Time: 3/11/20 1700	Received by:	Company: Eurofins	Date/Time: 3/11/20 1700
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.21, dated 4/4/2019

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

Chain of Custody Record

eurofins Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☑ Other: **New Hampshire DES**

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Client Contact		Project Manager: Thad Slaughter	Site Contact: Ray Johnson	Date: 3/13/2020	COC No: 3
Company Name	ENTACT	Tel/Fax: 214-415-2975	Lab Contact:	Carrier:	3 of 10 COCs
Address	1 East Oak Hill Drive, Suite 102	Analysis Turnaround Time			Sampler:
City/State/Zip	Westmont, IL 60559	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone	214-415-2975	TAT if different from Below _____			Walk-in Client:
FAX		☑ 2 weeks			Lab Sampling:
Project Name:	NEMR of Madbury, NH	☐ 1 week			
Site:	290 Knox Marsh Rd. Madbury, NH	☐ 2 days			Job / SDG No.:
P O #	143-145286-18001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Bis(2-ethylhexyl) phthalate	Di-n-octyl phthalate	3-Methyphenol	PCBs	p, p'-DDT	Corrosivity of a solid	*PAHs	Antimony, Arsenic, Barium,	Beryllium, Cadmium, Chromium,	Lead, Mercury, Nickel, Silver,	Thallium	Sample Specific Notes:
FSA-Treat-3	3/11/2020	0940	C	**ASR	1	N	N	X	X	X	X	X	X	X	X	X	X	X	*PAHs: anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene phenanthrene, and pyrene ** processed automotive shredder residue

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments: For each analyte, total and TCLP analysis is needed for unstabilized and stabilized samples. If there are any questions please contact Ray Johnson of Tetra Tech at 508-786-2356 or ray.johnson@tetratech.com. Please note, the sample material is a characteristic hazardous waste because of TCLP lead.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company: Tetra Tech	Date/Time: 3/13/20 1147	Received by:	Company: TTL	Date/Time: 3/13/20 1147
Relinquished by:	Company: TTL	Date/Time: 3/13/20 1700	Received by:	Company: Bonpak	Date/Time: 3/13/20 1700
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.21, dated 4/4/2019

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

Chain of Custody Record

eurofins Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☑ Other: **New Hampshire DES** **TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica**

Client Contact		Project Manager: Thad Slaughter	Site Contact: Ray Johnson	Date: 3/13/2020	COC No: 4
Company Name	ENTACT	Tel/Fax: 214-415-2975	Lab Contact:	Carrier:	4 of 10 COCs
Address	1 East Oak Hill Drive, Suite 102	Analysis Turnaround Time			Sampler:
City/State/Zip	Westmont, IL 60559	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone	214-415-2975	TAT if different from Below _____			Walk-in Client:
FAX		☑ 2 weeks			Lab Sampling:
Project Name:	NEMR of Madbury, NH	☐ 1 week			
Site:	290 Knox Marsh Rd. Madbury, NH	☐ 2 days			Job / SDG No.:
P O #	143-145286-18001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Bis(2-ethylhexyl) phthalate	Di-n-octyl phthalate	3-Methyphenol	PCBs	p, p'-DDT	Corrosivity of a solid	*PAHs	Antimony, Arsenic, Barium,	Beryllium, Cadmium, Chromium,	Lead, Mercury, Nickel, Silver,	Thallium	Sample Specific Notes:
FSA-Treat-4	3/11/2020	1000	C	**ASR	1	N	Y	X	X	X	X	X	X	X	X	X	X	X	*PAHs: anthracene,
																			benzo(a)anthracene, benzo(a)pyrene,
																			benzo(b)fluoranthene,
																			benzo(g,h,i)perylene, chrysene,
																			fluoranthene, indeno(1,2,3-cd)pyrene
																			phenanthrene, and pyrene
																			** processed automotive shredder
																			residue

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments: For each analyte, total and TCLP analysis is needed for unstabilized and stabilized samples. If there are any questions please contact Ray Johnson of Tetra Tech at 508-786-2356 or ray.johnson@tetratech.com. Please note, the sample material is a characteristic hazardous waste because of TCLP lead.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company: Tetra Tech	Date/Time: 3/13/20 1147	Received by:	Company: TT	Date/Time: 3/13/20 1147
Relinquished by:	Company: TT	Date/Time: 3/13/20 1707	Received by:	Company: Eurofins	Date/Time: 3/13/20 1707
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.21, dated 4/4/2019

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

Chain of Custody Record

eurofins Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☑ Other: **New Hampshire DES** **TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica**

Client Contact		Project Manager: Thad Slaughter	Site Contact: Ray Johnson	Date: 3/13/2020	COC No: 5
Company Name	ENTACT	Tel/Fax: 214-415-2975	Lab Contact:	Carrier:	5 of 10 COCs
Address	1 East Oak Hill Drive, Suite 102	Analysis Turnaround Time			Sampler:
City/State/Zip	Westmont, IL 60559	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone	214-415-2975	TAT if different from Below _____			Walk-in Client:
FAX		☑ 2 weeks			Lab Sampling:
Project Name:	NEMR of Madbury, NH	☐ 1 week			
Site:	290 Knox Marsh Rd. Madbury, NH	☐ 2 days			Job / SDG No.:
P O #	143-145286-18001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Bis(2-ethylhexyl) phthalate	Di-n-octyl phthalate	3-Methyphenol	PCBs	p, p'-DDT	Corrosivity of a solid	*PAHs	Antimony, Arsenic, Barium,	Beryllium, Cadmium, Chromium,	Lead, Mercury, Nickel, Silver,	Thallium	Sample Specific Notes:
FSA-Treat-5	3/11/2020	1030	C	**ASR	1	N	N	X	X	X	X	X	X	X	X	X	X	X	*PAHs: anthracene,
																			benzo(a)anthracene, benzo(a)pyrene,
																			benzo(b)fluoranthene,
																			benzo(g,h,i)perylene, chrysene,
																			fluoranthene, indeno(1,2,3-cd)pyrene
																			phenanthrene, and pyrene
																			** processed automotive shredder
																			residue

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments: For each analyte, total and TCLP analysis is needed for unstabilized and stabilized samples. If there are any questions please contact Ray Johnson of Tetra Tech at 508-786-2356 or ray.johnson@tetratech.com. Please note, the sample material is a characteristic hazardous waste because of TCLP lead.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company: Tetra Tech	Date/Time: 3/13/20 1147	Received by:	Company: TTI	Date/Time: 3/13/20 1147
Relinquished by:	Company: TTI	Date/Time: 3/17/20 1700	Received by:	Company: Eurofins	Date/Time: 3/17/20 900
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.21, dated 4/4/2019

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

Chain of Custody Record

eurofins Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☑ Other: **New Hampshire DES** **TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica**

Client Contact		Project Manager: Thad Slaughter	Site Contact: Ray Johnson	Date: 3/13/2020	COC No: 6
Company Name	ENTACT	Tel/Fax: 214-415-2975	Lab Contact:	Carrier:	6 of 10 COCs
Address	1 East Oak Hill Drive, Suite 102	Analysis Turnaround Time			Sampler:
City/State/Zip	Westmont, IL 60559	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone	214-415-2975	TAT if different from Below _____			Walk-in Client:
FAX		☑ 2 weeks			Lab Sampling:
Project Name:	NEMR of Madbury, NH	☐ 1 week			
Site:	290 Knox Marsh Rd. Madbury, NH	☐ 2 days			Job / SDG No.:
P O #	143-145286-18001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Bis(2-ethylhexyl) phthalate	Di-n-octyl phthalate	3-Methyphenol	PCBs	p, p'-DDT	Corrosivity of a solid	*PAHs	Antimony, Arsenic, Barium,	Beryllium, Cadmium, Chromium,	Lead, Mercury, Nickel, Silver,	Thallium	Sample Specific Notes:
FSA-Treat-6	3/11/2020	1100	C	**ASR	1	N	N	X	X	X	X	X	X	X	X	X	X	X	*PAHs: anthracene,
																			benzo(a)anthracene, benzo(a)pyrene,
																			benzo(b)fluoranthene,
																			benzo(g,h,i)perylene, chrysene,
																			fluoranthene, indeno(1,2,3-cd)pyrene
																			phenanthrene, and pyrene
																			** processed automotive shredder
																			residue

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments: For each analyte, total and TCLP analysis is needed for unstabilized and stabilized samples. If there are any questions please contact Ray Johnson of Tetra Tech at 508-786-2356 or ray.johnson@tetratech.com. Please note, the sample material is a characteristic hazardous waste because of TCLP lead.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ | Therm ID No.:_____

Relinquished by:	Company: Tetra Tech	Date/Time: 3/13/20 1145	Received by:	Company: TTL	Date/Time: 3/13/20 1147
Relinquished by:	Company: TTL	Date/Time: 3/16/20 1700	Received by:	Company: Eurofins	Date/Time: 3/17/20 900
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.21, dated 4/4/2019

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

Chain of Custody Record

eurofins Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☑ Other: **New Hampshire DES** **TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica**

Client Contact		Project Manager: Thad Slaughter	Site Contact: Ray Johnson	Date: 3/13/2020	COC No: 7
Company Name	ENTACT	Tel/Fax: 214-415-2975	Lab Contact:	Carrier:	7 of 10 COCs
Address	1 East Oak Hill Drive, Suite 102	Analysis Turnaround Time			Sampler:
City/State/Zip	Westmont, IL 60559	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone	214-415-2975	TAT if different from Below _____			Walk-in Client:
FAX		☑ 2 weeks			Lab Sampling:
Project Name:	NEMR of Madbury, NH	☐ 1 week			
Site:	290 Knox Marsh Rd. Madbury, NH	☐ 2 days			Job / SDG No.:
P O #	143-145286-18001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Bis(2-ethylhexyl) phthalate	Di-n-octyl phthalate	3-Methyphenol	PCBs	p, p'-DDT	Corrosivity of a solid	*PAHs	Antimony, Arsenic, Barium,	Beryllium, Cadmium, Chromium,	Lead, Mercury, Nickel, Silver,	Thallium	Sample Specific Notes:
FSA-Treat-7	3/11/2020	1120	C	**ASR	1	N	N	X	X	X	X	X	X	X	X	X	X	X	*PAHs: anthracene,
																			benzo(a)anthracene, benzo(a)pyrene,
																			benzo(b)fluoranthene,
																			benzo(g,h,i)perylene, chrysene,
																			fluoranthene, indeno(1,2,3-cd)pyrene
																			phenanthrene, and pyrene
																			** processed automotive shredder
																			residue

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments: For each analyte, total and TCLP analysis is needed for unstabilized and stabilized samples. If there are any questions please contact Ray Johnson of Tetra Tech at 508-786-2356 or ray.johnson@tetratech.com. Please note, the sample material is a characteristic hazardous waste because of TCLP lead.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	Tetra Tech	3/13/20 1147		TTR	3/13/20 1147
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	TTR	3/14/20 1707		Eurofins	3/17/20 900
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.21, dated 4/4/2019

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

Chain of Custody Record

eurofins Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☑ Other: **New Hampshire DES** **TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica**

Client Contact		Project Manager: Thad Slaughter	Site Contact: Ray Johnson	Date: 3/13/2020	COC No: 8
Company Name	ENTACT	Tel/Fax: 214-415-2975	Lab Contact:	Carrier:	8 of 10 COCs
Address	1 East Oak Hill Drive, Suite 102	Analysis Turnaround Time			Sampler:
City/State/Zip	Westmont, IL 60559	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone	214-415-2975	TAT if different from Below _____			Walk-in Client:
FAX		☑ 2 weeks			Lab Sampling:
Project Name:	NEMR of Madbury, NH	☐ 1 week			
Site:	290 Knox Marsh Rd. Madbury, NH	☐ 2 days			Job / SDG No.:
P O #	143-145286-18001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Bis(2-ethylhexyl) phthalate	Di-n-octyl phthalate	3-Methyphenol	PCBs	p, p'-DDT	Corrosivity of a solid	*PAHs	Antimony, Arsenic, Barium,	Beryllium, Cadmium, Chromium,	Lead, Mercury, Nickel, Silver,	Thallium	Sample Specific Notes:
FSA-Treat-8	3/11/2020	1145	C	**ASR	1	N	N	X	X	X	X	X	X	X	X	X	X	X	*PAHs: anthracene,
																			benzo(a)anthracene, benzo(a)pyrene,
																			benzo(b)fluoranthene,
																			benzo(g,h,i)perylene, chrysene,
																			fluoranthene, indeno(1,2,3-cd)pyrene
																			phenanthrene, and pyrene
																			** processed automotive shredder
																			residue

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments: For each analyte, total and TCLP analysis is needed for unstabilized and stabilized samples. If there are any questions please contact Ray Johnson of Tetra Tech at 508-786-2356 or ray.johnson@tetratech.com. Please note, the sample material is a characteristic hazardous waste because of TCLP lead.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company: Tetra Tech	Date/Time: 3/13/20 1147	Received by:	Company: TT	Date/Time: 3/13/20 1147
Relinquished by:	Company: TT	Date/Time: 3/11/20 1700	Received by:	Company: Bonnie	Date/Time: 3/11/20 900 E
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.21, dated 4/4/2019

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

Chain of Custody Record

eurofins Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☑ Other: **New Hampshire DES** **TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica**

Client Contact		Project Manager: Thad Slaughter	Site Contact: Ray Johnson	Date: 3/13/2020	COC No: 9
Company Name	ENTACT	Tel/Fax: 214-415-2975	Lab Contact:	Carrier:	9 of 10 COCs
Address	1 East Oak Hill Drive, Suite 102	Analysis Turnaround Time			Sampler:
City/State/Zip	Westmont, IL 60559	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone	214-415-2975	TAT if different from Below _____			Walk-in Client:
FAX		☑ 2 weeks			Lab Sampling:
Project Name:	NEMR of Madbury, NH	☐ 1 week			
Site:	290 Knox Marsh Rd. Madbury, NH	☐ 2 days			Job / SDG No.:
P O #	143-145286-18001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Bis(2-ethylhexyl) phthalate	Di-n-octyl phthalate	3-Methyphenol	PCBs	p, p'-DDT	Corrosivity of a solid	*PAHs	Antimony, Arsenic, Barium,	Beryllium, Cadmium, Chromium,	Lead, Mercury, Nickel, Silver,	Thallium	Sample Specific Notes:
FSA-Treat-9	3/11/2020	1210	C	**ASR	1	N	N	X	X	X	X	X	X	X	X	X	X	X	*PAHs: anthracene,
																			benzo(a)anthracene, benzo(a)pyrene,
																			benzo(b)fluoranthene,
																			benzo(g,h,i)perylene, chrysene,
																			fluoranthene, indeno(1,2,3-cd)pyrene
																			phenanthrene, and pyrene
																			** processed automotive shredder
																			residue

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments: For each analyte, total and TCLP analysis is needed for unstabilized and stabilized samples. If there are any questions please contact Ray Johnson of Tetra Tech at 508-786-2356 or ray.johnson@tetratech.com. Please note, the sample material is a characteristic hazardous waste because of TCLP lead.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company: Tetra Tech	Date/Time: 3/13/20 1147	Received by:	Company:	Date/Time: 3/13/20 1147
Relinquished by:	Company:	Date/Time: 3/11/20 1200	Received by:	Company:	Date/Time: 3/12/20 9:20
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.21, dated 4/4/2019

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

Chain of Custody Record

eurofins Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☑ Other: **New Hampshire DES** **TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica**

Client Contact		Project Manager: Thad Slaughter	Site Contact: Ray Johnson	Date: 3/13/2020	COC No: 10
Company Name	ENTACT	Tel/Fax: 214-415-2975	Lab Contact:	Carrier:	10 of 10 COCs
Address	1 East Oak Hill Drive, Suite 102	Analysis Turnaround Time			Sampler:
City/State/Zip	Westmont, IL 60559	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone	214-415-2975	TAT if different from Below _____			Walk-in Client:
FAX		☑ 2 weeks			Lab Sampling:
Project Name:	NEMR of Madbury, NH	☐ 1 week			
Site:	290 Knox Marsh Rd. Madbury, NH	☐ 2 days			Job / SDG No.:
P O #	143-145286-18001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Bis(2-ethylhexyl) phthalate	Di-n-octyl phthalate	3-Methyphenol	PCBs	p, p'-DDT	Corrosivity of a solid	*PAHs	Antimony, Arsenic, Barium,	Beryllium, Cadmium, Chromium,	Lead, Mercury, Nickel, Silver,	Thallium	Sample Specific Notes:
FSA-Treat-10	3/11/2020	1230	C	**ASR	1	N	N	X	X	X	X	X	X	X	X	X	X	X	*PAHs: anthracene,
																			benzo(a)anthracene, benzo(a)pyrene,
																			benzo(b)fluoranthene,
																			benzo(g,h,i)perylene, chrysene,
																			fluoranthene, indeno(1,2,3-cd)pyrene
																			phenanthrene, and pyrene
																			** processed automotive shredder
																			residue

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments: For each analyte, total and TCLP analysis is needed for unstabilized and stabilized samples. If there are any questions please contact Ray Johnson of Tetra Tech at 508-786-2356 or ray.johnson@tetratech.com. Please note, the sample material is a characteristic hazardous waste because of TCLP lead.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company: Tetra Tech	Date/Time: 3/13/20 1147	Received by:	Company: TAL	Date/Time: 3/13/20 1147
Relinquished by:	Company: TAL	Date/Time: 3/14/20 1200	Received by:	Company: Bonded	Date/Time: 3/17/20 9:20
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.21, dated 4/4/2019

TestAme

THE LEADER IN ENVIRONM

ORIGIN ID:EHTA (413) 572-4000
SHIPPING DEPT
TESTAMERICA WESTFIELD
501 SOUTHAMPTON RD
SUITE C
WESTFIELD, MA 010851592
UNITED STATES US

SH
AC
CA
BI

TO SAMPLE RECEIVING
TESTAMERICA PITTSBURGH
301 ALPHA DRIVE

PITTSBURGH PA 15238
(412) 963-7058
INV:
PO:
REF:
DEPT:

1 of 10
TRK# 0201 1095 8110 2345
MASTER

TUE -
PRIOR

NA AGCA

PA-US

152
PIT

Uncorrected temp 18.6 °C
Thermometer ID 17
no ice
CF 0 Initials MJ

PT-WI-SR-001 effective 11/8/18

180-103654 Waybill

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ORIGIN ID:EHTA (413) 572-4000
SHIPPING DEPT
TESTAMERICA WESTFIELD
501 SOUTHAMPTON RD
SUITE C
WESTFIELD, MA 010851592
UNITED STATES US

SHIP DATE: 16MAR20
ACTWGT: 34.65 LB
CAD: 108917564/CAFE3311

BILL RECIPIENT

TO SAMPLE RECEIVING
TESTAMERICA PITTSBURGH
301 ALPHA DRIVE

PITTSBURGH PA 15238
(412) 963-7058 REF:
INV:
PO: DEPT:

FedEx Express

2 of 10
MPS# 0263 1095 8110 2356
Mstr# 1095 8110 2345 0201

TUE - 17 MAR 10:30
PRIORITY OVERNIGH

NA AGCA

15238
PA-US PIT

Uncorrected temp 18.6 °C
Thermometer ID 17
CF 0 No ice
Initials

PT-WI-SR-001 effective 11/8/18

STATES

TO SAMPLE RE
TESTAMERICA
301 ALPHA DRI

PITTSBURGH PA 15238

(412) 963-7058 REF:

INV: PO: DEPT:

FedEx Express

E

3 of 10

MPS# 0263 1095 8110 2367

Mstr# 1095 8110 2345 0201

TUE - 17 MAR 10:30
PRIORITY OVERNIGH

1523
PA-US PI

NA AGCA

Uncorrected temp 19.4 °C
Thermometer ID 17
CF 0 No ice Initials

PT-WI-SR-001 effective 11/8/18

4 of 10

MPS# 0263 1095 8110 2378

Mstr# 1095 8110 2345

0201

TUE – 17 MAR 10:30A
PRIORITY OVERNIGHT

NA AGCA

15238
PA-US PIT

Uncorrected temp 16.8 °C
Thermometer ID 17

CF 0 Initials JB

PT-WI-SR-001 effective 11/8/18

J19121

5 of 10

MPS# 0263 1095 8110 2389

Mstr# 1095 8110 2345 0201

TUE – 17 MAR 10:30A
PRIORITY OVERNIGHT

NA AGCA

15238
PA-US PIT

Uncorrected temp 17.6 °C
Thermometer ID 17
CF -0 no ice
Initials MY

PT-WI-SR-001 effective 11/8/18

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Part 159469-434 RIT EXP 07/20

ORIGIN ID:EHTA (413) 572-4000
SHIPPING DEPT
TESTAMERICA WESTFIELD
501 SOUTHAMPTON RD
SUITE C
WESTFIELD, MA 010851592
UNITED STATES US

SHIP DATE: 16MAR20
ACTWGT: 40.60 LB
CAD: 108917564/CAFE3311

BILL RECIPIENT

TO SAMPLE RECEIVING
TESTAMERICA PITTSBURGH
301 ALPHA DRIVE

PITTSBURGH PA 15238

(412) 963-7058 REF:
INV:
PO: DEPT:

FedEx Express

6 of 10

MPS# 0263 1095 8110 2390

Mstr# 1095 8110 2345 0201

TUE - 17 MAR 10:30
PRIORITY OVERNIGH

NA AGCA

15238
PA-US PI

Uncorrected temp 26.2 °C
Thermometer ID 17
CF 0 no ice Initials MJ
PT-WI-SR-001 effective 11/8/18

Part # 159469-434 REV EXP 07/20 ee

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ORIGIN ID:EHTA (413) 572-4000
SHIPPING DEPT
TESTAMERICA WESTFIELD
501 SOUTHAMPTON RD
SUITE C
WESTFIELD, MA 010851592
UNITED STATES US

SHIP DATE: 16MAR20
ACTWGT: 41.55 LB
CAD: 108917564/CAFE3311

BILL RECIPIENT

TO **SAMPLE RECEIVING**
TESTAMERICA PITTSBURGH
301 ALPHA DRIVE

PITTSBURGH PA 15238

(412) 963-7058 REF:
INV:
PO: DEPT:

FedEx Express

7 of 10

MPS# 0263 1095 8110 2404

Mstr# 1095 8110 2345 0201

TUE - 17 MAR 10:30
PRIORITY OVERNIGH

NA AGCA

15238
PA-US PI

Uncorrected temp 17.6 °C
Thermometer ID 11
CF 0 no ice Initials

PT-WI-SR-001 effective 11/8/18

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

FedEx Express

ORIGIN ID:EHTA (413) 572-4000
SHIPPING DEPT
TESTAMERICA WESTFIELD
501 SOUTHAMPTON RD
SUITE C
WESTFIELD, MA 010851592
UNITED STATES US

SHIP DATE: 16MAR20
ACTWGT: 45.50 LB
CAD: 108917564/CAFE3311

BILL RECIPIENT

TO SAMPLE RECEIVING
TESTAMERICA PITTSBURGH
301 ALPHA DRIVE

PITTSBURGH PA 15238
(412) 963-7058

INV:
PO:
REF:
DEPT:

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MPS# 0263 1095 8110 2415
Mstr# 1095 8110 2345

0201

TUE - 17 MAR 10:30A
PRIORITY OVERNIGHT

NA AGCA

15238
PA-US PIT

Uncorrected temp 15.7 °C
Thermometer ID 17
CF 0 Initials

PT-WI-SR-001 effective 11/8/18

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Part # 159469-434 RIT EXP 07/20 ee

ORIGIN ID:EHTA (413) 572-4000
SHIPPING DEPT
TESTAMERICA WESTFIELD
501 SOUTHAMPTON RD
SUITE C
WESTFIELD, MA 010851592
UNITED STATES US

SHIP DATE: 16MAR20
ACTWGT: 35.25 LB
CAD: 108917564/CAFE3311

BILL RECIPIENT

TO SAMPLE RECEIVING
TESTAMERICA PITTSBURGH
301 ALPHA DRIVE

PITTSBURGH PA 15238
(412) 963-7058
INV:
PO:
REF:
DEPT:

FedEx Express

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MPS# 0263 1095 8110 2426
Mstr# 1095 8110 2345

0201

TUE - 17 MAR 10:30A
PRIORITY OVERNIGHT

NA AGCA

15238
PIT PA-US

Uncorrected temp 17.4 °C
Thermometer ID 17
no ice
CF 0 Initials NG

PT-WI-SR-001 effective 11/8/18

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Part # 159459-434 Rt1 EXP 07/20 ee

ORIGIN ID:EHTA (413) 572-4000
SHIPPING DEPT
TESTAMERICA WESTFIELD
501 SOUTHAMPTON RD
SUITE C
WESTFIELD, MA 010851592
UNITED STATES US

SHIP DATE: 16MAR20
ACTWGT: 51.75 LB
CAD: 108917564/CAFE3311

BILL RECIPIENT

TO SAMPLE RECEIVING
TESTAMERICA PITTSBURGH
301 ALPHA DRIVE

PITTSBURGH PA 15238

(412) 963-7058 REF:
INV:
PO: DEPT:

FedEx Express

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MPS# 0263 1095 8110 2437

Mstr# 1095 8110 2345 0201

TUE - 17 MAR 10:30
PRIORITY OVERNIGHT

NA AGCA

15238
PA-US PIT

Uncorrected temp 19.8 °C
Thermometer ID 17
CF 0 no ice Initials MJ

PT-WI-SR-001 effective 11/8/18

Login Sample Receipt Checklist

Client: ENTACT, LLC

Job Number: 180-103654-3

Login Number: 103654
List Number: 1
Creator: Say, Thomas C

List Source: Eurofins TestAmerica, Pittsburgh

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

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-103654-4
Client Project/Site: Madbury Treatability Study

For:
ENTACT, LLC
5822 Lago Vista Drive
Corpus Christi, Texas 78414

Attn: Mr. Thad Slaughter

Authorized for release by:
7/30/2020 1:57:42 PM

Carrie Gamber, Senior Project Manager
(412)963-2428
Carrie.Gamber@Eurofinset.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416

Table of Contents

Job ID: 180-103654-4

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

CASE NARRATIVE

Client: ENTACT, LLC

Project: Madbury Treatability Study

Report Number: 180-103654-4

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

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

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

RECEIPT

The samples were received on 03/17/2020; the samples arrived in good condition. The temperatures of the 10 coolers at receipt time were 16.8º C, 17.4º C, 17.6º C, 17.6º C, 18.6º C, 18.6º C, 18.7º C, 19.4º C, 19.8º C and 20.2º C.

For the following 2 samples, the lid and COC inside the bucket have the same sample ID, however, the side of the bucket has the opposite sample ID. For the bucket labeled as FSA 8 on the side, the lid and the COC contain FSA 9 and vise versa. Per the client the correct sample ID is th one on the side of the bucket: SA-TREAT-8 (180-103654-8) and FSA-TREAT-9 (180-103654-9)

SEMIVOLATILES

The following sample was diluted due to an abundance of target analytes: FSA-TREAT-8 10% TerraBond MG (180-103654-30). As such, surrogate recoveries are below the calibration range or are not reported, and elevated reporting limits (RLs) are provided.

The continuing calibration verification (CCV) associated with batch 180-323311 recovered above the upper control limit for Di-n-octyl phthalate. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCVIS 180-323311/3).

PERCENT SOLIDS

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

Definitions/Glossary

Client: ENTACT, LLC
Job ID: 180-103654-4
Project/Site: Madbury Treatability Study

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution may be flagged with a D.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
X	Surrogate recovery exceeds control limits

Glossary

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

Accreditation/Certification Summary

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-4

Laboratory: Eurofins TestAmerica, Pittsburgh

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New Hampshire	NELAP	2030	04-05-21

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
2540G		Solid	Percent Moisture
2540G		Solid	Percent Solids

Sample Summary

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-4

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
180-103654-30	FSA-TREAT-8 10% TerraBond MG	Solid	07/22/20 13:55	03/17/20 09:00	

Method Summary

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-4

Method	Method Description	Protocol	Laboratory
EPA 8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL PIT
2540G	SM 2540G	SM22	TAL PIT
3520C	Liquid-Liquid Extraction (Continuous)	SW846	TAL PIT
3541	Automated Soxhlet Extraction	SW846	TAL PIT
EPA 1311	TCLP Extraction	SW846	TAL PIT

Protocol References:

SM22 = Standard Methods For The Examination Of Water And Wastewater, 22nd Edition

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

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-4

Client Sample ID: FSA-TREAT-8 10% TerraBond MG

Lab Sample ID: 180-103654-30
Date Collected: 07/22/20 13:55
Matrix: Solid
Date Received: 03/17/20 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	EPA 1311			100.20 g	2000 mL	322790	07/23/20 16:04	GRN	TAL PIT
TCLP	Prep	3520C			270 mL	2.5 mL	322974	07/24/20 16:35	BJT	TAL PIT
TCLP	Analysis	EPA 8270D		1	1 mL	1 mL	323311	07/28/20 20:56	VVP	TAL PIT
	Instrument ID:	CH732								
Total/NA	Analysis	2540G		1			322691	07/23/20 08:48	MM1	TAL PIT
	Instrument ID:	NOEQUIP								

Client Sample ID: FSA-TREAT-8 10% TerraBond MG

Lab Sample ID: 180-103654-30
Date Collected: 07/22/20 13:55
Matrix: Solid
Date Received: 03/17/20 09:00
Percent Solids: 78.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3541			15.1 g	5.0 mL	323036	07/26/20 10:48	JAS	TAL PIT
Total/NA	Analysis	EPA 8270D		30	1 mL	1 mL	323274	07/28/20 18:09	VVP	TAL PIT
	Instrument ID:	CHMSD7								

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Analyst References:

Lab: TAL PIT
- Batch Type: Leach
  - GRN = Gavin Nicholls
- Batch Type: Prep
  - BJT = Bill Trout
  - JAS = Jeremy Stundon
- Batch Type: Analysis
  - MM1 = Mary Beth Miller
  - VVP = Vincent Piccolino

Client Sample Results

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-4

Client Sample ID: FSA-TREAT-8 10% TerraBond MG

Lab Sample ID: 180-103654-30
Date Collected: 07/22/20 13:55
Matrix: Solid
Date Received: 03/17/20 09:00

Method: EPA 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylphenol, 3 & 4	ND		0.0093	0.0034	mg/L		07/24/20 16:35	07/28/20 20:56	1
Anthracene	ND		0.0019	0.00046	mg/L		07/24/20 16:35	07/28/20 20:56	1
Benzo[a]anthracene	ND		0.0019	0.00070	mg/L		07/24/20 16:35	07/28/20 20:56	1
Benzo[b]fluoranthene	ND		0.0019	0.00091	mg/L		07/24/20 16:35	07/28/20 20:56	1
Benzo[g,h,i]perylene	ND		0.0019	0.00065	mg/L		07/24/20 16:35	07/28/20 20:56	1
Benzo[a]pyrene	ND		0.0019	0.00050	mg/L		07/24/20 16:35	07/28/20 20:56	1
Bis(2-ethylhexyl) phthalate	ND		0.093	0.058	mg/L		07/24/20 16:35	07/28/20 20:56	1
Chrysene	ND		0.0019	0.00076	mg/L		07/24/20 16:35	07/28/20 20:56	1
Di-n-octyl phthalate	ND		0.0093	0.0064	mg/L		07/24/20 16:35	07/28/20 20:56	1
Fluoranthene	ND		0.0019	0.00056	mg/L		07/24/20 16:35	07/28/20 20:56	1
Indeno[1,2,3-cd]pyrene	ND		0.0019	0.00080	mg/L		07/24/20 16:35	07/28/20 20:56	1
Phenanthrene	ND		0.0019	0.00052	mg/L		07/24/20 16:35	07/28/20 20:56	1
Pyrene	ND		0.0019	0.00050	mg/L		07/24/20 16:35	07/28/20 20:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*72*		*35 - 115*	*07/24/20 16:35*	*07/28/20 20:56*	*1*
2-Fluorophenol (Surr)	*71*		*20 - 110*	*07/24/20 16:35*	*07/28/20 20:56*	*1*
2,4,6-Tribromophenol (Surr)	*83*		*19 - 138*	*07/24/20 16:35*	*07/28/20 20:56*	*1*
Nitrobenzene-d5 (Surr)	*73*		*39 - 115*	*07/24/20 16:35*	*07/28/20 20:56*	*1*
Phenol-d5 (Surr)	*71*		*30 - 118*	*07/24/20 16:35*	*07/28/20 20:56*	*1*
Terphenyl-d14 (Surr)	*65*		*30 - 143*	*07/24/20 16:35*	*07/28/20 20:56*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**21.2**		0.1	0.1	%			07/23/20 08:48	1
Percent Solids	**78.8**		0.1	0.1	%			07/23/20 08:48	1

Client Sample ID: FSA-TREAT-8 10% TerraBond MG

Lab Sample ID: 180-103654-30
Date Collected: 07/22/20 13:55
Matrix: Solid
Date Received: 03/17/20 09:00
Percent Solids: 78.8

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylphenol, 3 & 4	ND		12000	3700	ug/Kg	☼	07/26/20 10:48	07/28/20 18:09	30
Anthracene	ND		2500	650	ug/Kg	☼	07/26/20 10:48	07/28/20 18:09	30
Benzo[a]anthracene	**1200**	**J**	2500	480	ug/Kg	☼	07/26/20 10:48	07/28/20 18:09	30
Benzo[b]fluoranthene	**1500**	**J**	2500	620	ug/Kg	☼	07/26/20 10:48	07/28/20 18:09	30
Benzo[g,h,i]perylene	**790**	**J**	2500	540	ug/Kg	☼	07/26/20 10:48	07/28/20 18:09	30
Benzo[a]pyrene	**960**	**J**	2500	550	ug/Kg	☼	07/26/20 10:48	07/28/20 18:09	30
Bis(2-ethylhexyl) phthalate	**200000**		120000	13000	ug/Kg	☼	07/26/20 10:48	07/28/20 18:09	30
Chrysene	**1200**	**J**	2500	500	ug/Kg	☼	07/26/20 10:48	07/28/20 18:09	30
Di-n-octyl phthalate	**84000**		12000	7300	ug/Kg	☼	07/26/20 10:48	07/28/20 18:09	30
Fluoranthene	**1900**	**J**	2500	670	ug/Kg	☼	07/26/20 10:48	07/28/20 18:09	30
Indeno[1,2,3-cd]pyrene	**540**	**J**	2500	510	ug/Kg	☼	07/26/20 10:48	07/28/20 18:09	30
Phenanthrene	**780**	**J**	2500	680	ug/Kg	☼	07/26/20 10:48	07/28/20 18:09	30
Pyrene	**2000**	**J**	2500	600	ug/Kg	☼	07/26/20 10:48	07/28/20 18:09	30

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*0*	*X D*	*45 - 105*	*07/26/20 10:48*	*07/28/20 18:09*	*30*
2-Fluorophenol (Surr)	*0*	*X D*	*42 - 105*	*07/26/20 10:48*	*07/28/20 18:09*	*30*
2,4,6-Tribromophenol (Surr)	*0*	*X D*	*31 - 105*	*07/26/20 10:48*	*07/28/20 18:09*	*30*

Client Sample Results

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-4

Client Sample ID: FSA-TREAT-8 10% TerraBond MG

Lab Sample ID: 180-103654-30

Date Collected: 07/22/20 13:55
Matrix: Solid
Date Received: 03/17/20 09:00
Percent Solids: 78.8

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Nitrobenzene-d5 (Surr)	0	X D	53 - 105	07/26/20 10:48	07/28/20 18:09	30
Phenol-d5 (Surr)	0	X D	47 - 105	07/26/20 10:48	07/28/20 18:09	30
Terphenyl-d14 (Surr)	0	X D	46 - 105	07/26/20 10:48	07/28/20 18:09	30

QC Sample Results

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-4

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

Lab Sample ID: MB 180-322974/1-A
Matrix: Solid
Analysis Batch: 323311

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 322974

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylphenol, 3 & 4	ND		0.010	0.0037	mg/L		07/24/20 16:35	07/28/20 13:54	1
Anthracene	ND		0.0020	0.00050	mg/L		07/24/20 16:35	07/28/20 13:54	1
Benzo[a]anthracene	ND		0.0020	0.00076	mg/L		07/24/20 16:35	07/28/20 13:54	1
Benzo[b]fluoranthene	ND		0.0020	0.00098	mg/L		07/24/20 16:35	07/28/20 13:54	1
Benzo[g,h,i]perylene	ND		0.0020	0.00070	mg/L		07/24/20 16:35	07/28/20 13:54	1
Benzo[a]pyrene	ND		0.0020	0.00054	mg/L		07/24/20 16:35	07/28/20 13:54	1
Bis(2-ethylhexyl) phthalate	ND		0.10	0.062	mg/L		07/24/20 16:35	07/28/20 13:54	1
Chrysene	ND		0.0020	0.00082	mg/L		07/24/20 16:35	07/28/20 13:54	1
Di-n-octyl phthalate	ND		0.010	0.0069	mg/L		07/24/20 16:35	07/28/20 13:54	1
Fluoranthene	ND		0.0020	0.00060	mg/L		07/24/20 16:35	07/28/20 13:54	1
Indeno[1,2,3-cd]pyrene	ND		0.0020	0.00086	mg/L		07/24/20 16:35	07/28/20 13:54	1
Phenanthrene	ND		0.0020	0.00056	mg/L		07/24/20 16:35	07/28/20 13:54	1
Pyrene	ND		0.0020	0.00054	mg/L		07/24/20 16:35	07/28/20 13:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*76*		*35 - 115*	*07/24/20 16:35*	*07/28/20 13:54*	*1*
2-Fluorophenol (Surr)	*76*		*20 - 110*	*07/24/20 16:35*	*07/28/20 13:54*	*1*
2,4,6-Tribromophenol (Surr)	*78*		*19 - 138*	*07/24/20 16:35*	*07/28/20 13:54*	*1*
Nitrobenzene-d5 (Surr)	*73*		*39 - 115*	*07/24/20 16:35*	*07/28/20 13:54*	*1*
Phenol-d5 (Surr)	*74*		*30 - 118*	*07/24/20 16:35*	*07/28/20 13:54*	*1*
Terphenyl-d14 (Surr)	*76*		*30 - 143*	*07/24/20 16:35*	*07/28/20 13:54*	*1*

Lab Sample ID: LCS 180-322974/2-A
Matrix: Solid
Analysis Batch: 323311

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 322974

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methylphenol, 3 & 4	0.200	0.160		mg/L		80	30 - 121
Anthracene	0.200	0.160		mg/L		80	49 - 115
Benzo[a]anthracene	0.200	0.155		mg/L		78	49 - 115
Benzo[b]fluoranthene	0.200	0.160		mg/L		80	37 - 115
Benzo[g,h,i]perylene	0.200	0.166		mg/L		83	46 - 115
Benzo[a]pyrene	0.200	0.166		mg/L		83	44 - 115
Bis(2-ethylhexyl) phthalate	0.200	0.176		mg/L		88	49 - 115
Chrysene	0.200	0.161		mg/L		80	46 - 115
Di-n-octyl phthalate	0.200	0.161		mg/L		80	41 - 116
Fluoranthene	0.200	0.164		mg/L		82	44 - 115
Indeno[1,2,3-cd]pyrene	0.200	0.165		mg/L		83	45 - 115
Phenanthrene	0.200	0.157		mg/L		78	50 - 115
Pyrene	0.200	0.164		mg/L		82	35 - 127

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*73*		*35 - 115*
2-Fluorophenol (Surr)	*83*		*20 - 110*
2,4,6-Tribromophenol (Surr)	*85*		*19 - 138*
Nitrobenzene-d5 (Surr)	*74*		*39 - 115*
Phenol-d5 (Surr)	*80*		*30 - 118*
Terphenyl-d14 (Surr)	*80*		*30 - 143*

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

Lab Sample ID: LCSD 180-322974/3-A
Matrix: Solid
Analysis Batch: 323311

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 322974

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methylphenol, 3 & 4			0.200	0.153		mg/L		77	30 - 121	5	35
Anthracene			0.200	0.155		mg/L		78	49 - 115	3	22
Benzo[a]anthracene			0.200	0.152		mg/L		76	49 - 115	2	23
Benzo[b]fluoranthene			0.200	0.143		mg/L		72	37 - 115	11	28
Benzo[g,h,i]perylene			0.200	0.158		mg/L		79	46 - 115	5	50
Benzo[a]pyrene			0.200	0.160		mg/L		80	44 - 115	4	31
Bis(2-ethylhexyl) phthalate			0.200	0.171		mg/L		86	49 - 115	2	31
Chrysene			0.200	0.157		mg/L		78	46 - 115	3	31
Di-n-octyl phthalate			0.200	0.153		mg/L		77	41 - 116	5	29
Fluoranthene			0.200	0.158		mg/L		79	44 - 115	3	23
Indeno[1,2,3-cd]pyrene			0.200	0.157		mg/L		79	45 - 115	5	37
Phenanthrene			0.200	0.150		mg/L		75	50 - 115	4	20
Pyrene			0.200	0.160		mg/L		80	35 - 127	3	41

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl	*71*		*35 - 115*
2-Fluorophenol (Surr)	*80*		*20 - 110*
2,4,6-Tribromophenol (Surr)	*83*		*19 - 138*
Nitrobenzene-d5 (Surr)	*72*		*39 - 115*
Phenol-d5 (Surr)	*77*		*30 - 118*
Terphenyl-d14 (Surr)	*78*		*30 - 143*

Lab Sample ID: MB 180-323036/1-A
Matrix: Solid
Analysis Batch: 323274

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 323036

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylphenol, 3 & 4	ND		330	98	ug/Kg		07/26/20 10:48	07/28/20 13:13	1
Anthracene	ND		67	17	ug/Kg		07/26/20 10:48	07/28/20 13:13	1
Benzo[a]anthracene	ND		67	13	ug/Kg		07/26/20 10:48	07/28/20 13:13	1
Benzo[b]fluoranthene	ND		67	16	ug/Kg		07/26/20 10:48	07/28/20 13:13	1
Benzo[g,h,i]perylene	ND		67	14	ug/Kg		07/26/20 10:48	07/28/20 13:13	1
Benzo[a]pyrene	ND		67	15	ug/Kg		07/26/20 10:48	07/28/20 13:13	1
Bis(2-ethylhexyl) phthalate	ND		3300	360	ug/Kg		07/26/20 10:48	07/28/20 13:13	1
Chrysene	ND		67	13	ug/Kg		07/26/20 10:48	07/28/20 13:13	1
Di-n-octyl phthalate	ND		330	190	ug/Kg		07/26/20 10:48	07/28/20 13:13	1
Fluoranthene	ND		67	18	ug/Kg		07/26/20 10:48	07/28/20 13:13	1
Indeno[1,2,3-cd]pyrene	ND		67	14	ug/Kg		07/26/20 10:48	07/28/20 13:13	1
Phenanthrene	ND		67	18	ug/Kg		07/26/20 10:48	07/28/20 13:13	1
Pyrene	ND		67	16	ug/Kg		07/26/20 10:48	07/28/20 13:13	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*78*		*45 - 105*	*07/26/20 10:48*	*07/28/20 13:13*	*1*
2-Fluorophenol (Surr)	*77*		*42 - 105*	*07/26/20 10:48*	*07/28/20 13:13*	*1*
2,4,6-Tribromophenol (Surr)	*61*		*31 - 105*	*07/26/20 10:48*	*07/28/20 13:13*	*1*
Nitrobenzene-d5 (Surr)	*76*		*53 - 105*	*07/26/20 10:48*	*07/28/20 13:13*	*1*
Phenol-d5 (Surr)	*76*		*47 - 105*	*07/26/20 10:48*	*07/28/20 13:13*	*1*
Terphenyl-d14 (Surr)	*76*		*46 - 105*	*07/26/20 10:48*	*07/28/20 13:13*	*1*

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

Lab Sample ID: LCS 180-323036/2-A
Matrix: Solid
Analysis Batch: 323274

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 323036

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methylphenol, 3 & 4	6670	5040		ug/Kg		76	54 - 100
Anthracene	6670	5180		ug/Kg		78	47 - 116
Benzo[a]anthracene	6670	5050		ug/Kg		76	48 - 101
Benzo[b]fluoranthene	6670	4650		ug/Kg		70	46 - 100
Benzo[g,h,i]perylene	6670	5860		ug/Kg		88	49 - 111
Benzo[a]pyrene	6670	5400		ug/Kg		81	46 - 114
Bis(2-ethylhexyl) phthalate	6670	4620		ug/Kg		69	45 - 113
Chrysene	6670	5030		ug/Kg		75	49 - 100
Di-n-octyl phthalate	6670	3780		ug/Kg		57	43 - 117
Fluoranthene	6670	5500		ug/Kg		83	54 - 105
Indeno[1,2,3-cd]pyrene	6670	5590		ug/Kg		84	49 - 112
Phenanthrene	6670	4920		ug/Kg		74	46 - 111
Pyrene	6670	5040		ug/Kg		76	49 - 100

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*72*		*45 - 105*
2-Fluorophenol (Surr)	*77*		*42 - 105*
2,4,6-Tribromophenol (Surr)	*65*		*31 - 105*
Nitrobenzene-d5 (Surr)	*75*		*53 - 105*
Phenol-d5 (Surr)	*76*		*47 - 105*
Terphenyl-d14 (Surr)	*72*		*46 - 105*

Lab Sample ID: LB 180-322790/1-C
Matrix: Solid
Analysis Batch: 323311

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 322974

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylphenol, 3 & 4	ND		0.0093	0.0034	mg/L		07/24/20 16:37	07/28/20 14:46	1
Anthracene	ND		0.0019	0.00046	mg/L		07/24/20 16:37	07/28/20 14:46	1
Benzo[a]anthracene	ND		0.0019	0.00070	mg/L		07/24/20 16:37	07/28/20 14:46	1
Benzo[b]fluoranthene	ND		0.0019	0.00091	mg/L		07/24/20 16:37	07/28/20 14:46	1
Benzo[g,h,i]perylene	ND		0.0019	0.00065	mg/L		07/24/20 16:37	07/28/20 14:46	1
Benzo[a]pyrene	ND		0.0019	0.00050	mg/L		07/24/20 16:37	07/28/20 14:46	1
Bis(2-ethylhexyl) phthalate	ND		0.093	0.058	mg/L		07/24/20 16:37	07/28/20 14:46	1
Chrysene	ND		0.0019	0.00076	mg/L		07/24/20 16:37	07/28/20 14:46	1
Di-n-octyl phthalate	ND		0.0093	0.0064	mg/L		07/24/20 16:37	07/28/20 14:46	1
Fluoranthene	ND		0.0019	0.00056	mg/L		07/24/20 16:37	07/28/20 14:46	1
Indeno[1,2,3-cd]pyrene	ND		0.0019	0.00080	mg/L		07/24/20 16:37	07/28/20 14:46	1
Phenanthrene	ND		0.0019	0.00052	mg/L		07/24/20 16:37	07/28/20 14:46	1
Pyrene	ND		0.0019	0.00050	mg/L		07/24/20 16:37	07/28/20 14:46	1

Surrogate	*LB %Recovery*	*LB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*70*		*35 - 115*	*07/24/20 16:37*	*07/28/20 14:46*	*1*
2-Fluorophenol (Surr)	*65*		*20 - 110*	*07/24/20 16:37*	*07/28/20 14:46*	*1*
2,4,6-Tribromophenol (Surr)	*81*		*19 - 138*	*07/24/20 16:37*	*07/28/20 14:46*	*1*
Nitrobenzene-d5 (Surr)	*71*		*39 - 115*	*07/24/20 16:37*	*07/28/20 14:46*	*1*
Phenol-d5 (Surr)	*66*		*30 - 118*	*07/24/20 16:37*	*07/28/20 14:46*	*1*
Terphenyl-d14 (Surr)	*75*		*30 - 143*	*07/24/20 16:37*	*07/28/20 14:46*	*1*

QC Association Summary

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-4

GC/MS Semi VOA

Leach Batch: 322790

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-30	FSA-TREAT-8 10% TerraBond MG	TCLP	Solid	EPA 1311	
LB 180-322790/1-C	Method Blank	TCLP	Solid	EPA 1311	

Prep Batch: 322974

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-30	FSA-TREAT-8 10% TerraBond MG	TCLP	Solid	3520C	322790
LB 180-322790/1-C	Method Blank	TCLP	Solid	3520C	322790
MB 180-322974/1-A	Method Blank	Total/NA	Solid	3520C	
LCS 180-322974/2-A	Lab Control Sample	Total/NA	Solid	3520C	
LCSD 180-322974/3-A	Lab Control Sample Dup	Total/NA	Solid	3520C	

Prep Batch: 323036

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-30	FSA-TREAT-8 10% TerraBond MG	Total/NA	Solid	3541	
MB 180-323036/1-A	Method Blank	Total/NA	Solid	3541	
LCS 180-323036/2-A	Lab Control Sample	Total/NA	Solid	3541	

Analysis Batch: 323274

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-30	FSA-TREAT-8 10% TerraBond MG	Total/NA	Solid	EPA 8270D	323036
MB 180-323036/1-A	Method Blank	Total/NA	Solid	EPA 8270D	323036
LCS 180-323036/2-A	Lab Control Sample	Total/NA	Solid	EPA 8270D	323036

Analysis Batch: 323311

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-30	FSA-TREAT-8 10% TerraBond MG	TCLP	Solid	EPA 8270D	322974
LB 180-322790/1-C	Method Blank	TCLP	Solid	EPA 8270D	322974
MB 180-322974/1-A	Method Blank	Total/NA	Solid	EPA 8270D	322974
LCS 180-322974/2-A	Lab Control Sample	Total/NA	Solid	EPA 8270D	322974
LCSD 180-322974/3-A	Lab Control Sample Dup	Total/NA	Solid	EPA 8270D	322974

General Chemistry

Analysis Batch: 322691

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-30	FSA-TREAT-8 10% TerraBond MG	Total/NA	Solid	2540G	

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

Chain of Custody Record

eurofins Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☑ Other: **New Hampshire DES**

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Client Contact		Project Manager: Thad Slaughter	Site Contact: Ray Johnson	Date: 3/13/2020	COC No: 1
Company Name	ENTACT	Tel/Fax: 214-415-2975	Lab Contact:	Carrier:	1 of 10 COCs
Address	1 East Oak Hill Drive, Suite 102	Analysis Turnaround Time			Sampler:
City/State/Zip	Westmont, IL 60559	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone	214-415-2975	TAT if different from Below _____			Walk-in Client:
FAX		☑ 2 weeks			Lab Sampling:
Project Name:	NEMR of Madbury, NH	☐ 1 week			
Site:	290 Knox Marsh Rd. Madbury, NH	☐ 2 days			Job / SDG No.:
P O #	143-145286-18001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Bis(2-ethylhexyl) phthalate	Di-n-octyl phthalate	3-Methyphenol	PCBs	p, p'-DDT	Corrosivity of a solid	*PAHs	Antimony, Arsenic, Barium,	Beryllium, Cadmium, Chromium,	Lead, Mercury, Nickel, Silver,	Thallium	Sample Specific Notes:
FSA-Treat-1	3/11/2020	0900	C	**ASR	1	N	Y	X	X	X	X	X	X	X	X	X	X	X	*PAHs: anthracene,
																			benzo(a)anthracene, benzo(a)pyrene,
																			benzo(b)fluoranthene,
																			benzo(g,h,i)perylene, chrysene,
																			fluoranthene, indeno(1,2,3-cd)pyrene
																			phenanthrene, and pyrene
																			** processed automotive shredder
																			residue

180-103654 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments: For each analyte, total and TCLP analysis is needed for unstabilized and stabilized samples. If there are any questions please contact Ray Johnson of Tetra Tech at 508-786-2356 or ray.johnson@tetratech.com. Please note, the sample material is a characteristic hazardous waste because of TCLP lead.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ | Therm ID No.:_____

Relinquished by:	Company: TetraTech	Date/Time: 3/13/20 1147	Received by:	Company: TTL	Date/Time: 3/13/20 1147
Relinquished by:	Company: TTL	Date/Time: 3/16/20 1700	Received by:	Company: Eurofins	Date/Time: 3/17/20 900
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.21, dated 4/4/2019

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

Chain of Custody Record

eurofins Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☑ Other: **New Hampshire DES** **TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica**

Client Contact		Project Manager: Thad Slaughter	Site Contact: Ray Johnson	Date: 3/13/2020	COC No: 2
Company Name	ENTACT	Tel/Fax: 214-415-2975	Lab Contact:	Carrier:	2 of 10 COCs
Address	1 East Oak Hill Drive, Suite 102	Analysis Turnaround Time			Sampler:
City/State/Zip	Westmont, IL 60559	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone	214-415-2975	TAT if different from Below _____			Walk-in Client:
FAX		☑ 2 weeks			Lab Sampling:
Project Name:	NEMR of Madbury, NH	☐ 1 week			
Site:	290 Knox Marsh Rd. Madbury, NH	☐ 2 days			Job / SDG No.:
P O #	143-145286-18001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Bis(2-ethylhexyl) phthalate	Di-n-octyl phthalate	3-Methylphenol	PCBs	p, p'-DDT	Corrosivity of a solid	*PAHs	Antimony, Arsenic, Barium,	Beryllium, Cadmium, Chromium,	Lead, Mercury, Nickel, Silver,	Thallium	Sample Specific Notes:
FSA-Treat-2	3/11/2020	0920	C	**ASR	1	N	N	X	X	X	X	X	X	X	X	X	X	X	*PAHs: anthracene,
																			benzo(a)anthracene, benzo(a)pyrene,
																			benzo(b)fluoranthene,
																			benzo(g,h,i)perylene, chrysene,
																			fluoranthene, indeno(1,2,3-cd)pyrene
																			phenanthrene, and pyrene
																			** processed automotive shredder
																			residue

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments: For each analyte, total and TCLP analysis is needed for unstabilized and stabilized samples. If there are any questions please contact Ray Johnson of Tetra Tech at 508-786-2356 or ray.johnson@tetratech.com. Please note, the sample material is a characteristic hazardous waste because of TCLP lead.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company: Tetra Tech	Date/Time: 3/13/20 1147	Received by:	Company: TAL	Date/Time: 3/13/20 1147
Relinquished by:	Company: TAL	Date/Time: 3/11/20 1700	Received by:	Company: Eurofins	Date/Time: 3/17/20
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.21, dated 4/4/2019

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

Chain of Custody Record

eurofins Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☑ Other: **New Hampshire DES**

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Client Contact		Project Manager: Thad Slaughter	Site Contact: Ray Johnson	Date: 3/13/2020	COC No: 3
Company Name	ENTACT	Tel/Fax: 214-415-2975	Lab Contact:	Carrier:	3 of 10 COCs
Address	1 East Oak Hill Drive, Suite 102	Analysis Turnaround Time			Sampler:
City/State/Zip	Westmont, IL 60559	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone	214-415-2975	TAT if different from Below _____			Walk-in Client:
FAX		☑ 2 weeks			Lab Sampling:
Project Name:	NEMR of Madbury, NH	☐ 1 week			
Site:	290 Knox Marsh Rd. Madbury, NH	☐ 2 days			Job / SDG No.:
P O #	143-145286-18001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Bis(2-ethylhexyl) phthalate	Di-n-octyl phthalate	3-Methyphenol	PCBs	p, p'-DDT	Corrosivity of a solid	*PAHs	Antimony, Arsenic, Barium,	Beryllium, Cadmium, Chromium,	Lead, Mercury, Nickel, Silver,	Thallium	Sample Specific Notes:
FSA-Treat-3	3/11/2020	0940	C	**ASR	1	N	N	X	X	X	X	X	X	X	X	X	X	X	*PAHs: anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene phenanthrene, and pyrene
																			** processed automotive shredder residue

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments: For each analyte, total and TCLP analysis is needed for unstabilized and stabilized samples. If there are any questions please contact Ray Johnson of Tetra Tech at 508-786-2356 or ray.johnson@tetratech.com. Please note, the sample material is a characteristic hazardous waste because of TCLP lead.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company: Tetra Tech	Date/Time: 3/13/20 1147	Received by:	Company: TTL	Date/Time: 3/13/20 1147
Relinquished by:	Company: TTL	Date/Time: 3/17/20 1700	Received by:	Company: Bonpak	Date/Time: 3/17/20 0900
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.21, dated 4/4/2019

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

Chain of Custody Record

eurofins Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☑ Other: **New Hampshire DES** **TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica**

Client Contact		Project Manager: Thad Slaughter	Site Contact: Ray Johnson	Date: 3/13/2020	COC No: 4
Company Name	ENTACT	Tel/Fax: 214-415-2975	Lab Contact:	Carrier:	4 of 10 COCs
Address	1 East Oak Hill Drive, Suite 102	Analysis Turnaround Time			Sampler:
City/State/Zip	Westmont, IL 60559	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone	214-415-2975	TAT if different from Below _____			Walk-in Client:
FAX		☑ 2 weeks			Lab Sampling:
Project Name:	NEMR of Madbury, NH	☐ 1 week			
Site:	290 Knox Marsh Rd. Madbury, NH	☐ 2 days			Job / SDG No.:
P O #	143-145286-18001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Bis(2-ethylhexyl) phthalate	Di-n-octyl phthalate	3-Methyphenol	PCBs	p, p'-DDT	Corrosivity of a solid	*PAHs	Antimony, Arsenic, Barium,	Beryllium, Cadmium, Chromium,	Lead, Mercury, Nickel, Silver,	Thallium	Sample Specific Notes:
FSA-Treat-4	3/11/2020	1000	C	**ASR	1	N	Y	X	X	X	X	X	X	X	X	X	X	X	*PAHs: anthracene,
																			benzo(a)anthracene, benzo(a)pyrene,
																			benzo(b)fluoranthene,
																			benzo(g,h,i)perylene, chrysene,
																			fluoranthene, indeno(1,2,3-cd)pyrene
																			phenanthrene, and pyrene
																			** processed automotive shredder
																			residue

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments: For each analyte, total and TCLP analysis is needed for unstabilized and stabilized samples. If there are any questions please contact Ray Johnson of Tetra Tech at 508-786-2356 or ray.johnson@tetratech.com. Please note, the sample material is a characteristic hazardous waste because of TCLP lead.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company: Tetra Tech	Date/Time: 3/13/20 1147	Received by:	Company: TT	Date/Time: 3/13/20 1147
Relinquished by:	Company: TT	Date/Time: 3/13/20 1207	Received by:	Company: Eurofins	Date/Time: 3/13/20 [illegible]
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.21, dated 4/4/2019

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

Chain of Custody Record

eurofins Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☑ Other: **New Hampshire DES** **TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica**

Client Contact		Project Manager: Thad Slaughter	Site Contact: Ray Johnson	Date: 3/13/2020	COC No: 5
Company Name	ENTACT	Tel/Fax: 214-415-2975	Lab Contact:	Carrier:	5 of 10 COCs
Address	1 East Oak Hill Drive, Suite 102	Analysis Turnaround Time			Sampler:
City/State/Zip	Westmont, IL 60559	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone	214-415-2975	TAT if different from Below _____			Walk-in Client:
FAX		☑ 2 weeks			Lab Sampling:
Project Name:	NEMR of Madbury, NH	☐ 1 week			
Site:	290 Knox Marsh Rd. Madbury, NH	☐ 2 days			Job / SDG No.:
P O #	143-145286-18001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Bis(2-ethylhexyl) phthalate	Di-n-octyl phthalate	3-Methyphenol	PCBs	p, p'-DDT	Corrosivity of a solid	*PAHs	Antimony, Arsenic, Barium,	Beryllium, Cadmium, Chromium,	Lead, Mercury, Nickel, Silver,	Thallium							Sample Specific Notes:
FSA-Treat-5	3/11/2020	1030	C	**ASR	1	N	N	X	X	X	X	X	X	X	X	X	X	X							*PAHs: anthracene,
																									benzo(a)anthracene, benzo(a)pyrene,
																									benzo(b)fluoranthene,
																									benzo(g,h,i)perylene, chrysene,
																									fluoranthene, indeno(1,2,3-cd)pyrene
																									phenanthrene, and pyrene
																									** processed automotive shredder
																									residue

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments: For each analyte, total and TCLP analysis is needed for unstabilized and stabilized samples. If there are any questions please contact Ray Johnson of Tetra Tech at 508-786-2356 or ray.johnson@tetratech.com. Please note, the sample material is a characteristic hazardous waste because of TCLP lead.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company: Tetra Tech	Date/Time: 3/13/20 1147	Received by:	Company: TTI	Date/Time: 3/13/20 1147
Relinquished by:	Company: TTI	Date/Time: 3/17/20 1700	Received by:	Company: Eurofins	Date/Time: 3/17/20 900
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.21, dated 4/4/2019

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301 Alpha Drive
RIDC Park
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phone 412.963.7058 fax 412.963.2468

Chain of Custody Record

eurofins Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☑ Other: **New Hampshire DES** **TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica**

Client Contact		Project Manager: Thad Slaughter	Site Contact: Ray Johnson	Date: 3/13/2020	COC No: 6
Company Name	ENTACT	Tel/Fax: 214-415-2975	Lab Contact:	Carrier:	6 of 10 COCs
Address	1 East Oak Hill Drive, Suite 102	Analysis Turnaround Time			Sampler:
City/State/Zip	Westmont, IL 60559	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone	214-415-2975	TAT if different from Below _____			Walk-in Client:
FAX		☑ 2 weeks			Lab Sampling:
Project Name:	NEMR of Madbury, NH	☐ 1 week			
Site:	290 Knox Marsh Rd. Madbury, NH	☐ 2 days			Job / SDG No.:
P O #	143-145286-18001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Bis(2-ethylhexyl) phthalate	Di-n-octyl phthalate	3-Methyphenol	PCBs	p, p'-DDT	Corrosivity of a solid	*PAHs	Antimony, Arsenic, Barium,	Beryllium, Cadmium, Chromium,	Lead, Mercury, Nickel, Silver,	Thallium	Sample Specific Notes:
FSA-Treat-6	3/11/2020	1100	C	**ASR	1	N	N	X	X	X	X	X	X	X	X	X	X	X	*PAHs: anthracene,
																			benzo(a)anthracene, benzo(a)pyrene,
																			benzo(b)fluoranthene,
																			benzo(g,h,i)perylene, chrysene,
																			fluoranthene, indeno(1,2,3-cd)pyrene
																			phenanthrene, and pyrene
																			** processed automotive shredder
																			residue

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments: For each analyte, total and TCLP analysis is needed for unstabilized and stabilized samples. If there are any questions please contact Ray Johnson of Tetra Tech at 508-786-2356 or ray.johnson@tetratech.com. Please note, the sample material is a characteristic hazardous waste because of TCLP lead.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ | Therm ID No.:_____

Relinquished by:	Company: Tetra Tech	Date/Time: 3/13/20 1145	Received by:	Company: TTL	Date/Time: 3/13/20 1147
Relinquished by:	Company: TTL	Date/Time: 3/16/20 1700	Received by:	Company: Eurofins	Date/Time: 3/17/20 900
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.21, dated 4/4/2019

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

Chain of Custody Record

eurofins Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☑ Other: **New Hampshire DES** **TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica**

Client Contact		Project Manager: Thad Slaughter	Site Contact: Ray Johnson	Date: 3/13/2020	COC No: 7
Company Name	ENTACT	Tel/Fax: 214-415-2975	Lab Contact:	Carrier:	7 of 10 COCs
Address	1 East Oak Hill Drive, Suite 102	Analysis Turnaround Time			Sampler:
City/State/Zip	Westmont, IL 60559	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone	214-415-2975	TAT if different from Below _____			Walk-in Client:
FAX		☑ 2 weeks			Lab Sampling:
Project Name:	NEMR of Madbury, NH	☐ 1 week			
Site:	290 Knox Marsh Rd. Madbury, NH	☐ 2 days			Job / SDG No.:
P O #	143-145286-18001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Bis(2-ethylhexyl) phthalate	Di-n-octyl phthalate	3-Methyphenol	PCBs	p, p'-DDT	Corrosivity of a solid	*PAHs	Antimony, Arsenic, Barium,	Beryllium, Cadmium, Chromium,	Lead, Mercury, Nickel, Silver,	Thallium	Sample Specific Notes:
FSA-Treat-7	3/11/2020	1120	C	**ASR	1	N	N	X	X	X	X	X	X	X	X	X	X	X	*PAHs: anthracene,
																			benzo(a)anthracene, benzo(a)pyrene,
																			benzo(b)fluoranthene,
																			benzo(g,h,i)perylene, chrysene,
																			fluoranthene, indeno(1,2,3-cd)pyrene
																			phenanthrene, and pyrene
																			** processed automotive shredder
																			residue

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments: For each analyte, total and TCLP analysis is needed for unstabilized and stabilized samples. If there are any questions please contact Ray Johnson of Tetra Tech at 508-786-2356 or ray.johnson@tetratech.com. Please note, the sample material is a characteristic hazardous waste because of TCLP lead.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	Tetra Tech	3/13/20 1147	[signature]	TTR	3/13/20 1147
[signature]	TTR	3/16/20 1707	[signature]	[illegible]	3/17/20 920
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.21, dated 4/4/2019

Eurofins TestAmerica, Pittsburgh
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Chain of Custody Record

eurofins Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☑ Other: **New Hampshire DES** **TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica**

Client Contact		Project Manager: Thad Slaughter	Site Contact: Ray Johnson	Date: 3/13/2020	COC No: 8
Company Name	ENTACT	Tel/Fax: 214-415-2975	Lab Contact:	Carrier:	8 of 10 COCs
Address	1 East Oak Hill Drive, Suite 102	Analysis Turnaround Time			Sampler:
City/State/Zip	Westmont, IL 60559	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone	214-415-2975	TAT if different from Below _____			Walk-in Client:
FAX		☑ 2 weeks			Lab Sampling:
Project Name:	NEMR of Madbury, NH	☐ 1 week			
Site:	290 Knox Marsh Rd. Madbury, NH	☐ 2 days			Job / SDG No.:
P O #	143-145286-18001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Bis(2-ethylhexyl) phthalate	Di-n-octyl phthalate	3-Methyphenol	PCBs	p, p'-DDT	Corrosivity of a solid	*PAHs	Antimony, Arsenic, Barium,	Beryllium, Cadmium, Chromium,	Lead, Mercury, Nickel, Silver,	Thallium	Sample Specific Notes:
FSA-Treat-8	3/11/2020	1145	C	**ASR	1	N	N	X	X	X	X	X	X	X	X	X	X	X	*PAHs: anthracene,
																			benzo(a)anthracene, benzo(a)pyrene,
																			benzo(b)fluoranthene,
																			benzo(g,h,i)perylene, chrysene,
																			fluoranthene, indeno(1,2,3-cd)pyrene
																			phenanthrene, and pyrene
																			** processed automotive shredder
																			residue

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments: For each analyte, total and TCLP analysis is needed for unstabilized and stabilized samples. If there are any questions please contact Ray Johnson of Tetra Tech at 508-786-2356 or ray.johnson@tetratech.com. Please note, the sample material is a characteristic hazardous waste because of TCLP lead.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company: Tetra Tech	Date/Time: 3/13/20 1147	Received by:	Company: TT	Date/Time: 3/13/20 1147
Relinquished by:	Company: TT	Date/Time: 3/11/20 1700	Received by:	Company: BOSTON	Date/Time: 3/11/20 900 E
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.21, dated 4/4/2019

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

Chain of Custody Record

eurofins Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☑ Other: **New Hampshire DES** **TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica**

Client Contact		Project Manager: Thad Slaughter	Site Contact: Ray Johnson	Date: 3/13/2020	COC No: 9
Company Name	ENTACT	Tel/Fax: 214-415-2975	Lab Contact:	Carrier:	9 of 10 COCs
Address	1 East Oak Hill Drive, Suite 102	Analysis Turnaround Time			Sampler:
City/State/Zip	Westmont, IL 60559	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone	214-415-2975	TAT if different from Below _____			Walk-in Client:
FAX		☑ 2 weeks			Lab Sampling:
Project Name:	NEMR of Madbury, NH	☐ 1 week			
Site:	290 Knox Marsh Rd. Madbury, NH	☐ 2 days			Job / SDG No.:
P O #	143-145286-18001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Bis(2-ethylhexyl) phthalate	Di-n-octyl phthalate	3-Methyphenol	PCBs	p, p'-DDT	Corrosivity of a solid	*PAHs	Antimony, Arsenic, Barium,	Beryllium, Cadmium, Chromium,	Lead, Mercury, Nickel, Silver,	Thallium	Sample Specific Notes:
FSA-Treat-9	3/11/2020	1210	C	**ASR	1	N	N	X	X	X	X	X	X	X	X	X	X	X	*PAHs: anthracene,
																			benzo(a)anthracene, benzo(a)pyrene,
																			benzo(b)fluoranthene,
																			benzo(g,h,i)perylene, chrysene,
																			fluoranthene, indeno(1,2,3-cd)pyrene
																			phenanthrene, and pyrene
																			** processed automotive shredder
																			residue

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

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Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company: Tetra Tech	Date/Time: 3/13/20 1147	Received by:	Company:	Date/Time: 3/13/20 1147
Relinquished by:	Company:	Date/Time: 3/11/20 1200	Received by:	Company:	Date/Time: 3/12/20 9:20
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.21, dated 4/4/2019

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Chain of Custody Record

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Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☑ Other: **New Hampshire DES** **TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica**

Client Contact		Project Manager: Thad Slaughter	Site Contact: Ray Johnson	Date: 3/13/2020	COC No: 10
Company Name	ENTACT	Tel/Fax: 214-415-2975	Lab Contact:	Carrier:	10 of 10 COCs
Address	1 East Oak Hill Drive, Suite 102	Analysis Turnaround Time			Sampler:
City/State/Zip	Westmont, IL 60559	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone	214-415-2975	TAT if different from Below _____			Walk-in Client:
FAX		☑ 2 weeks			Lab Sampling:
Project Name:	NEMR of Madbury, NH	☐ 1 week			
Site:	290 Knox Marsh Rd. Madbury, NH	☐ 2 days			Job / SDG No.:
P O #	143-145286-18001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Bis(2-ethylhexyl) phthalate	Di-n-octyl phthalate	3-Methyphenol	PCBs	p, p'-DDT	Corrosivity of a solid	*PAHs	Antimony, Arsenic, Barium,	Beryllium, Cadmium, Chromium,	Lead, Mercury, Nickel, Silver,	Thallium	Sample Specific Notes:
FSA-Treat-10	3/11/2020	1230	C	**ASR	1	N	N	X	X	X	X	X	X	X	X	X	X	X	*PAHs: anthracene,
																			benzo(a)anthracene, benzo(a)pyrene,
																			benzo(b)fluoranthene,
																			benzo(g,h,i)perylene, chrysene,
																			fluoranthene, indeno(1,2,3-cd)pyrene
																			phenanthrene, and pyrene
																			** processed automotive shredder
																			residue

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments: For each analyte, total and TCLP analysis is needed for unstabilized and stabilized samples. If there are any questions please contact Ray Johnson of Tetra Tech at 508-786-2356 or ray.johnson@tetratech.com. Please note, the sample material is a characteristic hazardous waste because of TCLP lead.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company: Tetra Tech	Date/Time: 3/13/20 1147	Received by:	Company: TAL	Date/Time: 3/13/20 1147
Relinquished by:	Company: TAL	Date/Time: 3/14/20 1200	Received by:	Company: Bonded	Date/Time: 3/17/20 9:00
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.21, dated 4/4/2019

TestAme

THE LEADER IN ENVIRONM

ORIGIN ID:EHTA (413) 572-4000
SHIPPING DEPT
TESTAMERICA WESTFIELD
501 SOUTHAMPTON RD
SUITE C
WESTFIELD, MA 010851592
UNITED STATES US

SH
AC
CA
BI

TO SAMPLE RECEIVING
TESTAMERICA PITTSBURGH
301 ALPHA DRIVE

PITTSBURGH PA 15238
(412) 963-7058
INV:
PO:
REF:
DEPT:

1 of 10
TRK# 0201 1095 8110 2345
MASTER

TUE -
PRIOR

NA AGCA

PA-US

152
PIT

Uncorrected temp 18.6 °C
Thermometer ID 17
no ice
CF 0 Initials MJ

PT-WI-SR-001 effective 11/8/18

180-103654 Waybill

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ORIGIN ID:EHTA (413) 572-4000
SHIPPING DEPT
TESTAMERICA WESTFIELD
501 SOUTHAMPTON RD
SUITE C
WESTFIELD, MA 010851592
UNITED STATES US

SHIP DATE: 16MAR20
ACTWGT: 34.65 LB
CAD: 108917564/CAFE3311

BILL RECIPIENT

TO SAMPLE RECEIVING
TESTAMERICA PITTSBURGH
301 ALPHA DRIVE

PITTSBURGH PA 15238
(412) 963-7058 REF:
INV:
PO: DEPT:

FedEx Express

2 of 10
MPS# 0263 1095 8110 2356
Mstr# 1095 8110 2345 0201

TUE - 17 MAR 10:30
PRIORITY OVERNIGH

NA AGCA

15238
PA-US PIT

Uncorrected temp 18.6 °C
Thermometer ID 17
CF 0 No ice
Initials

PT-WI-SR-001 effective 11/8/18

TO SAMPLE RE
TESTAMERICA
301 ALPHA DRI

PITTSBURGH PA 15238

(412) 963-7058 REF:

INV: PO: DEPT:

FedEx Express

E

3 of 10

MPS# 0263 1095 8110 2367

Mstr# 1095 8110 2345 0201

TUE - 17 MAR 10:30
PRIORITY OVERNIGH

NA AGCA

1523
PA-US PI

Uncorrected temp 19.4 °C

Thermometer ID 17

CF 0 No ice Initials

PT-WI-SR-001 effective 11/8/18

4 of 10

MPS# 0263 1095 8110 2378

Mstr# 1095 8110 2345

0201

TUE – 17 MAR 10:30A
PRIORITY OVERNIGHT

NA AGCA

15238
PA-US PIT

Uncorrected temp 16.8 °C
Thermometer ID 17

CF 0 Initials JB

PT-WI-SR-001 effective 11/8/18

J19121

5 of 10

MPS# 0263 1095 8110 2389

Mstr# 1095 8110 2345

0201

TUE – 17 MAR 10:30A
PRIORITY OVERNIGHT

NA AGCA

15238
PA-US PIT

Uncorrected temp 17.6 °C
Thermometer ID 17
CF -0 no ice
Initials MY

PT-WI-SR-001 effective 11/8/18

Part # 159469-434 RIT EXP 07/20

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ORIGIN ID:EHTA (413) 572-4000
SHIPPING DEPT
TESTAMERICA WESTFIELD
501 SOUTHAMPTON RD
SUITE C
WESTFIELD, MA 010851592
UNITED STATES US

SHIP DATE: 16MAR20
ACTWGT: 40.60 LB
CAD: 108917564/CAFE3311

BILL RECIPIENT

TO **SAMPLE RECEIVING**
TESTAMERICA PITTSBURGH
301 ALPHA DRIVE

PITTSBURGH PA 15238

(412) 963-7058 REF:
INV:
PO: DEPT:

FedEx Express

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MPS# 0263 1095 8110 2390

Mstr# 1095 8110 2345 0201

NA AGCA

TUE - 17 MAR 10:30
PRIORITY OVERNIGH

15238
PA-US PI

Uncorrected temp 26.2 °C
Thermometer ID 17
CF 0 no ice
Initials MJ
PT-WI-SR-001 effective 11/8/18

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Part # 159469-434 RIT EXP 07/20 ee

ORIGIN ID:EHTA (413) 572-4000
SHIPPING DEPT
TESTAMERICA WESTFIELD
501 SOUTHAMPTON RD
SUITE C
WESTFIELD, MA 010851592
UNITED STATES US

SHIP DATE: 16MAR20
ACTWGT: 41.55 LB
CAD: 108917564/CAFE3311

BILL RECIPIENT

TO SAMPLE RECEIVING
TESTAMERICA PITTSBURGH
301 ALPHA DRIVE

PITTSBURGH PA 15238

(412) 963-7058 REF:
INV:
PO: DEPT:

FedEx Express

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MPS# 0263 1095 8110 2404

Mstr# 1095 8110 2345 0201

TUE - 17 MAR 10:30
PRIORITY OVERNIGH

NA AGCA

15238
PA-US PI

Uncorrected temp 17.6 °C
Thermometer ID 011
CF 0 no ice Initials

PT-WI-SR-001 effective 11/8/18

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

FedEx Express

ORIGIN ID:EHTA (413) 572-4000
SHIPPING DEPT
TESTAMERICA WESTFIELD
501 SOUTHAMPTON RD
SUITE C
WESTFIELD, MA 010851592
UNITED STATES US

SHIP DATE: 16MAR20
ACTWGT: 45.50 LB
CAD: 108917564/CAFE3311

BILL RECIPIENT

TO SAMPLE RECEIVING
TESTAMERICA PITTSBURGH
301 ALPHA DRIVE

PITTSBURGH PA 15238
(412) 963-7058

INV:
PO:
REF:
DEPT:

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MPS# 0263 1095 8110 2415
Mstr# 1095 8110 2345

0201

TUE - 17 MAR 10:30A
PRIORITY OVERNIGHT

NA AGCA

15238
PA-US PIT

Uncorrected temp 15.7 °C
Thermometer ID 17
CF 0 no ice
Initials

PT-WI-SR-001 effective 11/8/18

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Part # 159469-434 RIT EXP 07/20 ee

ORIGIN ID:EHTA (413) 572-4000
SHIPPING DEPT
TESTAMERICA WESTFIELD
501 SOUTHAMPTON RD
SUITE C
WESTFIELD, MA 010851592
UNITED STATES US

SHIP DATE: 16MAR20
ACTWGT: 35.25 LB
CAD: 108917564/CAFE3311

BILL RECIPIENT

TO **SAMPLE RECEIVING**
TESTAMERICA PITTSBURGH
301 ALPHA DRIVE

PITTSBURGH PA 15238

(412) 963-7058 REF:
INV:
PO: DEPT:

FedEx Express

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MPS# 0263 **1095 8110 2426**

Mstr# 1095 8110 2345 0201

TUE - 17 MAR 10:30A
PRIORITY OVERNIGHT

NA AGCA

15238
PIT PA-US

Uncorrected temp 17.4 °C
Thermometer ID 17
no ice
CF 0 Initials NG

PT-WI-SR-001 effective 11/8/18

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Part # 159459-434 R11 EXP 07/20 ee

ORIGIN ID:EHTA (413) 572-4000
SHIPPING DEPT
TESTAMERICA WESTFIELD
501 SOUTHAMPTON RD
SUITE C
WESTFIELD, MA 010851592
UNITED STATES US

SHIP DATE: 16MAR20
ACTWGT: 51.75 LB
CAD: 108917564/CAFE3311

BILL RECIPIENT

TO SAMPLE RECEIVING
TESTAMERICA PITTSBURGH
301 ALPHA DRIVE

PITTSBURGH PA 15238

(412) 963-7058 REF:
INV:
PO: DEPT:

FedEx Express

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MPS# 0263 1095 8110 2437

Mstr# 1095 8110 2345 0201

TUE - 17 MAR 10:30
PRIORITY OVERNIGH

NA AGCA

15238
PA-US PIT

Uncorrected temp 19.8 °C
Thermometer ID 17
CF 0 no ice Initials MJ

PT-WI-SR-001 effective 11/8/18

Login Sample Receipt Checklist

Client: ENTACT, LLC

Job Number: 180-103654-4

Login Number: 103654
List Number: 1
Creator: Say, Thomas C

List Source: Eurofins TestAmerica, Pittsburgh

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

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-103654-5
Client Project/Site: Madbury Treatability Study

For:
ENTACT, LLC
5822 Lago Vista Drive
Corpus Christi, Texas 78414

Attn: Mr. Thad Slaughter

Authorized for release by:
9/29/2020 5:09:55 PM

Carrie Gamber, Senior Project Manager
(412)963-2428
Carrie.Gamber@Eurofinset.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416

Table of Contents

Job ID: 180-103654-5

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

CASE NARRATIVE

Client: ENTACT, LLC

Project: Madbury Treatability Study

Report Number: 180-103654-5

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

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

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

RECEIPT

The samples were received on 03/17/2020; the samples arrived in good condition. The temperatures of the 10 coolers at receipt time were 16.8º C, 17.4º C, 17.6º C, 17.6º C, 18.6º C, 18.6º C, 18.7º C, 19.4º C, 19.8º C and 20.2º C.

For the following 2 samples, the lid and COC inside the bucket have the same sample ID, however, the side of the bucket has the opposite sample ID. For the bucket labeled as FSA 8 on the side, the lid and the COC contain FSA 9 and vise versa. Per the client the correct sample ID is th one on the side of the bucket: SA-TREAT-8 (180-103654-8) and FSA-TREAT-9 (180-103654-9)

SEMIVOLATILES

The following samples were diluted to bring the concentration of target analytes within the calibration range: FSA-TREAT-3 10% TerraBond MG (180-103654-33), FSA-TREAT-6 10% TerraBond MG (180-103654-35) and FSA-TREAT-9 10% TerraBond MG (180-103654-36). Elevated reporting limits (RLs) are provided.

The following sample was diluted due to the nature of the sample matrix: FSA-TREAT-4 10% TerraBond MG (180-103654-34). Elevated reporting limits (RLs) are provided.

The following sample was diluted due to an abundance of target analytes: FSA-TREAT-6 10% TerraBond MG (180-103654-35). As such, surrogate recoveries are below the calibration range or are not reported, and elevated reporting limits (RLs) are provided.

PESTICIDES

The following samples were diluted due to the abundance of non-target analytes (PCBs): FSA-TREAT-8 10% TerraBond MG (180-103654-31), FSA-TREAT-1 10% TerraBond MG (180-103654-32), FSA-TREAT-3 10% TerraBond MG (180-103654-33), FSA-TREAT-4 10% TerraBond MG (180-103654-34), FSA-TREAT-6 10% TerraBond MG (180-103654-35), FSA-TREAT-9 10% TerraBond MG (180-103654-36), (180-103654-A-36-C MS) and (180-103654-A-36-D MSD) at 5x. Elevated reporting limits (RLs) are provided.

Surrogate DCB Decachlorobiphenyl (Surr) recovery for the following samples were outside control limits on one or both columns. : FSA-TREAT-8 10% TerraBond MG (180-103654-31), FSA-TREAT-1 10% TerraBond MG (180-103654-32), FSA-TREAT-3 10% TerraBond MG (180-103654-33), FSA-TREAT-4 10% TerraBond MG (180-103654-34), FSA-TREAT-6 10% TerraBond MG (180-103654-35), FSA-TREAT-9 10% TerraBond MG (180-103654-36), (180-103654-A-36-C MS) and (180-103654-A-36-D MSD). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

4,4'-DDT failed the recovery criteria high for the MS of sample FSA-TREAT-9 10% TerraBond MGMS (180-103654-36) in batch 180-329392. 4,4'-DDE and 4,4'-DDT failed the recovery criteria high for the MSD of sample FSA-TREAT-9 10% TerraBond MGMSD (180-103654-36) in batch 180-329392. 4,4'-DDD, 4,4'-DDE and 4,4'-DDT exceeded the RPD limit.

Job ID: 180-103654-5 (Continued)

Laboratory: Eurofins TestAmerica, Pittsburgh (Continued)

PCB

The following samples were diluted due to the abundance of target analytes: FSA-TREAT-8 10% TerraBond MG (180-103654-31), FSA-TREAT-3 10% TerraBond MG (180-103654-33), (180-103654-A-31-U MS), (180-103654-A-31-V MSD) and FSA-TREAT-6 10% TerraBond MG (180-103654-35).

Surrogate recovery for the following samples were outside control limits: FSA-TREAT-8 10% TerraBond MG (180-103654-31), FSA-TREAT-1 10% TerraBond MG (180-103654-32), FSA-TREAT-3 10% TerraBond MG (180-103654-33), FSA-TREAT-4 10% TerraBond MG (180-103654-34), FSA-TREAT-6 10% TerraBond MG (180-103654-35), FSA-TREAT-9 10% TerraBond MG (180-103654-36), (180-103654-A-31-U MS) and (180-103654-A-31-V MSD). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

PCB-1016 and PCB-1260 failed the recovery criteria high for the MS of sample FSA-TREAT-8 10% TerraBond MGMS (180-103654-31) in batch 180-330134. PCB-1016 failed the recovery criteria high for the MSD of sample FSA-TREAT-8 10% TerraBond MGMSD (180-103654-31) in batch 180-330134.

The second internal standard recovered high on the primary column due to sample matrix. Results were reported from the passing column for this internal standard: FSA-TREAT-8 10% TerraBond MG (180-103654-31), FSA-TREAT-4 10% TerraBond MG (180-103654-34), FSA-TREAT-6 10% TerraBond MG (180-103654-35), FSA-TREAT-9 10% TerraBond MG (180-103654-36), (180-103654-A-31-U MS) and (180-103654-A-31-V MSD).

Surrogate TCMX recovered slightly low int the CCVIS on the primary column. All surrogates were reported. (CCVIS 180-329092/26).

PCB 1221 was used for retention time purposes for the following samples: (CCV 180-330134/1) and (CCV 180-330350/1).

METALS

The following samples were diluted due to the high concentration of Zinc in the sample matrix: FSA-TREAT-8 10% TerraBond MG (180-103654-31), FSA-TREAT-1 10% TerraBond MG (180-103654-32), FSA-TREAT-3 10% TerraBond MG (180-103654-33), FSA-TREAT-4 10% TerraBond MG (180-103654-34), FSA-TREAT-6 10% TerraBond MG (180-103654-35), FSA-TREAT-9 10% TerraBond MG (180-103654-36), (180-103654-A-31-J MS ^5), (180-103654-A-31-K MSD ^5), (180-103654-A-31-I PDS ^5) and (180-103654-A-31-I SD ^25). Elevated reporting limits (RLs) are provided.

Several analytes failed the recovery criteria high for the MS of sample FSA-TREAT-8 10% TerraBond MGMS (180-103654-31) in batch 180-331557. Several analytes failed the recovery criteria high for the MSD of sample FSA-TREAT-8 10% TerraBond MGMSD (180-103654-31) in batch 180-331557. The presence of the '4' qualifier indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount.

Mercury failed the recovery criteria low for the MSD of sample FSA-TREAT-8 10% TerraBond MGMSD (180-103654-31) in batch 180-330201. The presence of the '4' qualifier indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount.

The post digestion spike % recovery for Barium associated with batch 180-331557 was outside of control limits. The associated sample is: FSA-TREAT-8 10% TerraBond MG (180-103654-31).

GENERAL CHEMISTRY

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

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution may be flagged with a D.
E	Result exceeded calibration range.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
X	Surrogate recovery exceeds control limits

GC Semi VOA

Qualifier	Qualifier Description
*3	ISTD response or retention time outside acceptable limits.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
X	Surrogate recovery exceeds control limits

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
E	Result exceeded calibration range.
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-5

Laboratory: Eurofins TestAmerica, Pittsburgh

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New Hampshire	NELAP	2030	04-05-21

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
2540G		Solid	Percent Moisture
2540G		Solid	Percent Solids

Sample Summary

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-5

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
180-103654-31	FSA-TREAT-8 10% TerraBond MG	Solid	08/31/20 14:00	03/17/20 09:00	
180-103654-32	FSA-TREAT-1 10% TerraBond MG	Solid	08/31/20 14:00	03/17/20 09:00	
180-103654-33	FSA-TREAT-3 10% TerraBond MG	Solid	08/31/20 14:00	03/17/20 09:00	
180-103654-34	FSA-TREAT-4 10% TerraBond MG	Solid	08/31/20 14:00	03/17/20 09:00	
180-103654-35	FSA-TREAT-6 10% TerraBond MG	Solid	08/31/20 14:00	03/17/20 09:00	
180-103654-36	FSA-TREAT-9 10% TerraBond MG	Solid	08/31/20 14:00	03/17/20 09:00	

Method Summary

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-5

Method	Method Description	Protocol	Laboratory
EPA 8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL PIT
EPA 8081B	Organochlorine Pesticides (GC)	SW846	TAL PIT
EPA 8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	TAL PIT
EPA 6010D	Metals (ICP)	SW846	TAL PIT
EPA 6020B	Metals (ICP/MS)	SW846	TAL PIT
EPA 7470A	Mercury (CVAA)	SW846	TAL PIT
EPA 7471B	Mercury (CVAA)	SW846	TAL PIT
2540G	SM 2540G	SM22	TAL PIT
EPA 9045D	pH	SW846	TAL PIT
3010A	Preparation, Total Metals	SW846	TAL PIT
3050B	Preparation, Metals	SW846	TAL PIT
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL PIT
3520C	Liquid-Liquid Extraction (Continuous)	SW846	TAL PIT
3541	Automated Soxhlet Extraction	SW846	TAL PIT
3660B	Sulfur Cleanup	SW846	TAL PIT
3665A	Sulfuric Acid/Permanganate Cleanup	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT
7471B	Preparation, Mercury	SW846	TAL PIT
EPA 1311	TCLP Extraction	SW846	TAL PIT

Protocol References:

SM22 = Standard Methods For The Examination Of Water And Wastewater, 22nd Edition

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

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-5

Client Sample ID: FSA-TREAT-8 10% TerraBond MG

Lab Sample ID: 180-103654-31
Date Collected: 08/31/20 14:00
Matrix: Solid
Date Received: 03/17/20 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	EPA 1311			100.14 g	2000 mL	327993	09/02/20 17:30	GRN	TAL PIT
TCLP	Prep	3510C			100 mL	40.0 mL	328413	09/03/20 11:30	CBY	TAL PIT
TCLP	Analysis	EPA 8081B		1			329123	09/11/20 03:16	DFE	TAL PIT
	Instrument ID:	CHGC15								
TCLP	Leach	EPA 1311			100.14 g	2000 mL	327993	09/02/20 17:30	GRN	TAL PIT
TCLP	Prep	3510C			1050 mL	40.0 mL	328411	09/03/20 10:15	CBY	TAL PIT
TCLP	Analysis	EPA 8082A		1			329092	09/10/20 12:37	JMO	TAL PIT
	Instrument ID:	CHGC16								
TCLP	Leach	EPA 1311			100.14 g	2000 mL	327993	09/02/20 17:30	GRN	TAL PIT
TCLP	Prep	3010A			5 mL	50 mL	329231	09/10/20 16:10	TJO	TAL PIT
TCLP	Analysis	EPA 6010D		1			330282	09/17/20 17:30	RJG	TAL PIT
	Instrument ID:	C								
TCLP	Leach	EPA 1311			100.14 g	2000 mL	327993	09/02/20 17:30	GRN	TAL PIT
TCLP	Prep	7470A			50 mL	50 mL	328429	09/04/20 05:40	RJR	TAL PIT
TCLP	Analysis	EPA 7470A		1			328649	09/05/20 10:36	RJR	TAL PIT
	Instrument ID:	HGZ								
Total/NA	Analysis	2540G		1			329059	09/09/20 20:57	PMH	TAL PIT
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	EPA 9045D		1	20.20 g	20 mL	330428	09/18/20 17:36	PMH	TAL PIT
	Instrument ID:	NOEQUIP								

Client Sample ID: FSA-TREAT-8 10% TerraBond MG

Lab Sample ID: 180-103654-31
Date Collected: 08/31/20 14:00
Matrix: Solid
Date Received: 03/17/20 09:00
Percent Solids: 83.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3541			15.03 g	20 mL	328097	09/01/20 21:47	JAS	TAL PIT
Total/NA	Analysis	EPA 8081B		5			329392	09/11/20 13:21	DFE	TAL PIT
	Instrument ID:	CHGC15								
Total/NA	Prep	3541			15.80 g	20 mL	328104	09/09/20 21:30	NJD	TAL PIT
Total/NA	Cleanup	3665A			2 mL	2 mL	329978	09/16/20 12:52	DFE	TAL PIT
Total/NA	Cleanup	3660B			2 mL	2 mL	329979	09/16/20 12:53	DFE	TAL PIT
Total/NA	Analysis	EPA 8082A		10			330134	09/17/20 10:48	JMO	TAL PIT
	Instrument ID:	CHGC16								
Total/NA	Prep	3050B			1.12 g	100 mL	329133	09/10/20 08:32	TJO	TAL PIT
Total/NA	Analysis	EPA 6020B		5			331557	09/26/20 23:59	RSK	TAL PIT
	Instrument ID:	A								
Total/NA	Prep	7471B			0.61 g	100 mL	329662	09/15/20 05:34	RJR	TAL PIT
Total/NA	Analysis	EPA 7471B		1			330201	09/17/20 11:00	RJR	TAL PIT
	Instrument ID:	HGY								

Lab Chronicle

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-5

Client Sample ID: FSA-TREAT-1 10% TerraBond MG

Lab Sample ID: 180-103654-32
Date Collected: 08/31/20 14:00
Matrix: Solid
Date Received: 03/17/20 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	EPA 1311			140.20 g	2800 mL	327993	09/02/20 17:30	GRN	TAL PIT
TCLP	Prep	3520C			260 mL	2.5 mL	328971	09/09/20 10:19	BJT	TAL PIT
TCLP	Analysis	EPA 8270D		1	1 mL	1 mL	329579	09/14/20 21:16	VVP	TAL PIT
	Instrument ID:	CH733								
TCLP	Leach	EPA 1311			140.20 g	2800 mL	327993	09/02/20 17:30	GRN	TAL PIT
TCLP	Prep	3510C			100 mL	40.0 mL	328413	09/03/20 11:30	CBY	TAL PIT
TCLP	Analysis	EPA 8081B		1			329123	09/11/20 03:32	DFE	TAL PIT
	Instrument ID:	CHGC15								
TCLP	Leach	EPA 1311			140.20 g	2800 mL	327993	09/02/20 17:30	GRN	TAL PIT
TCLP	Prep	3510C			1040 mL	40.0 mL	328411	09/03/20 10:15	CBY	TAL PIT
TCLP	Analysis	EPA 8082A		1			329092	09/10/20 12:56	JMO	TAL PIT
	Instrument ID:	CHGC16								
TCLP	Leach	EPA 1311			140.20 g	2800 mL	327993	09/02/20 17:30	GRN	TAL PIT
TCLP	Prep	3010A			5 mL	50 mL	329231	09/10/20 16:10	TJO	TAL PIT
TCLP	Analysis	EPA 6010D		1			330282	09/17/20 18:02	RJG	TAL PIT
	Instrument ID:	C								
TCLP	Leach	EPA 1311			140.20 g	2800 mL	327993	09/02/20 17:30	GRN	TAL PIT
TCLP	Prep	7470A			50 mL	50 mL	328429	09/04/20 05:40	RJR	TAL PIT
TCLP	Analysis	EPA 7470A		1			328649	09/05/20 10:37	RJR	TAL PIT
	Instrument ID:	HGZ								
Total/NA	Analysis	2540G		1			329059	09/09/20 20:57	PMH	TAL PIT
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	EPA 9045D		1	20.42 g	20 mL	330428	09/18/20 17:38	PMH	TAL PIT
	Instrument ID:	NOEQUIP								

Client Sample ID: FSA-TREAT-1 10% TerraBond MG

Lab Sample ID: 180-103654-32
Date Collected: 08/31/20 14:00
Matrix: Solid
Date Received: 03/17/20 09:00
Percent Solids: 88.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3541			15.5 g	5.0 mL	329359	09/11/20 10:01	JAS	TAL PIT
Total/NA	Analysis	EPA 8270D		4	1 mL	1 mL	329762	09/16/20 00:00	VVP	TAL PIT
	Instrument ID:	CH733								
Total/NA	Prep	3541			15.03 g	20 mL	328097	09/01/20 21:47	JAS	TAL PIT
Total/NA	Analysis	EPA 8081B		5			329392	09/11/20 13:37	DFE	TAL PIT
	Instrument ID:	CHGC15								
Total/NA	Prep	3541			15.94 g	20 mL	328104	09/09/20 21:30	NJD	TAL PIT
Total/NA	Cleanup	3665A			2 mL	2 mL	329978	09/16/20 12:52	DFE	TAL PIT
Total/NA	Cleanup	3660B			2 mL	2 mL	329979	09/16/20 12:53	DFE	TAL PIT
Total/NA	Analysis	EPA 8082A		1			330134	09/17/20 11:45	JMO	TAL PIT
	Instrument ID:	CHGC16								
Total/NA	Prep	3050B			1.04 g	100 mL	329133	09/10/20 08:32	TJO	TAL PIT
Total/NA	Analysis	EPA 6020B		5			331557	09/27/20 00:17	RSK	TAL PIT
	Instrument ID:	A								

Lab Chronicle

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-5

Client Sample ID: FSA-TREAT-1 10% TerraBond MG — Lab Sample ID: 180-103654-32

Date Collected: 08/31/20 14:00 — **Matrix: Solid**
Date Received: 03/17/20 09:00 — **Percent Solids: 88.9**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7471B			0.62 g	100 mL	329662	09/15/20 05:34	RJR	TAL PIT
Total/NA	Analysis	EPA 7471B		1			330201	09/17/20 11:07	RJR	TAL PIT
	Instrument ID:	HGY								

Client Sample ID: FSA-TREAT-3 10% TerraBond MG — Lab Sample ID: 180-103654-33

Date Collected: 08/31/20 14:00 — **Matrix: Solid**
Date Received: 03/17/20 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	EPA 1311			140.72 g	2800 mL	327993	09/02/20 17:30	GRN	TAL PIT
TCLP	Prep	3520C			260 mL	2.5 mL	328971	09/09/20 10:19	BJT	TAL PIT
TCLP	Analysis	EPA 8270D		1	1 mL	1 mL	329579	09/14/20 21:41	VVP	TAL PIT
	Instrument ID:	CH733								
TCLP	Leach	EPA 1311			140.72 g	2800 mL	327993	09/02/20 17:30	GRN	TAL PIT
TCLP	Prep	3510C			100 mL	40.0 mL	328413	09/03/20 11:30	CBY	TAL PIT
TCLP	Analysis	EPA 8081B		1			329123	09/11/20 03:47	DFE	TAL PIT
	Instrument ID:	CHGC15								
TCLP	Leach	EPA 1311			140.72 g	2800 mL	327993	09/02/20 17:30	GRN	TAL PIT
TCLP	Prep	3510C			1030 mL	40.0 mL	328411	09/03/20 10:15	CBY	TAL PIT
TCLP	Analysis	EPA 8082A		1	1 uL	1.0 mL	329092	09/10/20 13:15	JMO	TAL PIT
	Instrument ID:	CHGC16								
TCLP	Leach	EPA 1311			140.72 g	2800 mL	327993	09/02/20 17:30	GRN	TAL PIT
TCLP	Prep	3010A			5 mL	50 mL	329231	09/10/20 16:10	TJO	TAL PIT
TCLP	Analysis	EPA 6010D		1			330282	09/17/20 18:07	RJG	TAL PIT
	Instrument ID:	C								
TCLP	Leach	EPA 1311			140.72 g	2800 mL	327993	09/02/20 17:30	GRN	TAL PIT
TCLP	Prep	7470A			50 mL	50 mL	328429	09/04/20 05:40	RJR	TAL PIT
TCLP	Analysis	EPA 7470A		1			328649	09/05/20 10:38	RJR	TAL PIT
	Instrument ID:	HGZ								
Total/NA	Analysis	2540G		1			329059	09/09/20 20:57	PMH	TAL PIT
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	EPA 9045D		1	20.12 g	20 mL	330428	09/18/20 17:39	PMH	TAL PIT
	Instrument ID:	NOEQUIP								

Client Sample ID: FSA-TREAT-3 10% TerraBond MG — Lab Sample ID: 180-103654-33

Date Collected: 08/31/20 14:00 — **Matrix: Solid**
Date Received: 03/17/20 09:00 — **Percent Solids: 86.5**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3541			15.0 g	5.0 mL	329359	09/11/20 10:01	JAS	TAL PIT
Total/NA	Analysis	EPA 8270D		10	1 mL	1 mL	329892	09/16/20 14:00	VVP	TAL PIT
	Instrument ID:	CH71								
Total/NA	Prep	3541			15.02 g	20 mL	328097	09/01/20 21:47	JAS	TAL PIT
Total/NA	Analysis	EPA 8081B		5			329392	09/11/20 13:52	DFE	TAL PIT
	Instrument ID:	CHGC15								

Lab Chronicle

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-5

Client Sample ID: FSA-TREAT-3 10% TerraBond MG

Lab Sample ID: 180-103654-33
Date Collected: 08/31/20 14:00
Matrix: Solid
Date Received: 03/17/20 09:00
Percent Solids: 86.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3541			15.92 g	20 mL	328104	09/09/20 21:30	NJD	TAL PIT
Total/NA	Cleanup	3665A			2 mL	2 mL	329978	09/16/20 12:52	DFE	TAL PIT
Total/NA	Cleanup	3660B			2 mL	2 mL	329979	09/16/20 12:53	DFE	TAL PIT
Total/NA	Analysis	EPA 8082A		10			330134	09/17/20 12:04	JMO	TAL PIT
	Instrument ID:	CHGC16								
Total/NA	Prep	3050B			1.02 g	100 mL	329133	09/10/20 08:32	TJO	TAL PIT
Total/NA	Analysis	EPA 6020B		5			331557	09/27/20 00:20	RSK	TAL PIT
	Instrument ID:	A								
Total/NA	Prep	7471B			0.78 g	100 mL	329662	09/15/20 05:34	RJR	TAL PIT
Total/NA	Analysis	EPA 7471B		1			330201	09/17/20 11:09	RJR	TAL PIT
	Instrument ID:	HGY								

Client Sample ID: FSA-TREAT-4 10% TerraBond MG

Lab Sample ID: 180-103654-34
Date Collected: 08/31/20 14:00
Matrix: Solid
Date Received: 03/17/20 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	EPA 1311			140.26 g	2800 mL	327993	09/02/20 17:30	GRN	TAL PIT
TCLP	Prep	3520C			260 mL	2.5 mL	328971	09/09/20 10:19	BJT	TAL PIT
TCLP	Analysis	EPA 8270D		1	1 mL	1 mL	329579	09/14/20 22:07	VVP	TAL PIT
	Instrument ID:	CH733								
TCLP	Leach	EPA 1311			140.26 g	2800 mL	327993	09/02/20 17:30	GRN	TAL PIT
TCLP	Prep	3510C			100 mL	40.0 mL	328413	09/03/20 11:30	CBY	TAL PIT
TCLP	Analysis	EPA 8081B		1			329123	09/11/20 04:03	DFE	TAL PIT
	Instrument ID:	CHGC15								
TCLP	Leach	EPA 1311			140.26 g	2800 mL	327993	09/02/20 17:30	GRN	TAL PIT
TCLP	Prep	3510C			1040 mL	40.0 mL	328411	09/03/20 10:15	CBY	TAL PIT
TCLP	Analysis	EPA 8082A		1			329092	09/10/20 14:49	JMO	TAL PIT
	Instrument ID:	CHGC16								
TCLP	Leach	EPA 1311			140.26 g	2800 mL	327993	09/02/20 17:30	GRN	TAL PIT
TCLP	Prep	3010A			5 mL	50 mL	329231	09/10/20 16:13	TJO	TAL PIT
TCLP	Analysis	EPA 6010D		1			330282	09/17/20 18:11	RJG	TAL PIT
	Instrument ID:	C								
TCLP	Leach	EPA 1311			140.26 g	2800 mL	327993	09/02/20 17:30	GRN	TAL PIT
TCLP	Prep	7470A			50 mL	50 mL	328429	09/04/20 05:40	RJR	TAL PIT
TCLP	Analysis	EPA 7470A		1			328649	09/05/20 10:39	RJR	TAL PIT
	Instrument ID:	HGZ								
Total/NA	Analysis	2540G		1			329059	09/09/20 20:57	PMH	TAL PIT
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	EPA 9045D		1	20.21 g	20 mL	330428	09/18/20 17:40	PMH	TAL PIT
	Instrument ID:	NOEQUIP								

Lab Chronicle

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-5

Client Sample ID: FSA-TREAT-4 10% TerraBond MG

Lab Sample ID: 180-103654-34
Date Collected: 08/31/20 14:00
Matrix: Solid
Date Received: 03/17/20 09:00
Percent Solids: 83.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3541			15.2 g	5.0 mL	329359	09/11/20 10:01	JAS	TAL PIT
Total/NA	Analysis	EPA 8270D		10	1 mL	1 mL	329892	09/16/20 14:27	VVP	TAL PIT
	Instrument ID:	CH71								
Total/NA	Prep	3541			15.02 g	20 mL	328097	09/01/20 21:47	JAS	TAL PIT
Total/NA	Analysis	EPA 8081B		5			329392	09/11/20 14:08	DFE	TAL PIT
	Instrument ID:	CHGC15								
Total/NA	Prep	3541			15.05 g	20 mL	328104	09/09/20 21:30	NJD	TAL PIT
Total/NA	Cleanup	3665A			2 mL	2 mL	329978	09/16/20 12:52	DFE	TAL PIT
Total/NA	Cleanup	3660B			2 mL	2 mL	329979	09/16/20 12:53	DFE	TAL PIT
Total/NA	Analysis	EPA 8082A		1			330134	09/17/20 12:23	JMO	TAL PIT
	Instrument ID:	CHGC16								
Total/NA	Prep	3050B			1.14 g	100 mL	329133	09/10/20 08:32	TJO	TAL PIT
Total/NA	Analysis	EPA 6020B		5			331557	09/27/20 00:24	RSK	TAL PIT
	Instrument ID:	A								
Total/NA	Prep	7471B			0.61 g	100 mL	329662	09/15/20 05:34	RJR	TAL PIT
Total/NA	Analysis	EPA 7471B		1			330201	09/17/20 11:14	RJR	TAL PIT
	Instrument ID:	HGY								

Client Sample ID: FSA-TREAT-6 10% TerraBond MG

Lab Sample ID: 180-103654-35
Date Collected: 08/31/20 14:00
Matrix: Solid
Date Received: 03/17/20 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	EPA 1311			140.15 g	2800 mL	327993	09/02/20 17:30	GRN	TAL PIT
TCLP	Prep	3520C			260 mL	2.5 mL	328971	09/09/20 10:22	BJT	TAL PIT
TCLP	Analysis	EPA 8270D		1	1 mL	1 mL	329579	09/14/20 22:32	VVP	TAL PIT
	Instrument ID:	CH733								
TCLP	Leach	EPA 1311			140.15 g	2800 mL	327993	09/02/20 17:30	GRN	TAL PIT
TCLP	Prep	3510C			100 mL	40.0 mL	328413	09/03/20 11:30	CBY	TAL PIT
TCLP	Analysis	EPA 8081B		1			329123	09/11/20 04:18	DFE	TAL PIT
	Instrument ID:	CHGC15								
TCLP	Leach	EPA 1311			140.15 g	2800 mL	327993	09/02/20 17:30	GRN	TAL PIT
TCLP	Prep	3510C			1020 mL	40.0 mL	328411	09/03/20 10:15	CBY	TAL PIT
TCLP	Analysis	EPA 8082A		1			329092	09/10/20 15:08	JMO	TAL PIT
	Instrument ID:	CHGC16								
TCLP	Leach	EPA 1311			140.15 g	2800 mL	327993	09/02/20 17:30	GRN	TAL PIT
TCLP	Prep	3010A			5 mL	50 mL	329231	09/10/20 16:13	TJO	TAL PIT
TCLP	Analysis	EPA 6010D		1			330282	09/17/20 18:16	RJG	TAL PIT
	Instrument ID:	C								
TCLP	Leach	EPA 1311			140.15 g	2800 mL	327993	09/02/20 17:30	GRN	TAL PIT
TCLP	Prep	7470A			50 mL	50 mL	328429	09/04/20 05:40	RJR	TAL PIT
TCLP	Analysis	EPA 7470A		1			328649	09/05/20 10:40	RJR	TAL PIT
	Instrument ID:	HGZ								
Total/NA	Analysis	2540G		1			329059	09/09/20 20:57	PMH	TAL PIT
	Instrument ID:	NOEQUIP								

Lab Chronicle

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-5

Client Sample ID: FSA-TREAT-6 10% TerraBond MG — Lab Sample ID: 180-103654-35

Date Collected: 08/31/20 14:00 — **Matrix: Solid**
Date Received: 03/17/20 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9045D		1	20.18 g	20 mL	330428	09/18/20 17:42	PMH	TAL PIT

Client Sample ID: FSA-TREAT-6 10% TerraBond MG — Lab Sample ID: 180-103654-35

Date Collected: 08/31/20 14:00 — **Matrix: Solid**
Date Received: 03/17/20 09:00 — **Percent Solids: 81.8**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3541			15.0 g	5.0 mL	329359	09/11/20 10:01	JAS	TAL PIT
Total/NA	Analysis	EPA 8270D		10	1 mL	1 mL	329892	09/16/20 14:53	VVP	TAL PIT
	Instrument ID:	CH71								
Total/NA	Prep	3541	DL		15.0 g	5.0 mL	329359	09/11/20 10:01	JAS	TAL PIT
Total/NA	Analysis	EPA 8270D	DL	40	1 mL	1 mL	330141	09/17/20 12:05	VVP	TAL PIT
	Instrument ID:	CH71								
Total/NA	Prep	3541			15.01 g	20 mL	328097	09/01/20 21:47	JAS	TAL PIT
Total/NA	Analysis	EPA 8081B		5			329392	09/11/20 14:23	DFE	TAL PIT
	Instrument ID:	CHGC15								
Total/NA	Prep	3541			15.31 g	20 mL	328104	09/09/20 21:30	NJD	TAL PIT
Total/NA	Cleanup	3665A			2 mL	2 mL	329978	09/16/20 12:52	DFE	TAL PIT
Total/NA	Cleanup	3660B			2 mL	2 mL	329979	09/16/20 12:53	DFE	TAL PIT
Total/NA	Analysis	EPA 8082A		10			330350	09/18/20 11:49	JMO	TAL PIT
	Instrument ID:	CHGC16								
Total/NA	Prep	3050B			1.04 g	100 mL	329133	09/10/20 08:32	TJO	TAL PIT
Total/NA	Analysis	EPA 6020B		5			331557	09/27/20 00:35	RSK	TAL PIT
	Instrument ID:	A								
Total/NA	Prep	7471B			0.63 g	100 mL	329662	09/15/20 05:34	RJR	TAL PIT
Total/NA	Analysis	EPA 7471B		1			330201	09/17/20 11:17	RJR	TAL PIT
	Instrument ID:	HGY								

Client Sample ID: FSA-TREAT-9 10% TerraBond MG — Lab Sample ID: 180-103654-36

Date Collected: 08/31/20 14:00 — **Matrix: Solid**
Date Received: 03/17/20 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	EPA 1311			140.21 g	2800 mL	327993	09/02/20 17:30	GRN	TAL PIT
TCLP	Prep	3520C			260 mL	2.5 mL	328971	09/09/20 10:22	BJT	TAL PIT
TCLP	Analysis	EPA 8270D		1	1 mL	1 mL	329579	09/14/20 22:58	VVP	TAL PIT
	Instrument ID:	CH733								
TCLP	Leach	EPA 1311			140.21 g	2800 mL	327993	09/02/20 17:30	GRN	TAL PIT
TCLP	Prep	3510C			100 mL	40.0 mL	328413	09/03/20 11:30	CBY	TAL PIT
TCLP	Analysis	EPA 8081B		1			329123	09/11/20 04:34	DFE	TAL PIT
	Instrument ID:	CHGC15								
TCLP	Leach	EPA 1311			140.21 g	2800 mL	327993	09/02/20 17:30	GRN	TAL PIT
TCLP	Prep	3510C			1050 mL	40.0 mL	328411	09/03/20 10:15	CBY	TAL PIT
TCLP	Analysis	EPA 8082A		1			329092	09/10/20 15:27	JMO	TAL PIT
	Instrument ID:	CHGC16								

Lab Chronicle

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-5

Client Sample ID: FSA-TREAT-9 10% TerraBond MG

Lab Sample ID: 180-103654-36
Date Collected: 08/31/20 14:00
Matrix: Solid
Date Received: 03/17/20 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	EPA 1311			140.21 g	2800 mL	327993	09/02/20 17:30	GRN	TAL PIT
TCLP	Prep	3010A			5 mL	50 mL	329231	09/10/20 16:13	TJO	TAL PIT
TCLP	Analysis	EPA 6010D		1			330282	09/17/20 18:21	RJG	TAL PIT
	Instrument ID:	C								
TCLP	Leach	EPA 1311			140.21 g	2800 mL	327993	09/02/20 17:30	GRN	TAL PIT
TCLP	Prep	7470A			50 mL	50 mL	328429	09/04/20 05:40	RJR	TAL PIT
TCLP	Analysis	EPA 7470A		1			328649	09/05/20 10:41	RJR	TAL PIT
	Instrument ID:	HGZ								
Total/NA	Analysis	2540G		1			329059	09/09/20 20:57	PMH	TAL PIT
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	EPA 9045D		1	20.38 g	20 mL	330428	09/18/20 17:43	PMH	TAL PIT
	Instrument ID:	NOEQUIP								

Client Sample ID: FSA-TREAT-9 10% TerraBond MG

Lab Sample ID: 180-103654-36
Date Collected: 08/31/20 14:00
Matrix: Solid
Date Received: 03/17/20 09:00
Percent Solids: 82.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3541			15.1 g	5.0 mL	329359	09/11/20 10:01	JAS	TAL PIT
Total/NA	Analysis	EPA 8270D		10	1 mL	1 mL	329892	09/16/20 15:20	VVP	TAL PIT
	Instrument ID:	CH71								
Total/NA	Prep	3541			15.02 g	20 mL	328097	09/01/20 21:47	JAS	TAL PIT
Total/NA	Analysis	EPA 8081B		5			329392	09/11/20 14:39	DFE	TAL PIT
	Instrument ID:	CHGC15								
Total/NA	Prep	3541			15.37 g	20 mL	328104	09/09/20 21:30	NJD	TAL PIT
Total/NA	Cleanup	3665A			2 mL	2 mL	329978	09/16/20 12:52	DFE	TAL PIT
Total/NA	Cleanup	3660B			2 mL	2 mL	329979	09/16/20 12:53	DFE	TAL PIT
Total/NA	Analysis	EPA 8082A		1			330134	09/17/20 13:00	JMO	TAL PIT
	Instrument ID:	CHGC16								
Total/NA	Prep	3050B			1.10 g	100 mL	329133	09/10/20 08:32	TJO	TAL PIT
Total/NA	Analysis	EPA 6020B		5			331557	09/27/20 00:38	RSK	TAL PIT
	Instrument ID:	A								
Total/NA	Prep	7471B			0.63 g	100 mL	329662	09/15/20 05:34	RJR	TAL PIT
Total/NA	Analysis	EPA 7471B		1			330201	09/17/20 11:19	RJR	TAL PIT
	Instrument ID:	HGY								

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Analyst References:

Lab: TAL PIT

- Batch Type: Cleanup
  - DFE = David Eppinger
  - GRN = Gavin Nicholls
- Batch Type: Prep
  - BJT = Bill Trout
  - CBY = Charles Yushinski
  - JAS = Jeremy Stundon
  - NJD = Nicholas DiNardo
  - RJR = Ron Rosenbaum
  - TJO = Tyler Oliver
- Batch Type: Analysis
  - DFE = David Eppinger
  - JMO = John Oravec
  - PMH = Paloma Hoelzle
  - RJG = Rob Good
  - RJR = Ron Rosenbaum
  - RSK = Robert Kurtz
  - VVP = Vincent Piccolino

Client Sample Results

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-5

Client Sample ID: FSA-TREAT-8 10% TerraBond MG

Lab Sample ID: 180-103654-31

Date Collected: 08/31/20 14:00
Matrix: Solid
Date Received: 03/17/20 09:00

Method: EPA 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.00050	0.00021	mg/L		09/03/20 11:30	09/11/20 03:16	1
4,4'-DDE	ND		0.00050	0.00012	mg/L		09/03/20 11:30	09/11/20 03:16	1
4,4'-DDT	ND		0.00050	0.00012	mg/L		09/03/20 11:30	09/11/20 03:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*96*		*62 - 150*	*09/03/20 11:30*	*09/11/20 03:16*	*1*
DCB Decachlorobiphenyl (Surr)	*105*		*62 - 150*	*09/03/20 11:30*	*09/11/20 03:16*	*1*
Tetrachloro-m-xylene	*81*		*54 - 138*	*09/03/20 11:30*	*09/11/20 03:16*	*1*
Tetrachloro-m-xylene	*83*		*54 - 138*	*09/03/20 11:30*	*09/11/20 03:16*	*1*

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.00038	0.00018	mg/L		09/03/20 10:15	09/10/20 12:37	1
PCB-1221	ND		0.00038	0.00022	mg/L		09/03/20 10:15	09/10/20 12:37	1
PCB-1232	ND		0.00038	0.00020	mg/L		09/03/20 10:15	09/10/20 12:37	1
PCB-1242	ND		0.00038	0.00014	mg/L		09/03/20 10:15	09/10/20 12:37	1
PCB-1248	ND		0.00038	0.00011	mg/L		09/03/20 10:15	09/10/20 12:37	1
PCB-1254	ND		0.00038	0.00017	mg/L		09/03/20 10:15	09/10/20 12:37	1
PCB-1260	ND		0.00038	0.00015	mg/L		09/03/20 10:15	09/10/20 12:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene (Surr)	*59*		*45 - 133*	*09/03/20 10:15*	*09/10/20 12:37*	*1*
Tetrachloro-m-xylene (Surr)	*64*		*45 - 133*	*09/03/20 10:15*	*09/10/20 12:37*	*1*
DCB Decachlorobiphenyl (Surr)	*92*		*59 - 144*	*09/03/20 10:15*	*09/10/20 12:37*	*1*
DCB Decachlorobiphenyl (Surr)	*87*		*59 - 144*	*09/03/20 10:15*	*09/10/20 12:37*	*1*

Method: EPA 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.50	0.0085	mg/L		09/10/20 16:10	09/17/20 17:30	1
Barium	**0.31**	**J**	2.0	0.026	mg/L		09/10/20 16:10	09/17/20 17:30	1
Cadmium	**0.0043**	**J**	0.50	0.0028	mg/L		09/10/20 16:10	09/17/20 17:30	1
Chromium	ND		0.50	0.0078	mg/L		09/10/20 16:10	09/17/20 17:30	1
Lead	ND		0.50	0.029	mg/L		09/10/20 16:10	09/17/20 17:30	1
Beryllium	ND		0.040	0.0033	mg/L		09/10/20 16:10	09/17/20 17:30	1
Arsenic	ND		0.50	0.041	mg/L		09/10/20 16:10	09/17/20 17:30	1
Nickel	**0.085**	**J**	0.40	0.015	mg/L		09/10/20 16:10	09/17/20 17:30	1
Antimony	**0.038**	**J**	0.10	0.034	mg/L		09/10/20 16:10	09/17/20 17:30	1
Thallium	ND		0.20	0.033	mg/L		09/10/20 16:10	09/17/20 17:30	1

Method: EPA 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00010	mg/L		09/04/20 05:40	09/05/20 10:36	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**16.2**		0.1	0.1	%			09/09/20 20:57	1
Percent Solids	**83.8**		0.1	0.1	%			09/09/20 20:57	1
pH	**11.0**	**HF**	0.1	0.1	SU			09/18/20 17:36	1

Client Sample Results

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-5

Client Sample ID: FSA-TREAT-8 10% TerraBond MG

Lab Sample ID: 180-103654-31
Date Collected: 08/31/20 14:00
Matrix: Solid
Date Received: 03/17/20 09:00
Percent Solids: 83.8

Method: EPA 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		10	4.3	ug/Kg	☼	09/01/20 21:47	09/11/20 13:21	5
4,4'-DDE	ND		10	2.0	ug/Kg	☼	09/01/20 21:47	09/11/20 13:21	5
4,4'-DDT	ND		10	3.9	ug/Kg	☼	09/01/20 21:47	09/11/20 13:21	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*121*		*44 - 130*	*09/01/20 21:47*	*09/11/20 13:21*	*5*
Tetrachloro-m-xylene	*83*		*44 - 130*	*09/01/20 21:47*	*09/11/20 13:21*	*5*
DCB Decachlorobiphenyl (Surr)	*0*	*X*	*41 - 150*	*09/01/20 21:47*	*09/11/20 13:21*	*5*
DCB Decachlorobiphenyl (Surr)	*0*	*X*	*41 - 150*	*09/01/20 21:47*	*09/11/20 13:21*	*5*

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND	F1	190	61	ug/Kg	☼	09/09/20 21:30	09/17/20 10:48	10
PCB-1221	ND		190	67	ug/Kg	☼	09/09/20 21:30	09/17/20 10:48	10
PCB-1232	ND		190	46	ug/Kg	☼	09/09/20 21:30	09/17/20 10:48	10
PCB-1242	**11000**		190	28	ug/Kg	☼	09/09/20 21:30	09/17/20 10:48	10
PCB-1248	ND		190	45	ug/Kg	☼	09/09/20 21:30	09/17/20 10:48	10
PCB-1254	ND		190	57	ug/Kg	☼	09/09/20 21:30	09/17/20 10:48	10
PCB-1260	**2800**	**F1**	190	54	ug/Kg	☼	09/09/20 21:30	09/17/20 10:48	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*60*	*X *3 p*	*61 - 132*	*09/09/20 21:30*	*09/17/20 10:48*	*10*
DCB Decachlorobiphenyl (Surr)	*359*	*X*	*61 - 132*	*09/09/20 21:30*	*09/17/20 10:48*	*10*
Tetrachloro-m-xylene (Surr)	*78*		*51 - 112*	*09/09/20 21:30*	*09/17/20 10:48*	*10*
Tetrachloro-m-xylene (Surr)	*78*		*51 - 112*	*09/09/20 21:30*	*09/17/20 10:48*	*10*

Method: EPA 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**12**		0.53	0.17	mg/Kg	☼	09/10/20 08:32	09/26/20 23:59	5
Barium	**570**		5.3	0.68	mg/Kg	☼	09/10/20 08:32	09/26/20 23:59	5
Beryllium	**0.38**	**J**	0.53	0.38	mg/Kg	☼	09/10/20 08:32	09/26/20 23:59	5
Cadmium	**13**		0.53	0.091	mg/Kg	☼	09/10/20 08:32	09/26/20 23:59	5
Chromium	**120**	**F1**	1.1	0.44	mg/Kg	☼	09/10/20 08:32	09/26/20 23:59	5
Silver	**2.2**		0.53	0.14	mg/Kg	☼	09/10/20 08:32	09/26/20 23:59	5
Nickel	**160**	**F1**	0.53	0.50	mg/Kg	☼	09/10/20 08:32	09/26/20 23:59	5
Lead	**1100**		0.53	0.53	mg/Kg	☼	09/10/20 08:32	09/26/20 23:59	5
Antimony	**19**	**F1**	1.1	0.23	mg/Kg	☼	09/10/20 08:32	09/26/20 23:59	5
Thallium	ND		0.53	0.37	mg/Kg	☼	09/10/20 08:32	09/26/20 23:59	5

Method: EPA 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**1.7**		0.039	0.025	mg/Kg	☼	09/15/20 05:34	09/17/20 11:00	1

Client Sample ID: FSA-TREAT-1 10% TerraBond MG

Lab Sample ID: 180-103654-32
Date Collected: 08/31/20 14:00
Matrix: Solid
Date Received: 03/17/20 09:00

Method: EPA 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylphenol, 3 & 4	ND		0.0096	0.0036	mg/L		09/09/20 10:19	09/14/20 21:16	1
Anthracene	ND		0.0019	0.00048	mg/L		09/09/20 10:19	09/14/20 21:16	1

Client Sample ID: FSA-TREAT-1 10% TerraBond MG

Lab Sample ID: 180-103654-32

Date Collected: 08/31/20 14:00
Matrix: Solid
Date Received: 03/17/20 09:00

Method: EPA 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.0019	0.00073	mg/L		09/09/20 10:19	09/14/20 21:16	1
Benzo[b]fluoranthene	ND		0.0019	0.00094	mg/L		09/09/20 10:19	09/14/20 21:16	1
Benzo[g,h,i]perylene	ND		0.0019	0.00067	mg/L		09/09/20 10:19	09/14/20 21:16	1
Benzo[a]pyrene	ND		0.0019	0.00052	mg/L		09/09/20 10:19	09/14/20 21:16	1
Bis(2-ethylhexyl) phthalate	ND		0.096	0.060	mg/L		09/09/20 10:19	09/14/20 21:16	1
Chrysene	ND		0.0019	0.00079	mg/L		09/09/20 10:19	09/14/20 21:16	1
Di-n-octyl phthalate	ND		0.0096	0.0066	mg/L		09/09/20 10:19	09/14/20 21:16	1
Fluoranthene	ND		0.0019	0.00058	mg/L		09/09/20 10:19	09/14/20 21:16	1
Indeno[1,2,3-cd]pyrene	ND		0.0019	0.00083	mg/L		09/09/20 10:19	09/14/20 21:16	1
Phenanthrene	ND		0.0019	0.00054	mg/L		09/09/20 10:19	09/14/20 21:16	1
Pyrene	ND		0.0019	0.00052	mg/L		09/09/20 10:19	09/14/20 21:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*75*		*35 - 115*	*09/09/20 10:19*	*09/14/20 21:16*	*1*
2-Fluorophenol (Surr)	*75*		*20 - 110*	*09/09/20 10:19*	*09/14/20 21:16*	*1*
2,4,6-Tribromophenol (Surr)	*39*		*19 - 138*	*09/09/20 10:19*	*09/14/20 21:16*	*1*
Nitrobenzene-d5 (Surr)	*85*		*39 - 115*	*09/09/20 10:19*	*09/14/20 21:16*	*1*
Phenol-d5 (Surr)	*62*		*30 - 118*	*09/09/20 10:19*	*09/14/20 21:16*	*1*
Terphenyl-d14 (Surr)	*69*		*30 - 143*	*09/09/20 10:19*	*09/14/20 21:16*	*1*

Method: EPA 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.00050	0.00021	mg/L		09/03/20 11:30	09/11/20 03:32	1
4,4'-DDE	ND		0.00050	0.00012	mg/L		09/03/20 11:30	09/11/20 03:32	1
4,4'-DDT	ND		0.00050	0.00012	mg/L		09/03/20 11:30	09/11/20 03:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*98*		*62 - 150*	*09/03/20 11:30*	*09/11/20 03:32*	*1*
DCB Decachlorobiphenyl (Surr)	*108*		*62 - 150*	*09/03/20 11:30*	*09/11/20 03:32*	*1*
Tetrachloro-m-xylene	*84*		*54 - 138*	*09/03/20 11:30*	*09/11/20 03:32*	*1*
Tetrachloro-m-xylene	*84*		*54 - 138*	*09/03/20 11:30*	*09/11/20 03:32*	*1*

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.00038	0.00018	mg/L		09/03/20 10:15	09/10/20 12:56	1
PCB-1221	ND		0.00038	0.00022	mg/L		09/03/20 10:15	09/10/20 12:56	1
PCB-1232	ND		0.00038	0.00020	mg/L		09/03/20 10:15	09/10/20 12:56	1
PCB-1242	ND		0.00038	0.00014	mg/L		09/03/20 10:15	09/10/20 12:56	1
PCB-1248	ND		0.00038	0.00012	mg/L		09/03/20 10:15	09/10/20 12:56	1
PCB-1254	ND		0.00038	0.00018	mg/L		09/03/20 10:15	09/10/20 12:56	1
PCB-1260	ND		0.00038	0.00015	mg/L		09/03/20 10:15	09/10/20 12:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene (Surr)	*68*		*45 - 133*	*09/03/20 10:15*	*09/10/20 12:56*	*1*
Tetrachloro-m-xylene (Surr)	*69*		*45 - 133*	*09/03/20 10:15*	*09/10/20 12:56*	*1*
DCB Decachlorobiphenyl (Surr)	*97*		*59 - 144*	*09/03/20 10:15*	*09/10/20 12:56*	*1*
DCB Decachlorobiphenyl (Surr)	*95*		*59 - 144*	*09/03/20 10:15*	*09/10/20 12:56*	*1*

Method: EPA 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.50	0.0085	mg/L		09/10/20 16:10	09/17/20 18:02	1

Client Sample ID: FSA-TREAT-1 10% TerraBond MG — Lab Sample ID: 180-103654-32

Date Collected: 08/31/20 14:00 — **Matrix: Solid**
Date Received: 03/17/20 09:00

Method: EPA 6010D - Metals (ICP) - TCLP (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.45**	**J**	2.0	0.026	mg/L		09/10/20 16:10	09/17/20 18:02	1
Cadmium	ND		0.50	0.0028	mg/L		09/10/20 16:10	09/17/20 18:02	1
Chromium	ND		0.50	0.0078	mg/L		09/10/20 16:10	09/17/20 18:02	1
Lead	ND		0.50	0.029	mg/L		09/10/20 16:10	09/17/20 18:02	1
Beryllium	ND		0.040	0.0033	mg/L		09/10/20 16:10	09/17/20 18:02	1
Arsenic	ND		0.50	0.041	mg/L		09/10/20 16:10	09/17/20 18:02	1
Nickel	**0.020**	**J**	0.40	0.015	mg/L		09/10/20 16:10	09/17/20 18:02	1
Antimony	ND		0.10	0.034	mg/L		09/10/20 16:10	09/17/20 18:02	1
Thallium	ND		0.20	0.033	mg/L		09/10/20 16:10	09/17/20 18:02	1

Method: EPA 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00010	mg/L		09/04/20 05:40	09/05/20 10:37	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**11.1**		0.1	0.1	%			09/09/20 20:57	1
Percent Solids	**88.9**		0.1	0.1	%			09/09/20 20:57	1
pH	**11.4**	**HF**	0.1	0.1	SU			09/18/20 17:38	1

Client Sample ID: FSA-TREAT-1 10% TerraBond MG — Lab Sample ID: 180-103654-32

Date Collected: 08/31/20 14:00 — **Matrix: Solid**
Date Received: 03/17/20 09:00 — **Percent Solids: 88.9**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylphenol, 3 & 4	ND		1400	430	ug/Kg	☼	09/11/20 10:01	09/16/20 00:00	4
Anthracene	**120**	**J**	290	75	ug/Kg	☼	09/11/20 10:01	09/16/20 00:00	4
Benzo[a]anthracene	**590**		290	55	ug/Kg	☼	09/11/20 10:01	09/16/20 00:00	4
Benzo[b]fluoranthene	**880**		290	71	ug/Kg	☼	09/11/20 10:01	09/16/20 00:00	4
Benzo[g,h,i]perylene	**810**		290	63	ug/Kg	☼	09/11/20 10:01	09/16/20 00:00	4
Benzo[a]pyrene	**770**		290	63	ug/Kg	☼	09/11/20 10:01	09/16/20 00:00	4
Bis(2-ethylhexyl) phthalate	**26000**		14000	1500	ug/Kg	☼	09/11/20 10:01	09/16/20 00:00	4
Chrysene	**690**		290	57	ug/Kg	☼	09/11/20 10:01	09/16/20 00:00	4
Di-n-octyl phthalate	ND		1400	840	ug/Kg	☼	09/11/20 10:01	09/16/20 00:00	4
Fluoranthene	**790**		290	77	ug/Kg	☼	09/11/20 10:01	09/16/20 00:00	4
Indeno[1,2,3-cd]pyrene	**580**		290	59	ug/Kg	☼	09/11/20 10:01	09/16/20 00:00	4
Phenanthrene	**230**	**J**	290	78	ug/Kg	☼	09/11/20 10:01	09/16/20 00:00	4
Pyrene	**850**		290	69	ug/Kg	☼	09/11/20 10:01	09/16/20 00:00	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*70*		*45 - 105*	*09/11/20 10:01*	*09/16/20 00:00*	*4*
2-Fluorophenol (Surr)	*72*		*42 - 105*	*09/11/20 10:01*	*09/16/20 00:00*	*4*
2,4,6-Tribromophenol (Surr)	*35*		*31 - 105*	*09/11/20 10:01*	*09/16/20 00:00*	*4*
Nitrobenzene-d5 (Surr)	*81*		*53 - 105*	*09/11/20 10:01*	*09/16/20 00:00*	*4*
Phenol-d5 (Surr)	*82*		*47 - 105*	*09/11/20 10:01*	*09/16/20 00:00*	*4*
Terphenyl-d14 (Surr)	*74*		*46 - 105*	*09/11/20 10:01*	*09/16/20 00:00*	*4*

Method: EPA 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	**110**	**p**	9.5	4.0	ug/Kg	☼	09/01/20 21:47	09/11/20 13:37	5

Client Sample ID: FSA-TREAT-1 10% TerraBond MG — Lab Sample ID: 180-103654-32

Date Collected: 08/31/20 14:00 — **Matrix: Solid**
Date Received: 03/17/20 09:00 — **Percent Solids: 88.9**

Method: EPA 8081B - Organochlorine Pesticides (GC) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDE	ND		9.5	1.9	ug/Kg	☼	09/01/20 21:47	09/11/20 13:37	5
4,4'-DDT	ND		9.5	3.7	ug/Kg	☼	09/01/20 21:47	09/11/20 13:37	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*87*		*44 - 130*	*09/01/20 21:47*	*09/11/20 13:37*	*5*
Tetrachloro-m-xylene	*88*		*44 - 130*	*09/01/20 21:47*	*09/11/20 13:37*	*5*
DCB Decachlorobiphenyl (Surr)	*123*	*p*	*41 - 150*	*09/01/20 21:47*	*09/11/20 13:37*	*5*
DCB Decachlorobiphenyl (Surr)	*372*	*X*	*41 - 150*	*09/01/20 21:47*	*09/11/20 13:37*	*5*

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		18	5.7	ug/Kg	☼	09/09/20 21:30	09/17/20 11:45	1
PCB-1221	ND		18	6.2	ug/Kg	☼	09/09/20 21:30	09/17/20 11:45	1
PCB-1232	ND		18	4.3	ug/Kg	☼	09/09/20 21:30	09/17/20 11:45	1
PCB-1242	ND		18	2.6	ug/Kg	☼	09/09/20 21:30	09/17/20 11:45	1
PCB-1248	ND		18	4.2	ug/Kg	☼	09/09/20 21:30	09/17/20 11:45	1
PCB-1254	**3600**		18	5.3	ug/Kg	☼	09/09/20 21:30	09/17/20 11:45	1
PCB-1260	ND		18	5.0	ug/Kg	☼	09/09/20 21:30	09/17/20 11:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*148*	*X*	*61 - 132*	*09/09/20 21:30*	*09/17/20 11:45*	*1*
DCB Decachlorobiphenyl (Surr)	*100*		*61 - 132*	*09/09/20 21:30*	*09/17/20 11:45*	*1*
Tetrachloro-m-xylene (Surr)	*63*		*51 - 112*	*09/09/20 21:30*	*09/17/20 11:45*	*1*
Tetrachloro-m-xylene (Surr)	*64*		*51 - 112*	*09/09/20 21:30*	*09/17/20 11:45*	*1*

Method: EPA 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**16**		0.54	0.17	mg/Kg	☼	09/10/20 08:32	09/27/20 00:17	5
Barium	**340**		5.4	0.69	mg/Kg	☼	09/10/20 08:32	09/27/20 00:17	5
Beryllium	**0.55**		0.54	0.38	mg/Kg	☼	09/10/20 08:32	09/27/20 00:17	5
Cadmium	**10**		0.54	0.092	mg/Kg	☼	09/10/20 08:32	09/27/20 00:17	5
Chromium	**68**		1.1	0.45	mg/Kg	☼	09/10/20 08:32	09/27/20 00:17	5
Silver	**1.1**		0.54	0.15	mg/Kg	☼	09/10/20 08:32	09/27/20 00:17	5
Nickel	**380**		0.54	0.50	mg/Kg	☼	09/10/20 08:32	09/27/20 00:17	5
Lead	**830**		0.54	0.54	mg/Kg	☼	09/10/20 08:32	09/27/20 00:17	5
Antimony	**9.6**		1.1	0.23	mg/Kg	☼	09/10/20 08:32	09/27/20 00:17	5
Thallium	ND		0.54	0.37	mg/Kg	☼	09/10/20 08:32	09/27/20 00:17	5

Method: EPA 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.76**		0.036	0.023	mg/Kg	☼	09/15/20 05:34	09/17/20 11:07	1

Client Sample ID: FSA-TREAT-3 10% TerraBond MG — Lab Sample ID: 180-103654-33

Date Collected: 08/31/20 14:00 — **Matrix: Solid**
Date Received: 03/17/20 09:00

Method: EPA 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylphenol, 3 & 4	ND		0.0096	0.0036	mg/L		09/09/20 10:19	09/14/20 21:41	1
Anthracene	ND		0.0019	0.00048	mg/L		09/09/20 10:19	09/14/20 21:41	1
Benzo[a]anthracene	ND		0.0019	0.00073	mg/L		09/09/20 10:19	09/14/20 21:41	1

Client Sample ID: FSA-TREAT-3 10% TerraBond MG

Lab Sample ID: 180-103654-33

Date Collected: 08/31/20 14:00
Matrix: Solid
Date Received: 03/17/20 09:00

Method: EPA 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[b]fluoranthene	ND		0.0019	0.00094	mg/L		09/09/20 10:19	09/14/20 21:41	1
Benzo[g,h,i]perylene	ND		0.0019	0.00067	mg/L		09/09/20 10:19	09/14/20 21:41	1
Benzo[a]pyrene	ND		0.0019	0.00052	mg/L		09/09/20 10:19	09/14/20 21:41	1
Bis(2-ethylhexyl) phthalate	ND		0.096	0.060	mg/L		09/09/20 10:19	09/14/20 21:41	1
Chrysene	ND		0.0019	0.00079	mg/L		09/09/20 10:19	09/14/20 21:41	1
Di-n-octyl phthalate	ND		0.0096	0.0066	mg/L		09/09/20 10:19	09/14/20 21:41	1
Fluoranthene	ND		0.0019	0.00058	mg/L		09/09/20 10:19	09/14/20 21:41	1
Indeno[1,2,3-cd]pyrene	ND		0.0019	0.00083	mg/L		09/09/20 10:19	09/14/20 21:41	1
Phenanthrene	ND		0.0019	0.00054	mg/L		09/09/20 10:19	09/14/20 21:41	1
Pyrene	ND		0.0019	0.00052	mg/L		09/09/20 10:19	09/14/20 21:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*71*		*35 - 115*	*09/09/20 10:19*	*09/14/20 21:41*	*1*
2-Fluorophenol (Surr)	*67*		*20 - 110*	*09/09/20 10:19*	*09/14/20 21:41*	*1*
2,4,6-Tribromophenol (Surr)	*31*		*19 - 138*	*09/09/20 10:19*	*09/14/20 21:41*	*1*
Nitrobenzene-d5 (Surr)	*79*		*39 - 115*	*09/09/20 10:19*	*09/14/20 21:41*	*1*
Phenol-d5 (Surr)	*44*		*30 - 118*	*09/09/20 10:19*	*09/14/20 21:41*	*1*
Terphenyl-d14 (Surr)	*69*		*30 - 143*	*09/09/20 10:19*	*09/14/20 21:41*	*1*

Method: EPA 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.00050	0.00021	mg/L		09/03/20 11:30	09/11/20 03:47	1
4,4'-DDE	ND		0.00050	0.00012	mg/L		09/03/20 11:30	09/11/20 03:47	1
4,4'-DDT	ND		0.00050	0.00012	mg/L		09/03/20 11:30	09/11/20 03:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*97*		*62 - 150*	*09/03/20 11:30*	*09/11/20 03:47*	*1*
DCB Decachlorobiphenyl (Surr)	*106*		*62 - 150*	*09/03/20 11:30*	*09/11/20 03:47*	*1*
Tetrachloro-m-xylene	*84*		*54 - 138*	*09/03/20 11:30*	*09/11/20 03:47*	*1*
Tetrachloro-m-xylene	*85*		*54 - 138*	*09/03/20 11:30*	*09/11/20 03:47*	*1*

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.00039	0.00018	mg/L		09/03/20 10:15	09/10/20 13:15	1
PCB-1221	ND		0.00039	0.00022	mg/L		09/03/20 10:15	09/10/20 13:15	1
PCB-1232	ND		0.00039	0.00020	mg/L		09/03/20 10:15	09/10/20 13:15	1
PCB-1242	ND		0.00039	0.00014	mg/L		09/03/20 10:15	09/10/20 13:15	1
PCB-1248	ND		0.00039	0.00012	mg/L		09/03/20 10:15	09/10/20 13:15	1
PCB-1254	ND		0.00039	0.00018	mg/L		09/03/20 10:15	09/10/20 13:15	1
PCB-1260	ND		0.00039	0.00015	mg/L		09/03/20 10:15	09/10/20 13:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene (Surr)	*66*		*45 - 133*	*09/03/20 10:15*	*09/10/20 13:15*	*1*
Tetrachloro-m-xylene (Surr)	*71*		*45 - 133*	*09/03/20 10:15*	*09/10/20 13:15*	*1*
DCB Decachlorobiphenyl (Surr)	*93*		*59 - 144*	*09/03/20 10:15*	*09/10/20 13:15*	*1*
DCB Decachlorobiphenyl (Surr)	*90*		*59 - 144*	*09/03/20 10:15*	*09/10/20 13:15*	*1*

Method: EPA 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.50	0.0085	mg/L		09/10/20 16:10	09/17/20 18:07	1
Barium	**0.31**	**J**	2.0	0.026	mg/L		09/10/20 16:10	09/17/20 18:07	1

Client Sample ID: FSA-TREAT-3 10% TerraBond MG

Lab Sample ID: 180-103654-33
Date Collected: 08/31/20 14:00
Matrix: Solid
Date Received: 03/17/20 09:00

Method: EPA 6010D - Metals (ICP) - TCLP (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.50	0.0028	mg/L		09/10/20 16:10	09/17/20 18:07	1
Chromium	ND		0.50	0.0078	mg/L		09/10/20 16:10	09/17/20 18:07	1
Lead	ND		0.50	0.029	mg/L		09/10/20 16:10	09/17/20 18:07	1
Beryllium	ND		0.040	0.0033	mg/L		09/10/20 16:10	09/17/20 18:07	1
Arsenic	ND		0.50	0.041	mg/L		09/10/20 16:10	09/17/20 18:07	1
Nickel	ND		0.40	0.015	mg/L		09/10/20 16:10	09/17/20 18:07	1
Antimony	ND		0.10	0.034	mg/L		09/10/20 16:10	09/17/20 18:07	1
Thallium	ND		0.20	0.033	mg/L		09/10/20 16:10	09/17/20 18:07	1

Method: EPA 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00010	mg/L		09/04/20 05:40	09/05/20 10:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**13.5**		0.1	0.1	%			09/09/20 20:57	1
Percent Solids	**86.5**		0.1	0.1	%			09/09/20 20:57	1
pH	**11.6**	**HF**	0.1	0.1	SU			09/18/20 17:39	1

Client Sample ID: FSA-TREAT-3 10% TerraBond MG

Lab Sample ID: 180-103654-33
Date Collected: 08/31/20 14:00
Matrix: Solid
Date Received: 03/17/20 09:00
Percent Solids: 86.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylphenol, 3 & 4	ND		3800	1100	ug/Kg	☼	09/11/20 10:01	09/16/20 14:00	10
Anthracene	ND		770	200	ug/Kg	☼	09/11/20 10:01	09/16/20 14:00	10
Benzo[a]anthracene	**470**	**J**	770	150	ug/Kg	☼	09/11/20 10:01	09/16/20 14:00	10
Benzo[b]fluoranthene	ND		770	190	ug/Kg	☼	09/11/20 10:01	09/16/20 14:00	10
Benzo[g,h,i]perylene	**580**	**J**	770	170	ug/Kg	☼	09/11/20 10:01	09/16/20 14:00	10
Benzo[a]pyrene	**550**	**J**	770	170	ug/Kg	☼	09/11/20 10:01	09/16/20 14:00	10
Bis(2-ethylhexyl) phthalate	**63000**		38000	4100	ug/Kg	☼	09/11/20 10:01	09/16/20 14:00	10
Chrysene	**450**	**J**	770	150	ug/Kg	☼	09/11/20 10:01	09/16/20 14:00	10
Di-n-octyl phthalate	**7300**		3800	2200	ug/Kg	☼	09/11/20 10:01	09/16/20 14:00	10
Fluoranthene	**770**		770	200	ug/Kg	☼	09/11/20 10:01	09/16/20 14:00	10
Indeno[1,2,3-cd]pyrene	**450**	**J**	770	160	ug/Kg	☼	09/11/20 10:01	09/16/20 14:00	10
Phenanthrene	**570**	**J**	770	210	ug/Kg	☼	09/11/20 10:01	09/16/20 14:00	10
Pyrene	ND		770	180	ug/Kg	☼	09/11/20 10:01	09/16/20 14:00	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*86*		*45 - 105*	*09/11/20 10:01*	*09/16/20 14:00*	*10*
2-Fluorophenol (Surr)	*96*		*42 - 105*	*09/11/20 10:01*	*09/16/20 14:00*	*10*
2,4,6-Tribromophenol (Surr)	*75*		*31 - 105*	*09/11/20 10:01*	*09/16/20 14:00*	*10*
Nitrobenzene-d5 (Surr)	*95*		*53 - 105*	*09/11/20 10:01*	*09/16/20 14:00*	*10*
Phenol-d5 (Surr)	*85*		*47 - 105*	*09/11/20 10:01*	*09/16/20 14:00*	*10*
Terphenyl-d14 (Surr)	*88*		*46 - 105*	*09/11/20 10:01*	*09/16/20 14:00*	*10*

Method: EPA 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		9.8	4.1	ug/Kg	☼	09/01/20 21:47	09/11/20 13:52	5
4,4'-DDE	ND		9.8	2.0	ug/Kg	☼	09/01/20 21:47	09/11/20 13:52	5

Client Sample ID: FSA-TREAT-3 10% TerraBond MG

Lab Sample ID: 180-103654-33
Date Collected: 08/31/20 14:00
Matrix: Solid
Date Received: 03/17/20 09:00
Percent Solids: 86.5

Method: EPA 8081B - Organochlorine Pesticides (GC) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDT	ND		9.8	3.8	ug/Kg	☼	09/01/20 21:47	09/11/20 13:52	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*90*		*44 - 130*	*09/01/20 21:47*	*09/11/20 13:52*	*5*
Tetrachloro-m-xylene	*79*		*44 - 130*	*09/01/20 21:47*	*09/11/20 13:52*	*5*
DCB Decachlorobiphenyl (Surr)	*189*	*p X*	*41 - 150*	*09/01/20 21:47*	*09/11/20 13:52*	*5*
DCB Decachlorobiphenyl (Surr)	*2558*	*X*	*41 - 150*	*09/01/20 21:47*	*09/11/20 13:52*	*5*

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		180	59	ug/Kg	☼	09/09/20 21:30	09/17/20 12:04	10
PCB-1221	ND		180	64	ug/Kg	☼	09/09/20 21:30	09/17/20 12:04	10
PCB-1232	ND		180	44	ug/Kg	☼	09/09/20 21:30	09/17/20 12:04	10
PCB-1242	**4400**		180	27	ug/Kg	☼	09/09/20 21:30	09/17/20 12:04	10
PCB-1248	ND		180	44	ug/Kg	☼	09/09/20 21:30	09/17/20 12:04	10
PCB-1254	**3300**		180	54	ug/Kg	☼	09/09/20 21:30	09/17/20 12:04	10
PCB-1260	ND		180	52	ug/Kg	☼	09/09/20 21:30	09/17/20 12:04	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*818*	*X*	*61 - 132*	*09/09/20 21:30*	*09/17/20 12:04*	*10*
DCB Decachlorobiphenyl (Surr)	*299*	*p X*	*61 - 132*	*09/09/20 21:30*	*09/17/20 12:04*	*10*
Tetrachloro-m-xylene (Surr)	*80*		*51 - 112*	*09/09/20 21:30*	*09/17/20 12:04*	*10*
Tetrachloro-m-xylene (Surr)	*83*		*51 - 112*	*09/09/20 21:30*	*09/17/20 12:04*	*10*

Method: EPA 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**14**		0.57	0.18	mg/Kg	☼	09/10/20 08:32	09/27/20 00:20	5
Barium	**480**		5.7	0.73	mg/Kg	☼	09/10/20 08:32	09/27/20 00:20	5
Beryllium	**0.51**	**J**	0.57	0.40	mg/Kg	☼	09/10/20 08:32	09/27/20 00:20	5
Cadmium	**15**		0.57	0.096	mg/Kg	☼	09/10/20 08:32	09/27/20 00:20	5
Chromium	**100**		1.1	0.47	mg/Kg	☼	09/10/20 08:32	09/27/20 00:20	5
Silver	**2.2**		0.57	0.15	mg/Kg	☼	09/10/20 08:32	09/27/20 00:20	5
Nickel	**140**		0.57	0.53	mg/Kg	☼	09/10/20 08:32	09/27/20 00:20	5
Lead	**1000**		0.57	0.57	mg/Kg	☼	09/10/20 08:32	09/27/20 00:20	5
Antimony	**19**		1.1	0.24	mg/Kg	☼	09/10/20 08:32	09/27/20 00:20	5
Thallium	ND		0.57	0.39	mg/Kg	☼	09/10/20 08:32	09/27/20 00:20	5

Method: EPA 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**1.0**		0.029	0.019	mg/Kg	☼	09/15/20 05:34	09/17/20 11:09	1

Client Sample ID: FSA-TREAT-4 10% TerraBond MG

Lab Sample ID: 180-103654-34
Date Collected: 08/31/20 14:00
Matrix: Solid
Date Received: 03/17/20 09:00

Method: EPA 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylphenol, 3 & 4	ND		0.0096	0.0036	mg/L		09/09/20 10:19	09/14/20 22:07	1
Anthracene	ND		0.0019	0.00048	mg/L		09/09/20 10:19	09/14/20 22:07	1
Benzo[a]anthracene	ND		0.0019	0.00073	mg/L		09/09/20 10:19	09/14/20 22:07	1
Benzo[b]fluoranthene	ND		0.0019	0.00094	mg/L		09/09/20 10:19	09/14/20 22:07	1

Client Sample ID: FSA-TREAT-4 10% TerraBond MG

Lab Sample ID: 180-103654-34

Date Collected: 08/31/20 14:00
Matrix: Solid
Date Received: 03/17/20 09:00

Method: EPA 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[g,h,i]perylene	ND		0.0019	0.00067	mg/L		09/09/20 10:19	09/14/20 22:07	1
Benzo[a]pyrene	ND		0.0019	0.00052	mg/L		09/09/20 10:19	09/14/20 22:07	1
Bis(2-ethylhexyl) phthalate	ND		0.096	0.060	mg/L		09/09/20 10:19	09/14/20 22:07	1
Chrysene	ND		0.0019	0.00079	mg/L		09/09/20 10:19	09/14/20 22:07	1
Di-n-octyl phthalate	ND		0.0096	0.0066	mg/L		09/09/20 10:19	09/14/20 22:07	1
Fluoranthene	ND		0.0019	0.00058	mg/L		09/09/20 10:19	09/14/20 22:07	1
Indeno[1,2,3-cd]pyrene	ND		0.0019	0.00083	mg/L		09/09/20 10:19	09/14/20 22:07	1
Phenanthrene	ND		0.0019	0.00054	mg/L		09/09/20 10:19	09/14/20 22:07	1
Pyrene	ND		0.0019	0.00052	mg/L		09/09/20 10:19	09/14/20 22:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*69*		*35 - 115*	*09/09/20 10:19*	*09/14/20 22:07*	*1*
2-Fluorophenol (Surr)	*65*		*20 - 110*	*09/09/20 10:19*	*09/14/20 22:07*	*1*
2,4,6-Tribromophenol (Surr)	*28*		*19 - 138*	*09/09/20 10:19*	*09/14/20 22:07*	*1*
Nitrobenzene-d5 (Surr)	*79*		*39 - 115*	*09/09/20 10:19*	*09/14/20 22:07*	*1*
Phenol-d5 (Surr)	*37*		*30 - 118*	*09/09/20 10:19*	*09/14/20 22:07*	*1*
Terphenyl-d14 (Surr)	*61*		*30 - 143*	*09/09/20 10:19*	*09/14/20 22:07*	*1*

Method: EPA 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.00050	0.00021	mg/L		09/03/20 11:30	09/11/20 04:03	1
4,4'-DDE	ND		0.00050	0.00012	mg/L		09/03/20 11:30	09/11/20 04:03	1
4,4'-DDT	ND		0.00050	0.00012	mg/L		09/03/20 11:30	09/11/20 04:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*94*		*62 - 150*	*09/03/20 11:30*	*09/11/20 04:03*	*1*
DCB Decachlorobiphenyl (Surr)	*107*		*62 - 150*	*09/03/20 11:30*	*09/11/20 04:03*	*1*
Tetrachloro-m-xylene	*85*		*54 - 138*	*09/03/20 11:30*	*09/11/20 04:03*	*1*
Tetrachloro-m-xylene	*83*		*54 - 138*	*09/03/20 11:30*	*09/11/20 04:03*	*1*

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.00038	0.00018	mg/L		09/03/20 10:15	09/10/20 14:49	1
PCB-1221	ND		0.00038	0.00022	mg/L		09/03/20 10:15	09/10/20 14:49	1
PCB-1232	ND		0.00038	0.00020	mg/L		09/03/20 10:15	09/10/20 14:49	1
PCB-1242	ND		0.00038	0.00014	mg/L		09/03/20 10:15	09/10/20 14:49	1
PCB-1248	ND		0.00038	0.00012	mg/L		09/03/20 10:15	09/10/20 14:49	1
PCB-1254	ND		0.00038	0.00018	mg/L		09/03/20 10:15	09/10/20 14:49	1
PCB-1260	ND		0.00038	0.00015	mg/L		09/03/20 10:15	09/10/20 14:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene (Surr)	*62*		*45 - 133*	*09/03/20 10:15*	*09/10/20 14:49*	*1*
Tetrachloro-m-xylene (Surr)	*67*		*45 - 133*	*09/03/20 10:15*	*09/10/20 14:49*	*1*
DCB Decachlorobiphenyl (Surr)	*95*		*59 - 144*	*09/03/20 10:15*	*09/10/20 14:49*	*1*
DCB Decachlorobiphenyl (Surr)	*89*		*59 - 144*	*09/03/20 10:15*	*09/10/20 14:49*	*1*

Method: EPA 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.50	0.0085	mg/L		09/10/20 16:13	09/17/20 18:11	1
Barium	**0.70**	**J**	2.0	0.026	mg/L		09/10/20 16:13	09/17/20 18:11	1
Cadmium	ND		0.50	0.0028	mg/L		09/10/20 16:13	09/17/20 18:11	1

Client Sample Results

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-5

Client Sample ID: FSA-TREAT-4 10% TerraBond MG

Lab Sample ID: 180-103654-34
Date Collected: 08/31/20 14:00
Matrix: Solid
Date Received: 03/17/20 09:00

Method: EPA 6010D - Metals (ICP) - TCLP (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	ND		0.50	0.0078	mg/L		09/10/20 16:13	09/17/20 18:11	1
Lead	ND		0.50	0.029	mg/L		09/10/20 16:13	09/17/20 18:11	1
Beryllium	ND		0.040	0.0033	mg/L		09/10/20 16:13	09/17/20 18:11	1
Arsenic	ND		0.50	0.041	mg/L		09/10/20 16:13	09/17/20 18:11	1
Nickel	ND		0.40	0.015	mg/L		09/10/20 16:13	09/17/20 18:11	1
Antimony	ND		0.10	0.034	mg/L		09/10/20 16:13	09/17/20 18:11	1
Thallium	ND		0.20	0.033	mg/L		09/10/20 16:13	09/17/20 18:11	1

Method: EPA 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00010	mg/L		09/04/20 05:40	09/05/20 10:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**16.4**		0.1	0.1	%			09/09/20 20:57	1
Percent Solids	**83.6**		0.1	0.1	%			09/09/20 20:57	1
pH	**11.4**	**HF**	0.1	0.1	SU			09/18/20 17:40	1

Client Sample ID: FSA-TREAT-4 10% TerraBond MG

Lab Sample ID: 180-103654-34
Date Collected: 08/31/20 14:00
Matrix: Solid
Date Received: 03/17/20 09:00
Percent Solids: 83.6

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylphenol, 3 & 4	ND		3900	1200	ug/Kg	☼	09/11/20 10:01	09/16/20 14:27	10
Anthracene	ND		790	200	ug/Kg	☼	09/11/20 10:01	09/16/20 14:27	10
Benzo[a]anthracene	**430**	**J**	790	150	ug/Kg	☼	09/11/20 10:01	09/16/20 14:27	10
Benzo[b]fluoranthene	**540**	**J**	790	190	ug/Kg	☼	09/11/20 10:01	09/16/20 14:27	10
Benzo[g,h,i]perylene	**550**	**J**	790	170	ug/Kg	☼	09/11/20 10:01	09/16/20 14:27	10
Benzo[a]pyrene	**480**	**J**	790	170	ug/Kg	☼	09/11/20 10:01	09/16/20 14:27	10
Bis(2-ethylhexyl) phthalate	**14000**	**J**	39000	4200	ug/Kg	☼	09/11/20 10:01	09/16/20 14:27	10
Chrysene	**420**	**J**	790	150	ug/Kg	☼	09/11/20 10:01	09/16/20 14:27	10
Di-n-octyl phthalate	ND		3900	2300	ug/Kg	☼	09/11/20 10:01	09/16/20 14:27	10
Fluoranthene	**590**	**J**	790	210	ug/Kg	☼	09/11/20 10:01	09/16/20 14:27	10
Indeno[1,2,3-cd]pyrene	**360**	**J**	790	160	ug/Kg	☼	09/11/20 10:01	09/16/20 14:27	10
Phenanthrene	**300**	**J**	790	210	ug/Kg	☼	09/11/20 10:01	09/16/20 14:27	10
Pyrene	**620**	**J**	790	190	ug/Kg	☼	09/11/20 10:01	09/16/20 14:27	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*82*		*45 - 105*	*09/11/20 10:01*	*09/16/20 14:27*	*10*
2-Fluorophenol (Surr)	*91*		*42 - 105*	*09/11/20 10:01*	*09/16/20 14:27*	*10*
2,4,6-Tribromophenol (Surr)	*68*		*31 - 105*	*09/11/20 10:01*	*09/16/20 14:27*	*10*
Nitrobenzene-d5 (Surr)	*90*		*53 - 105*	*09/11/20 10:01*	*09/16/20 14:27*	*10*
Phenol-d5 (Surr)	*81*		*47 - 105*	*09/11/20 10:01*	*09/16/20 14:27*	*10*
Terphenyl-d14 (Surr)	*90*		*46 - 105*	*09/11/20 10:01*	*09/16/20 14:27*	*10*

Method: EPA 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		10	4.3	ug/Kg	☼	09/01/20 21:47	09/11/20 14:08	5
4,4'-DDE	ND		10	2.0	ug/Kg	☼	09/01/20 21:47	09/11/20 14:08	5
4,4'-DDT	ND		10	3.9	ug/Kg	☼	09/01/20 21:47	09/11/20 14:08	5

Client Sample ID: FSA-TREAT-4 10% TerraBond MG — Lab Sample ID: 180-103654-34

Date Collected: 08/31/20 14:00 — **Matrix: Solid**
Date Received: 03/17/20 09:00 — **Percent Solids: 83.6**

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	86		44 - 130	09/01/20 21:47	09/11/20 14:08	5
Tetrachloro-m-xylene	86		44 - 130	09/01/20 21:47	09/11/20 14:08	5
DCB Decachlorobiphenyl (Surr)	151	p X	41 - 150	09/01/20 21:47	09/11/20 14:08	5
DCB Decachlorobiphenyl (Surr)	1261	X	41 - 150	09/01/20 21:47	09/11/20 14:08	5

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		20	6.5	ug/Kg	☼	09/09/20 21:30	09/17/20 12:23	1
PCB-1221	ND		20	7.0	ug/Kg	☼	09/09/20 21:30	09/17/20 12:23	1
PCB-1232	ND		20	4.8	ug/Kg	☼	09/09/20 21:30	09/17/20 12:23	1
PCB-1242	ND		20	2.9	ug/Kg	☼	09/09/20 21:30	09/17/20 12:23	1
PCB-1248	**2500**		20	4.8	ug/Kg	☼	09/09/20 21:30	09/17/20 12:23	1
PCB-1254	ND		20	6.0	ug/Kg	☼	09/09/20 21:30	09/17/20 12:23	1
PCB-1260	**1600**		20	5.6	ug/Kg	☼	09/09/20 21:30	09/17/20 12:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	50	X *3 p	61 - 132	09/09/20 21:30	09/17/20 12:23	1
DCB Decachlorobiphenyl (Surr)	129		61 - 132	09/09/20 21:30	09/17/20 12:23	1
Tetrachloro-m-xylene (Surr)	62		51 - 112	09/09/20 21:30	09/17/20 12:23	1
Tetrachloro-m-xylene (Surr)	64		51 - 112	09/09/20 21:30	09/17/20 12:23	1

Method: EPA 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**16**		0.52	0.17	mg/Kg	☼	09/10/20 08:32	09/27/20 00:24	5
Barium	**470**		5.2	0.67	mg/Kg	☼	09/10/20 08:32	09/27/20 00:24	5
Beryllium	**0.43**	**J**	0.52	0.37	mg/Kg	☼	09/10/20 08:32	09/27/20 00:24	5
Cadmium	**15**		0.52	0.089	mg/Kg	☼	09/10/20 08:32	09/27/20 00:24	5
Chromium	**150**		1.0	0.44	mg/Kg	☼	09/10/20 08:32	09/27/20 00:24	5
Silver	**1.4**		0.52	0.14	mg/Kg	☼	09/10/20 08:32	09/27/20 00:24	5
Nickel	**1100**		0.52	0.49	mg/Kg	☼	09/10/20 08:32	09/27/20 00:24	5
Lead	**1300**		0.52	0.52	mg/Kg	☼	09/10/20 08:32	09/27/20 00:24	5
Antimony	**39**		1.0	0.23	mg/Kg	☼	09/10/20 08:32	09/27/20 00:24	5
Thallium	ND		0.52	0.36	mg/Kg	☼	09/10/20 08:32	09/27/20 00:24	5

Method: EPA 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**1.1**		0.039	0.025	mg/Kg	☼	09/15/20 05:34	09/17/20 11:14	1

Client Sample ID: FSA-TREAT-6 10% TerraBond MG — Lab Sample ID: 180-103654-35

Date Collected: 08/31/20 14:00 — **Matrix: Solid**
Date Received: 03/17/20 09:00 — **Percent Solids: 81.8**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylphenol, 3 & 4	**1400**	**J**	4000	1200	ug/Kg	☼	09/11/20 10:01	09/16/20 14:53	10
Anthracene	**380**	**J**	820	210	ug/Kg	☼	09/11/20 10:01	09/16/20 14:53	10
Benzo[a]anthracene	**1200**		820	150	ug/Kg	☼	09/11/20 10:01	09/16/20 14:53	10
Benzo[b]fluoranthene	**1600**		820	200	ug/Kg	☼	09/11/20 10:01	09/16/20 14:53	10
Benzo[g,h,i]perylene	**930**		820	180	ug/Kg	☼	09/11/20 10:01	09/16/20 14:53	10
Benzo[a]pyrene	**990**		820	180	ug/Kg	☼	09/11/20 10:01	09/16/20 14:53	10
Bis(2-ethylhexyl) phthalate	**390000**	**E**	40000	4300	ug/Kg	☼	09/11/20 10:01	09/16/20 14:53	10

Client Sample ID: FSA-TREAT-6 10% TerraBond MG

Lab Sample ID: 180-103654-35
Date Collected: 08/31/20 14:00
Matrix: Solid
Date Received: 03/17/20 09:00
Percent Solids: 81.8

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chrysene	**840**		820	160	ug/Kg	☼	09/11/20 10:01	09/16/20 14:53	10
Di-n-octyl phthalate	**53000**		4000	2400	ug/Kg	☼	09/11/20 10:01	09/16/20 14:53	10
Fluoranthene	**2400**		820	220	ug/Kg	☼	09/11/20 10:01	09/16/20 14:53	10
Indeno[1,2,3-cd]pyrene	**700**	**J**	820	170	ug/Kg	☼	09/11/20 10:01	09/16/20 14:53	10
Phenanthrene	**1200**		820	220	ug/Kg	☼	09/11/20 10:01	09/16/20 14:53	10
Pyrene	**2600**		820	190	ug/Kg	☼	09/11/20 10:01	09/16/20 14:53	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*85*		*45 - 105*	*09/11/20 10:01*	*09/16/20 14:53*	*10*
2-Fluorophenol (Surr)	*96*		*42 - 105*	*09/11/20 10:01*	*09/16/20 14:53*	*10*
2,4,6-Tribromophenol (Surr)	*71*		*31 - 105*	*09/11/20 10:01*	*09/16/20 14:53*	*10*
Nitrobenzene-d5 (Surr)	*93*		*53 - 105*	*09/11/20 10:01*	*09/16/20 14:53*	*10*
Phenol-d5 (Surr)	*85*		*47 - 105*	*09/11/20 10:01*	*09/16/20 14:53*	*10*
Terphenyl-d14 (Surr)	*58*		*46 - 105*	*09/11/20 10:01*	*09/16/20 14:53*	*10*

Method: EPA 8270D - Semivolatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylphenol, 3 & 4	ND		16000	4800	ug/Kg	☼	09/11/20 10:01	09/17/20 12:05	40
Anthracene	ND		3300	850	ug/Kg	☼	09/11/20 10:01	09/17/20 12:05	40
Benzo[a]anthracene	**1200**	**J**	3300	620	ug/Kg	☼	09/11/20 10:01	09/17/20 12:05	40
Benzo[b]fluoranthene	**1200**	**J**	3300	800	ug/Kg	☼	09/11/20 10:01	09/17/20 12:05	40
Benzo[g,h,i]perylene	ND		3300	700	ug/Kg	☼	09/11/20 10:01	09/17/20 12:05	40
Benzo[a]pyrene	**940**	**J**	3300	710	ug/Kg	☼	09/11/20 10:01	09/17/20 12:05	40
Bis(2-ethylhexyl) phthalate	**370000**		160000	17000	ug/Kg	☼	09/11/20 10:01	09/17/20 12:05	40
Chrysene	**1200**	**J**	3300	640	ug/Kg	☼	09/11/20 10:01	09/17/20 12:05	40
Di-n-octyl phthalate	**41000**		16000	9500	ug/Kg	☼	09/11/20 10:01	09/17/20 12:05	40
Fluoranthene	**1900**	**J**	3300	860	ug/Kg	☼	09/11/20 10:01	09/17/20 12:05	40
Indeno[1,2,3-cd]pyrene	ND		3300	660	ug/Kg	☼	09/11/20 10:01	09/17/20 12:05	40
Phenanthrene	**1200**	**J**	3300	880	ug/Kg	☼	09/11/20 10:01	09/17/20 12:05	40
Pyrene	**2900**	**J**	3300	770	ug/Kg	☼	09/11/20 10:01	09/17/20 12:05	40

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*0*	*D X*	*45 - 105*	*09/11/20 10:01*	*09/17/20 12:05*	*40*
2-Fluorophenol (Surr)	*0*	*D X*	*42 - 105*	*09/11/20 10:01*	*09/17/20 12:05*	*40*
2,4,6-Tribromophenol (Surr)	*0*	*D X*	*31 - 105*	*09/11/20 10:01*	*09/17/20 12:05*	*40*
Nitrobenzene-d5 (Surr)	*0*	*D X*	*53 - 105*	*09/11/20 10:01*	*09/17/20 12:05*	*40*
Phenol-d5 (Surr)	*0*	*D X*	*47 - 105*	*09/11/20 10:01*	*09/17/20 12:05*	*40*
Terphenyl-d14 (Surr)	*0*	*D X*	*46 - 105*	*09/11/20 10:01*	*09/17/20 12:05*	*40*

Method: EPA 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylphenol, 3 & 4	ND		0.0096	0.0036	mg/L		09/09/20 10:22	09/14/20 22:32	1
Anthracene	ND		0.0019	0.00048	mg/L		09/09/20 10:22	09/14/20 22:32	1
Benzo[a]anthracene	ND		0.0019	0.00073	mg/L		09/09/20 10:22	09/14/20 22:32	1
Benzo[b]fluoranthene	ND		0.0019	0.00094	mg/L		09/09/20 10:22	09/14/20 22:32	1
Benzo[g,h,i]perylene	ND		0.0019	0.00067	mg/L		09/09/20 10:22	09/14/20 22:32	1
Benzo[a]pyrene	ND		0.0019	0.00052	mg/L		09/09/20 10:22	09/14/20 22:32	1
Bis(2-ethylhexyl) phthalate	ND		0.096	0.060	mg/L		09/09/20 10:22	09/14/20 22:32	1
Chrysene	ND		0.0019	0.00079	mg/L		09/09/20 10:22	09/14/20 22:32	1
Di-n-octyl phthalate	ND		0.0096	0.0066	mg/L		09/09/20 10:22	09/14/20 22:32	1

Client Sample ID: FSA-TREAT-6 10% TerraBond MG

Lab Sample ID: 180-103654-35

Date Collected: 08/31/20 14:00
Date Received: 03/17/20 09:00

Matrix: Solid
Percent Solids: 81.8

Method: EPA 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoranthene	ND		0.0019	0.00058	mg/L		09/09/20 10:22	09/14/20 22:32	1
Indeno[1,2,3-cd]pyrene	ND		0.0019	0.00083	mg/L		09/09/20 10:22	09/14/20 22:32	1
Phenanthrene	ND		0.0019	0.00054	mg/L		09/09/20 10:22	09/14/20 22:32	1
Pyrene	ND		0.0019	0.00052	mg/L		09/09/20 10:22	09/14/20 22:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*67*		*35 - 115*	*09/09/20 10:22*	*09/14/20 22:32*	*1*
2-Fluorophenol (Surr)	*66*		*20 - 110*	*09/09/20 10:22*	*09/14/20 22:32*	*1*
2,4,6-Tribromophenol (Surr)	*45*		*19 - 138*	*09/09/20 10:22*	*09/14/20 22:32*	*1*
Nitrobenzene-d5 (Surr)	*78*		*39 - 115*	*09/09/20 10:22*	*09/14/20 22:32*	*1*
Phenol-d5 (Surr)	*42*		*30 - 118*	*09/09/20 10:22*	*09/14/20 22:32*	*1*
Terphenyl-d14 (Surr)	*61*		*30 - 143*	*09/09/20 10:22*	*09/14/20 22:32*	*1*

Method: EPA 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		10	4.4	ug/Kg	☼	09/01/20 21:47	09/11/20 14:23	5
4,4'-DDE	ND		10	2.1	ug/Kg	☼	09/01/20 21:47	09/11/20 14:23	5
4,4'-DDT	ND		10	4.0	ug/Kg	☼	09/01/20 21:47	09/11/20 14:23	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*114*		*44 - 130*	*09/01/20 21:47*	*09/11/20 14:23*	*5*
Tetrachloro-m-xylene	*75*	*p*	*44 - 130*	*09/01/20 21:47*	*09/11/20 14:23*	*5*
DCB Decachlorobiphenyl (Surr)	*212*	*p X*	*41 - 150*	*09/01/20 21:47*	*09/11/20 14:23*	*5*
DCB Decachlorobiphenyl (Surr)	*4327*	*X*	*41 - 150*	*09/01/20 21:47*	*09/11/20 14:23*	*5*

Method: EPA 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.00050	0.00021	mg/L		09/03/20 11:30	09/11/20 04:18	1
4,4'-DDE	ND		0.00050	0.00012	mg/L		09/03/20 11:30	09/11/20 04:18	1
4,4'-DDT	ND		0.00050	0.00012	mg/L		09/03/20 11:30	09/11/20 04:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*106*		*62 - 150*	*09/03/20 11:30*	*09/11/20 04:18*	*1*
DCB Decachlorobiphenyl (Surr)	*114*		*62 - 150*	*09/03/20 11:30*	*09/11/20 04:18*	*1*
Tetrachloro-m-xylene	*89*		*54 - 138*	*09/03/20 11:30*	*09/11/20 04:18*	*1*
Tetrachloro-m-xylene	*87*		*54 - 138*	*09/03/20 11:30*	*09/11/20 04:18*	*1*

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		200	65	ug/Kg	☼	09/09/20 21:30	09/18/20 11:49	10
PCB-1221	ND		200	71	ug/Kg	☼	09/09/20 21:30	09/18/20 11:49	10
PCB-1232	ND		200	49	ug/Kg	☼	09/09/20 21:30	09/18/20 11:49	10
PCB-1242	**12000**		200	29	ug/Kg	☼	09/09/20 21:30	09/18/20 11:49	10
PCB-1248	ND		200	48	ug/Kg	☼	09/09/20 21:30	09/18/20 11:49	10
PCB-1254	**5200**		200	60	ug/Kg	☼	09/09/20 21:30	09/18/20 11:49	10
PCB-1260	ND		200	57	ug/Kg	☼	09/09/20 21:30	09/18/20 11:49	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*79*	*p*	*61 - 132*	*09/09/20 21:30*	*09/18/20 11:49*	*10*
DCB Decachlorobiphenyl (Surr)	*281*	*X*	*61 - 132*	*09/09/20 21:30*	*09/18/20 11:49*	*10*
Tetrachloro-m-xylene (Surr)	*71*		*51 - 112*	*09/09/20 21:30*	*09/18/20 11:49*	*10*

Client Sample ID: FSA-TREAT-6 10% TerraBond MG

Lab Sample ID: 180-103654-35

Date Collected: 08/31/20 14:00
Date Received: 03/17/20 09:00

Matrix: Solid
Percent Solids: 81.8

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene (Surr)	*93*		*51 - 112*	*09/09/20 21:30*	*09/18/20 11:49*	*10*

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.00039	0.00019	mg/L		09/03/20 10:15	09/10/20 15:08	1
PCB-1221	ND		0.00039	0.00022	mg/L		09/03/20 10:15	09/10/20 15:08	1
PCB-1232	ND		0.00039	0.00020	mg/L		09/03/20 10:15	09/10/20 15:08	1
PCB-1242	ND		0.00039	0.00014	mg/L		09/03/20 10:15	09/10/20 15:08	1
PCB-1248	ND		0.00039	0.00012	mg/L		09/03/20 10:15	09/10/20 15:08	1
PCB-1254	ND		0.00039	0.00018	mg/L		09/03/20 10:15	09/10/20 15:08	1
PCB-1260	ND		0.00039	0.00015	mg/L		09/03/20 10:15	09/10/20 15:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene (Surr)	*60*		*45 - 133*	*09/03/20 10:15*	*09/10/20 15:08*	*1*
Tetrachloro-m-xylene (Surr)	*66*		*45 - 133*	*09/03/20 10:15*	*09/10/20 15:08*	*1*
DCB Decachlorobiphenyl (Surr)	*96*		*59 - 144*	*09/03/20 10:15*	*09/10/20 15:08*	*1*
DCB Decachlorobiphenyl (Surr)	*91*		*59 - 144*	*09/03/20 10:15*	*09/10/20 15:08*	*1*

Method: EPA 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.50	0.0085	mg/L		09/10/20 16:13	09/17/20 18:16	1
Barium	**0.29**	**J**	2.0	0.026	mg/L		09/10/20 16:13	09/17/20 18:16	1
Cadmium	**0.0036**	**J**	0.50	0.0028	mg/L		09/10/20 16:13	09/17/20 18:16	1
Chromium	ND		0.50	0.0078	mg/L		09/10/20 16:13	09/17/20 18:16	1
Lead	ND		0.50	0.029	mg/L		09/10/20 16:13	09/17/20 18:16	1
Beryllium	ND		0.040	0.0033	mg/L		09/10/20 16:13	09/17/20 18:16	1
Arsenic	ND		0.50	0.041	mg/L		09/10/20 16:13	09/17/20 18:16	1
Nickel	**0.035**	**J**	0.40	0.015	mg/L		09/10/20 16:13	09/17/20 18:16	1
Antimony	ND		0.10	0.034	mg/L		09/10/20 16:13	09/17/20 18:16	1
Thallium	ND		0.20	0.033	mg/L		09/10/20 16:13	09/17/20 18:16	1

Method: EPA 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**17**		0.59	0.19	mg/Kg	☼	09/10/20 08:32	09/27/20 00:35	5
Barium	**790**		5.9	0.75	mg/Kg	☼	09/10/20 08:32	09/27/20 00:35	5
Beryllium	**0.51**	**J**	0.59	0.42	mg/Kg	☼	09/10/20 08:32	09/27/20 00:35	5
Cadmium	**20**		0.59	0.10	mg/Kg	☼	09/10/20 08:32	09/27/20 00:35	5
Chromium	**350**		1.2	0.49	mg/Kg	☼	09/10/20 08:32	09/27/20 00:35	5
Silver	**1.4**		0.59	0.16	mg/Kg	☼	09/10/20 08:32	09/27/20 00:35	5
Nickel	**340**		0.59	0.55	mg/Kg	☼	09/10/20 08:32	09/27/20 00:35	5
Lead	**2000**		0.59	0.59	mg/Kg	☼	09/10/20 08:32	09/27/20 00:35	5
Antimony	**22**		1.2	0.25	mg/Kg	☼	09/10/20 08:32	09/27/20 00:35	5
Thallium	ND		0.59	0.41	mg/Kg	☼	09/10/20 08:32	09/27/20 00:35	5

Method: EPA 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00010	mg/L		09/04/20 05:40	09/05/20 10:40	1

Client Sample ID: FSA-TREAT-6 10% TerraBond MG — Lab Sample ID: 180-103654-35

Date Collected: 08/31/20 14:00 — **Matrix: Solid**
Date Received: 03/17/20 09:00 — **Percent Solids: 81.8**

Method: EPA 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	1.6		0.038	0.025	mg/Kg	☼	09/15/20 05:34	09/17/20 11:17	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	18.2		0.1	0.1	%			09/09/20 20:57	1
Percent Solids	81.8		0.1	0.1	%			09/09/20 20:57	1
pH	10.8	HF	0.1	0.1	SU			09/18/20 17:42	1

Client Sample ID: FSA-TREAT-9 10% TerraBond MG — Lab Sample ID: 180-103654-36

Date Collected: 08/31/20 14:00 — **Matrix: Solid**
Date Received: 03/17/20 09:00

Method: EPA 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylphenol, 3 & 4	ND		0.0096	0.0036	mg/L		09/09/20 10:22	09/14/20 22:58	1
Anthracene	ND		0.0019	0.00048	mg/L		09/09/20 10:22	09/14/20 22:58	1
Benzo[a]anthracene	ND		0.0019	0.00073	mg/L		09/09/20 10:22	09/14/20 22:58	1
Benzo[b]fluoranthene	ND		0.0019	0.00094	mg/L		09/09/20 10:22	09/14/20 22:58	1
Benzo[g,h,i]perylene	ND		0.0019	0.00067	mg/L		09/09/20 10:22	09/14/20 22:58	1
Benzo[a]pyrene	ND		0.0019	0.00052	mg/L		09/09/20 10:22	09/14/20 22:58	1
Bis(2-ethylhexyl) phthalate	ND		0.096	0.060	mg/L		09/09/20 10:22	09/14/20 22:58	1
Chrysene	ND		0.0019	0.00079	mg/L		09/09/20 10:22	09/14/20 22:58	1
Di-n-octyl phthalate	ND		0.0096	0.0066	mg/L		09/09/20 10:22	09/14/20 22:58	1
Fluoranthene	ND		0.0019	0.00058	mg/L		09/09/20 10:22	09/14/20 22:58	1
Indeno[1,2,3-cd]pyrene	ND		0.0019	0.00083	mg/L		09/09/20 10:22	09/14/20 22:58	1
Phenanthrene	ND		0.0019	0.00054	mg/L		09/09/20 10:22	09/14/20 22:58	1
Pyrene	ND		0.0019	0.00052	mg/L		09/09/20 10:22	09/14/20 22:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*66*		*35 - 115*	*09/09/20 10:22*	*09/14/20 22:58*	*1*
2-Fluorophenol (Surr)	*59*		*20 - 110*	*09/09/20 10:22*	*09/14/20 22:58*	*1*
2,4,6-Tribromophenol (Surr)	*40*		*19 - 138*	*09/09/20 10:22*	*09/14/20 22:58*	*1*
Nitrobenzene-d5 (Surr)	*73*		*39 - 115*	*09/09/20 10:22*	*09/14/20 22:58*	*1*
Phenol-d5 (Surr)	*35*		*30 - 118*	*09/09/20 10:22*	*09/14/20 22:58*	*1*
Terphenyl-d14 (Surr)	*61*		*30 - 143*	*09/09/20 10:22*	*09/14/20 22:58*	*1*

Method: EPA 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.00050	0.00021	mg/L		09/03/20 11:30	09/11/20 04:34	1
4,4'-DDE	ND		0.00050	0.00012	mg/L		09/03/20 11:30	09/11/20 04:34	1
4,4'-DDT	ND		0.00050	0.00012	mg/L		09/03/20 11:30	09/11/20 04:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*100*		*62 - 150*	*09/03/20 11:30*	*09/11/20 04:34*	*1*
DCB Decachlorobiphenyl (Surr)	*109*		*62 - 150*	*09/03/20 11:30*	*09/11/20 04:34*	*1*
Tetrachloro-m-xylene	*87*		*54 - 138*	*09/03/20 11:30*	*09/11/20 04:34*	*1*
Tetrachloro-m-xylene	*85*		*54 - 138*	*09/03/20 11:30*	*09/11/20 04:34*	*1*

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.00038	0.00018	mg/L		09/03/20 10:15	09/10/20 15:27	1

Client Sample ID: FSA-TREAT-9 10% TerraBond MG — Lab Sample ID: 180-103654-36

Date Collected: 08/31/20 14:00 — **Matrix: Solid**
Date Received: 03/17/20 09:00

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography - TCLP (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1221	ND		0.00038	0.00022	mg/L		09/03/20 10:15	09/10/20 15:27	1
PCB-1232	ND		0.00038	0.00020	mg/L		09/03/20 10:15	09/10/20 15:27	1
PCB-1242	ND		0.00038	0.00014	mg/L		09/03/20 10:15	09/10/20 15:27	1
PCB-1248	ND		0.00038	0.00011	mg/L		09/03/20 10:15	09/10/20 15:27	1
PCB-1254	ND		0.00038	0.00017	mg/L		09/03/20 10:15	09/10/20 15:27	1
PCB-1260	ND		0.00038	0.00015	mg/L		09/03/20 10:15	09/10/20 15:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene (Surr)	*61*		*45 - 133*	*09/03/20 10:15*	*09/10/20 15:27*	*1*
Tetrachloro-m-xylene (Surr)	*63*		*45 - 133*	*09/03/20 10:15*	*09/10/20 15:27*	*1*
DCB Decachlorobiphenyl (Surr)	*96*		*59 - 144*	*09/03/20 10:15*	*09/10/20 15:27*	*1*
DCB Decachlorobiphenyl (Surr)	*89*		*59 - 144*	*09/03/20 10:15*	*09/10/20 15:27*	*1*

Method: EPA 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.50	0.0085	mg/L		09/10/20 16:13	09/17/20 18:21	1
Barium	**0.38**	**J**	2.0	0.026	mg/L		09/10/20 16:13	09/17/20 18:21	1
Cadmium	ND		0.50	0.0028	mg/L		09/10/20 16:13	09/17/20 18:21	1
Chromium	ND		0.50	0.0078	mg/L		09/10/20 16:13	09/17/20 18:21	1
Lead	ND		0.50	0.029	mg/L		09/10/20 16:13	09/17/20 18:21	1
Beryllium	ND		0.040	0.0033	mg/L		09/10/20 16:13	09/17/20 18:21	1
Arsenic	ND		0.50	0.041	mg/L		09/10/20 16:13	09/17/20 18:21	1
Nickel	**0.022**	**J**	0.40	0.015	mg/L		09/10/20 16:13	09/17/20 18:21	1
Antimony	ND		0.10	0.034	mg/L		09/10/20 16:13	09/17/20 18:21	1
Thallium	ND		0.20	0.033	mg/L		09/10/20 16:13	09/17/20 18:21	1

Method: EPA 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00010	mg/L		09/04/20 05:40	09/05/20 10:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**17.5**		0.1	0.1	%			09/09/20 20:57	1
Percent Solids	**82.5**		0.1	0.1	%			09/09/20 20:57	1
pH	**11.4**	**HF**	0.1	0.1	SU			09/18/20 17:43	1

Client Sample ID: FSA-TREAT-9 10% TerraBond MG — Lab Sample ID: 180-103654-36

Date Collected: 08/31/20 14:00 — **Matrix: Solid**
Date Received: 03/17/20 09:00 — **Percent Solids: 82.5**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylphenol, 3 & 4	ND		4000	1200	ug/Kg	☼	09/11/20 10:01	09/16/20 15:20	10
Anthracene	ND		810	210	ug/Kg	☼	09/11/20 10:01	09/16/20 15:20	10
Benzo[a]anthracene	**440**	**J**	810	150	ug/Kg	☼	09/11/20 10:01	09/16/20 15:20	10
Benzo[b]fluoranthene	**610**	**J**	810	200	ug/Kg	☼	09/11/20 10:01	09/16/20 15:20	10
Benzo[g,h,i]perylene	**600**	**J**	810	170	ug/Kg	☼	09/11/20 10:01	09/16/20 15:20	10
Benzo[a]pyrene	**460**	**J**	810	170	ug/Kg	☼	09/11/20 10:01	09/16/20 15:20	10
Bis(2-ethylhexyl) phthalate	**160000**		40000	4300	ug/Kg	☼	09/11/20 10:01	09/16/20 15:20	10
Chrysene	**470**	**J**	810	160	ug/Kg	☼	09/11/20 10:01	09/16/20 15:20	10
Di-n-octyl phthalate	**14000**		4000	2300	ug/Kg	☼	09/11/20 10:01	09/16/20 15:20	10

Client Sample ID: FSA-TREAT-9 10% TerraBond MG

Lab Sample ID: 180-103654-36

Date Collected: 08/31/20 14:00
Date Received: 03/17/20 09:00

Matrix: Solid
Percent Solids: 82.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoranthene	**790**	**J**	810	210	ug/Kg	☼	09/11/20 10:01	09/16/20 15:20	10
Indeno[1,2,3-cd]pyrene	**340**	**J**	810	160	ug/Kg	☼	09/11/20 10:01	09/16/20 15:20	10
Phenanthrene	**390**	**J**	810	220	ug/Kg	☼	09/11/20 10:01	09/16/20 15:20	10
Pyrene	**960**		810	190	ug/Kg	☼	09/11/20 10:01	09/16/20 15:20	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*80*		*45 - 105*	*09/11/20 10:01*	*09/16/20 15:20*	*10*
2-Fluorophenol (Surr)	*91*		*42 - 105*	*09/11/20 10:01*	*09/16/20 15:20*	*10*
2,4,6-Tribromophenol (Surr)	*67*		*31 - 105*	*09/11/20 10:01*	*09/16/20 15:20*	*10*
Nitrobenzene-d5 (Surr)	*87*		*53 - 105*	*09/11/20 10:01*	*09/16/20 15:20*	*10*
Phenol-d5 (Surr)	*83*		*47 - 105*	*09/11/20 10:01*	*09/16/20 15:20*	*10*
Terphenyl-d14 (Surr)	*71*		*46 - 105*	*09/11/20 10:01*	*09/16/20 15:20*	*10*

Method: EPA 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND	F2	10	4.3	ug/Kg	☼	09/01/20 21:47	09/11/20 14:39	5
4,4'-DDE	ND	F2 F1	10	2.1	ug/Kg	☼	09/01/20 21:47	09/11/20 14:39	5
4,4'-DDT	ND	F2 F1	10	4.0	ug/Kg	☼	09/01/20 21:47	09/11/20 14:39	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*86*		*44 - 130*	*09/01/20 21:47*	*09/11/20 14:39*	*5*
Tetrachloro-m-xylene	*75*		*44 - 130*	*09/01/20 21:47*	*09/11/20 14:39*	*5*
DCB Decachlorobiphenyl (Surr)	*166*	*p X*	*41 - 150*	*09/01/20 21:47*	*09/11/20 14:39*	*5*
DCB Decachlorobiphenyl (Surr)	*1285*	*X*	*41 - 150*	*09/01/20 21:47*	*09/11/20 14:39*	*5*

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		20	6.4	ug/Kg	☼	09/09/20 21:30	09/17/20 13:00	1
PCB-1221	ND		20	7.0	ug/Kg	☼	09/09/20 21:30	09/17/20 13:00	1
PCB-1232	ND		20	4.8	ug/Kg	☼	09/09/20 21:30	09/17/20 13:00	1
PCB-1242	**4300**		20	2.9	ug/Kg	☼	09/09/20 21:30	09/17/20 13:00	1
PCB-1248	ND		20	4.7	ug/Kg	☼	09/09/20 21:30	09/17/20 13:00	1
PCB-1254	**7900**		20	5.9	ug/Kg	☼	09/09/20 21:30	09/17/20 13:00	1
PCB-1260	ND		20	5.6	ug/Kg	☼	09/09/20 21:30	09/17/20 13:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*45*	*X *3 p*	*61 - 132*	*09/09/20 21:30*	*09/17/20 13:00*	*1*
DCB Decachlorobiphenyl (Surr)	*177*	*X*	*61 - 132*	*09/09/20 21:30*	*09/17/20 13:00*	*1*
Tetrachloro-m-xylene (Surr)	*60*		*51 - 112*	*09/09/20 21:30*	*09/17/20 13:00*	*1*
Tetrachloro-m-xylene (Surr)	*68*		*51 - 112*	*09/09/20 21:30*	*09/17/20 13:00*	*1*

Method: EPA 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**18**		0.55	0.18	mg/Kg	☼	09/10/20 08:32	09/27/20 00:38	5
Barium	**840**		5.5	0.70	mg/Kg	☼	09/10/20 08:32	09/27/20 00:38	5
Beryllium	**0.44**	**J**	0.55	0.39	mg/Kg	☼	09/10/20 08:32	09/27/20 00:38	5
Cadmium	**27**		0.55	0.094	mg/Kg	☼	09/10/20 08:32	09/27/20 00:38	5
Chromium	**160**		1.1	0.46	mg/Kg	☼	09/10/20 08:32	09/27/20 00:38	5
Silver	**1.5**		0.55	0.15	mg/Kg	☼	09/10/20 08:32	09/27/20 00:38	5
Nickel	**330**		0.55	0.51	mg/Kg	☼	09/10/20 08:32	09/27/20 00:38	5
Lead	**1600**		0.55	0.55	mg/Kg	☼	09/10/20 08:32	09/27/20 00:38	5

Client Sample Results

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-5

Client Sample ID: FSA-TREAT-9 10% TerraBond MG

Lab Sample ID: 180-103654-36
Date Collected: 08/31/20 14:00
Matrix: Solid
Date Received: 03/17/20 09:00
Percent Solids: 82.5

Method: EPA 6020B - Metals (ICP/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	28		1.1	0.24	mg/Kg	☼	09/10/20 08:32	09/27/20 00:38	5
Thallium	ND		0.55	0.38	mg/Kg	☼	09/10/20 08:32	09/27/20 00:38	5

Method: EPA 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.93		0.038	0.024	mg/Kg	☼	09/15/20 05:34	09/17/20 11:19	1

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

Lab Sample ID: MB 180-328971/1-A
Matrix: Solid
Analysis Batch: 329579

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 328971

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylphenol, 3 & 4	ND		0.010	0.0037	mg/L		09/09/20 10:19	09/14/20 11:55	1
Anthracene	ND		0.0020	0.00050	mg/L		09/09/20 10:19	09/14/20 11:55	1
Benzo[a]anthracene	ND		0.0020	0.00076	mg/L		09/09/20 10:19	09/14/20 11:55	1
Benzo[b]fluoranthene	ND		0.0020	0.00098	mg/L		09/09/20 10:19	09/14/20 11:55	1
Benzo[g,h,i]perylene	ND		0.0020	0.00070	mg/L		09/09/20 10:19	09/14/20 11:55	1
Benzo[a]pyrene	ND		0.0020	0.00054	mg/L		09/09/20 10:19	09/14/20 11:55	1
Bis(2-ethylhexyl) phthalate	ND		0.10	0.062	mg/L		09/09/20 10:19	09/14/20 11:55	1
Chrysene	ND		0.0020	0.00082	mg/L		09/09/20 10:19	09/14/20 11:55	1
Di-n-octyl phthalate	ND		0.010	0.0069	mg/L		09/09/20 10:19	09/14/20 11:55	1
Fluoranthene	ND		0.0020	0.00060	mg/L		09/09/20 10:19	09/14/20 11:55	1
Indeno[1,2,3-cd]pyrene	ND		0.0020	0.00086	mg/L		09/09/20 10:19	09/14/20 11:55	1
Phenanthrene	ND		0.0020	0.00056	mg/L		09/09/20 10:19	09/14/20 11:55	1
Pyrene	ND		0.0020	0.00054	mg/L		09/09/20 10:19	09/14/20 11:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*71*		*35 - 115*	*09/09/20 10:19*	*09/14/20 11:55*	*1*
2-Fluorophenol (Surr)	*75*		*20 - 110*	*09/09/20 10:19*	*09/14/20 11:55*	*1*
2,4,6-Tribromophenol (Surr)	*65*		*19 - 138*	*09/09/20 10:19*	*09/14/20 11:55*	*1*
Nitrobenzene-d5 (Surr)	*79*		*39 - 115*	*09/09/20 10:19*	*09/14/20 11:55*	*1*
Phenol-d5 (Surr)	*80*		*30 - 118*	*09/09/20 10:19*	*09/14/20 11:55*	*1*
Terphenyl-d14 (Surr)	*75*		*30 - 143*	*09/09/20 10:19*	*09/14/20 11:55*	*1*

Lab Sample ID: LCS 180-328971/2-A
Matrix: Solid
Analysis Batch: 329579

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 328971

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methylphenol, 3 & 4	0.200	0.162		mg/L		81	30 - 121
Anthracene	0.200	0.151		mg/L		75	49 - 115
Benzo[a]anthracene	0.200	0.154		mg/L		77	49 - 115
Benzo[b]fluoranthene	0.200	0.138		mg/L		69	37 - 115
Benzo[g,h,i]perylene	0.200	0.163		mg/L		82	46 - 115
Benzo[a]pyrene	0.200	0.150		mg/L		75	44 - 115
Bis(2-ethylhexyl) phthalate	0.200	0.167		mg/L		84	49 - 115
Chrysene	0.200	0.153		mg/L		76	46 - 115
Di-n-octyl phthalate	0.200	0.146		mg/L		73	41 - 116
Fluoranthene	0.200	0.159		mg/L		79	44 - 115
Indeno[1,2,3-cd]pyrene	0.200	0.164		mg/L		82	45 - 115
Phenanthrene	0.200	0.146		mg/L		73	50 - 115
Pyrene	0.200	0.151		mg/L		76	35 - 127

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*68*		*35 - 115*
2-Fluorophenol (Surr)	*75*		*20 - 110*
2,4,6-Tribromophenol (Surr)	*70*		*19 - 138*
Nitrobenzene-d5 (Surr)	*78*		*39 - 115*
Phenol-d5 (Surr)	*80*		*30 - 118*
Terphenyl-d14 (Surr)	*65*		*30 - 143*

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

Lab Sample ID: LCSD 180-328971/3-A
Matrix: Solid
Analysis Batch: 329579

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 328971

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methylphenol, 3 & 4			0.200	0.173		mg/L		87	30 - 121	7	35
Anthracene			0.200	0.159		mg/L		80	49 - 115	5	22
Benzo[a]anthracene			0.200	0.166		mg/L		83	49 - 115	8	23
Benzo[b]fluoranthene			0.200	0.148		mg/L		74	37 - 115	7	28
Benzo[g,h,i]perylene			0.200	0.173		mg/L		87	46 - 115	6	50
Benzo[a]pyrene			0.200	0.160		mg/L		80	44 - 115	6	31
Bis(2-ethylhexyl) phthalate			0.200	0.180		mg/L		90	49 - 115	8	31
Chrysene			0.200	0.165		mg/L		82	46 - 115	7	31
Di-n-octyl phthalate			0.200	0.156		mg/L		78	41 - 116	6	29
Fluoranthene			0.200	0.167		mg/L		84	44 - 115	5	23
Indeno[1,2,3-cd]pyrene			0.200	0.174		mg/L		87	45 - 115	6	37
Phenanthrene			0.200	0.154		mg/L		77	50 - 115	5	20
Pyrene			0.200	0.162		mg/L		81	35 - 127	7	41

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl	*72*		*35 - 115*
2-Fluorophenol (Surr)	*78*		*20 - 110*
2,4,6-Tribromophenol (Surr)	*73*		*19 - 138*
Nitrobenzene-d5 (Surr)	*81*		*39 - 115*
Phenol-d5 (Surr)	*83*		*30 - 118*
Terphenyl-d14 (Surr)	*71*		*30 - 143*

Lab Sample ID: MB 180-329359/1-A
Matrix: Solid
Analysis Batch: 329731

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 329359

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylphenol, 3 & 4	ND		170	49	ug/Kg		09/11/20 10:01	09/15/20 16:20	1
Anthracene	ND		34	8.7	ug/Kg		09/11/20 10:01	09/15/20 16:20	1
Benzo[a]anthracene	ND		34	6.3	ug/Kg		09/11/20 10:01	09/15/20 16:20	1
Benzo[b]fluoranthene	ND		34	8.2	ug/Kg		09/11/20 10:01	09/15/20 16:20	1
Benzo[g,h,i]perylene	ND		34	7.2	ug/Kg		09/11/20 10:01	09/15/20 16:20	1
Benzo[a]pyrene	ND		34	7.3	ug/Kg		09/11/20 10:01	09/15/20 16:20	1
Bis(2-ethylhexyl) phthalate	ND		1700	180	ug/Kg		09/11/20 10:01	09/15/20 16:20	1
Chrysene	ND		34	6.6	ug/Kg		09/11/20 10:01	09/15/20 16:20	1
Di-n-octyl phthalate	ND		170	97	ug/Kg		09/11/20 10:01	09/15/20 16:20	1
Fluoranthene	ND		34	8.8	ug/Kg		09/11/20 10:01	09/15/20 16:20	1
Indeno[1,2,3-cd]pyrene	ND		34	6.8	ug/Kg		09/11/20 10:01	09/15/20 16:20	1
Phenanthrene	ND		34	9.0	ug/Kg		09/11/20 10:01	09/15/20 16:20	1
Pyrene	ND		34	7.9	ug/Kg		09/11/20 10:01	09/15/20 16:20	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*80*		*45 - 105*	*09/11/20 10:01*	*09/15/20 16:20*	*1*
2-Fluorophenol (Surr)	*82*		*42 - 105*	*09/11/20 10:01*	*09/15/20 16:20*	*1*
2,4,6-Tribromophenol (Surr)	*73*		*31 - 105*	*09/11/20 10:01*	*09/15/20 16:20*	*1*
Nitrobenzene-d5 (Surr)	*80*		*53 - 105*	*09/11/20 10:01*	*09/15/20 16:20*	*1*
Phenol-d5 (Surr)	*73*		*47 - 105*	*09/11/20 10:01*	*09/15/20 16:20*	*1*
Terphenyl-d14 (Surr)	*102*		*46 - 105*	*09/11/20 10:01*	*09/15/20 16:20*	*1*

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

Lab Sample ID: LCS 180-329359/2-A
Matrix: Solid
Analysis Batch: 329731

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 329359

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methylphenol, 3 & 4	3330	2210		ug/Kg		66	54 - 100
Anthracene	3330	2410		ug/Kg		72	47 - 116
Benzo[a]anthracene	3330	2330		ug/Kg		70	48 - 101
Benzo[b]fluoranthene	3330	2290		ug/Kg		69	46 - 100
Benzo[g,h,i]perylene	3330	2270		ug/Kg		68	49 - 111
Benzo[a]pyrene	3330	2310		ug/Kg		69	46 - 114
Bis(2-ethylhexyl) phthalate	3330	2370		ug/Kg		71	45 - 113
Chrysene	3330	2130		ug/Kg		64	49 - 100
Di-n-octyl phthalate	3330	2320		ug/Kg		70	43 - 117
Fluoranthene	3330	2400		ug/Kg		72	54 - 105
Indeno[1,2,3-cd]pyrene	3330	2620		ug/Kg		79	49 - 112
Phenanthrene	3330	2290		ug/Kg		69	46 - 111
Pyrene	3330	2460		ug/Kg		74	49 - 100

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*80*		*45 - 105*
2-Fluorophenol (Surr)	*77*		*42 - 105*
2,4,6-Tribromophenol (Surr)	*79*		*31 - 105*
Nitrobenzene-d5 (Surr)	*79*		*53 - 105*
Phenol-d5 (Surr)	*70*		*47 - 105*
Terphenyl-d14 (Surr)	*88*		*46 - 105*

Lab Sample ID: LB 180-327993/1-G
Matrix: Solid
Analysis Batch: 329579

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 328971

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylphenol, 3 & 4	ND		0.0096	0.0036	mg/L		09/09/20 10:22	09/14/20 14:53	1
Anthracene	ND		0.0019	0.00048	mg/L		09/09/20 10:22	09/14/20 14:53	1
Benzo[a]anthracene	ND		0.0019	0.00073	mg/L		09/09/20 10:22	09/14/20 14:53	1
Benzo[b]fluoranthene	ND		0.0019	0.00094	mg/L		09/09/20 10:22	09/14/20 14:53	1
Benzo[g,h,i]perylene	ND		0.0019	0.00067	mg/L		09/09/20 10:22	09/14/20 14:53	1
Benzo[a]pyrene	ND		0.0019	0.00052	mg/L		09/09/20 10:22	09/14/20 14:53	1
Bis(2-ethylhexyl) phthalate	ND		0.096	0.060	mg/L		09/09/20 10:22	09/14/20 14:53	1
Chrysene	ND		0.0019	0.00079	mg/L		09/09/20 10:22	09/14/20 14:53	1
Di-n-octyl phthalate	ND		0.0096	0.0066	mg/L		09/09/20 10:22	09/14/20 14:53	1
Fluoranthene	ND		0.0019	0.00058	mg/L		09/09/20 10:22	09/14/20 14:53	1
Indeno[1,2,3-cd]pyrene	ND		0.0019	0.00083	mg/L		09/09/20 10:22	09/14/20 14:53	1
Phenanthrene	ND		0.0019	0.00054	mg/L		09/09/20 10:22	09/14/20 14:53	1
Pyrene	ND		0.0019	0.00052	mg/L		09/09/20 10:22	09/14/20 14:53	1

Surrogate	*LB %Recovery*	*LB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*71*		*35 - 115*	*09/09/20 10:22*	*09/14/20 14:53*	*1*
2-Fluorophenol (Surr)	*72*		*20 - 110*	*09/09/20 10:22*	*09/14/20 14:53*	*1*
2,4,6-Tribromophenol (Surr)	*66*		*19 - 138*	*09/09/20 10:22*	*09/14/20 14:53*	*1*
Nitrobenzene-d5 (Surr)	*80*		*39 - 115*	*09/09/20 10:22*	*09/14/20 14:53*	*1*
Phenol-d5 (Surr)	*78*		*30 - 118*	*09/09/20 10:22*	*09/14/20 14:53*	*1*
Terphenyl-d14 (Surr)	*77*		*30 - 143*	*09/09/20 10:22*	*09/14/20 14:53*	*1*

QC Sample Results

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-5

Method: EPA 8081B - Organochlorine Pesticides (GC)

Lab Sample ID: MB 180-328097/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 329392 — **Prep Batch: 328097**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		1.7	0.71	ug/Kg		09/01/20 21:47	09/11/20 13:06	1
4,4'-DDE	ND		1.7	0.34	ug/Kg		09/01/20 21:47	09/11/20 13:06	1
4,4'-DDT	ND		1.7	0.66	ug/Kg		09/01/20 21:47	09/11/20 13:06	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*82*		*44 - 130*	*09/01/20 21:47*	*09/11/20 13:06*	*1*
Tetrachloro-m-xylene	*84*		*44 - 130*	*09/01/20 21:47*	*09/11/20 13:06*	*1*
DCB Decachlorobiphenyl (Surr)	*81*		*41 - 150*	*09/01/20 21:47*	*09/11/20 13:06*	*1*
DCB Decachlorobiphenyl (Surr)	*110*		*41 - 150*	*09/01/20 21:47*	*09/11/20 13:06*	*1*

Lab Sample ID: LCS 180-328097/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 329392 — **Prep Batch: 328097**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4,4'-DDD	33.3	37.0		ug/Kg		111	57 - 149
4,4'-DDE	33.3	35.3		ug/Kg		106	52 - 150
4,4'-DDT	33.3	36.3		ug/Kg		109	56 - 142

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*92*		*44 - 130*
Tetrachloro-m-xylene	*90*		*44 - 130*
DCB Decachlorobiphenyl (Surr)	*102*		*41 - 150*
DCB Decachlorobiphenyl (Surr)	*122*		*41 - 150*

Lab Sample ID: 180-103654-36 MS — **Client Sample ID: FSA-TREAT-9 10% TerraBond MG**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 329392 — **Prep Batch: 328097**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
4,4'-DDD	ND	F2	40.3	40.5	p	ug/Kg	☼	100	57 - 149
4,4'-DDE	ND	F2 F1	40.3	44.6	p	ug/Kg	☼	111	52 - 150
4,4'-DDT	ND	F2 F1	40.3	107	F1 p	ug/Kg	☼	265	56 - 142

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tetrachloro-m-xylene	*95*		*44 - 130*
Tetrachloro-m-xylene	*81*		*44 - 130*
DCB Decachlorobiphenyl (Surr)	*150*	*p*	*41 - 150*
DCB Decachlorobiphenyl (Surr)	*907*	*X*	*41 - 150*

Lab Sample ID: 180-103654-36 MSD — **Client Sample ID: FSA-TREAT-9 10% TerraBond MG**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 329392 — **Prep Batch: 328097**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4,4'-DDD	ND	F2	40.2	53.1	p F2	ug/Kg	☼	132	57 - 149	27	16
4,4'-DDE	ND	F2 F1	40.2	71.8	F1 p F2	ug/Kg	☼	178	52 - 150	47	15
4,4'-DDT	ND	F2 F1	40.2	129	F1 p F2	ug/Kg	☼	321	56 - 142	19	15

Method: EPA 8081B - Organochlorine Pesticides (GC) (Continued)

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Tetrachloro-m-xylene	99		44 - 130
Tetrachloro-m-xylene	80		44 - 130
DCB Decachlorobiphenyl (Surr)	216	p X	41 - 150
DCB Decachlorobiphenyl (Surr)	1071	X	41 - 150

Lab Sample ID: MB 180-328413/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 329123 — **Prep Batch: 328413**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.00050	0.00021	mg/L		09/03/20 11:30	09/11/20 01:59	1
4,4'-DDE	ND		0.00050	0.00012	mg/L		09/03/20 11:30	09/11/20 01:59	1
4,4'-DDT	ND		0.00050	0.00012	mg/L		09/03/20 11:30	09/11/20 01:59	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	91		54 - 138	09/03/20 11:30	09/11/20 01:59	1
Tetrachloro-m-xylene	89		54 - 138	09/03/20 11:30	09/11/20 01:59	1
DCB Decachlorobiphenyl (Surr)	105		62 - 150	09/03/20 11:30	09/11/20 01:59	1
DCB Decachlorobiphenyl (Surr)	118		62 - 150	09/03/20 11:30	09/11/20 01:59	1

Lab Sample ID: LCS 180-328413/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 329123 — **Prep Batch: 328413**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
4,4'-DDD			0.0100	0.00960		mg/L		96	71 - 136		
4,4'-DDE			0.0100	0.00917		mg/L		92	75 - 133		
4,4'-DDT			0.0100	0.00964		mg/L		96	56 - 132		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene	87		54 - 138
Tetrachloro-m-xylene	84		54 - 138
DCB Decachlorobiphenyl (Surr)	99		62 - 150
DCB Decachlorobiphenyl (Surr)	110		62 - 150

Lab Sample ID: LCSD 180-328413/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 329123 — **Prep Batch: 328413**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4,4'-DDD			0.0100	0.00999		mg/L		100	71 - 136	4	18
4,4'-DDE			0.0100	0.00924		mg/L		92	75 - 133	1	16
4,4'-DDT			0.0100	0.00963		mg/L		96	56 - 132	0	18

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Tetrachloro-m-xylene	86		54 - 138
Tetrachloro-m-xylene	86		54 - 138
DCB Decachlorobiphenyl (Surr)	101		62 - 150
DCB Decachlorobiphenyl (Surr)	110		62 - 150

Method: EPA 8081B - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LB 180-327993/1-D
Matrix: Solid
Analysis Batch: 329123

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 328413

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.00050	0.00021	mg/L		09/03/20 11:30	09/11/20 02:45	1
4,4'-DDE	ND		0.00050	0.00012	mg/L		09/03/20 11:30	09/11/20 02:45	1
4,4'-DDT	ND		0.00050	0.00012	mg/L		09/03/20 11:30	09/11/20 02:45	1

Surrogate	*LB %Recovery*	*LB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*85*		*54 - 138*	*09/03/20 11:30*	*09/11/20 02:45*	*1*
Tetrachloro-m-xylene	*86*		*54 - 138*	*09/03/20 11:30*	*09/11/20 02:45*	*1*
DCB Decachlorobiphenyl (Surr)	*102*		*62 - 150*	*09/03/20 11:30*	*09/11/20 02:45*	*1*
DCB Decachlorobiphenyl (Surr)	*112*		*62 - 150*	*09/03/20 11:30*	*09/11/20 02:45*	*1*

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 180-328104/1-C
Matrix: Solid
Analysis Batch: 330134

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 328104

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		17	5.4	ug/Kg		09/09/20 21:30	09/17/20 10:29	1
PCB-1221	ND		17	5.9	ug/Kg		09/09/20 21:30	09/17/20 10:29	1
PCB-1232	ND		17	4.1	ug/Kg		09/09/20 21:30	09/17/20 10:29	1
PCB-1242	ND		17	2.4	ug/Kg		09/09/20 21:30	09/17/20 10:29	1
PCB-1248	ND		17	4.0	ug/Kg		09/09/20 21:30	09/17/20 10:29	1
PCB-1254	ND		17	5.0	ug/Kg		09/09/20 21:30	09/17/20 10:29	1
PCB-1260	ND		17	4.7	ug/Kg		09/09/20 21:30	09/17/20 10:29	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*101*		*61 - 132*	*09/09/20 21:30*	*09/17/20 10:29*	*1*
DCB Decachlorobiphenyl (Surr)	*95*		*61 - 132*	*09/09/20 21:30*	*09/17/20 10:29*	*1*
Tetrachloro-m-xylene (Surr)	*68*		*51 - 112*	*09/09/20 21:30*	*09/17/20 10:29*	*1*
Tetrachloro-m-xylene (Surr)	*72*		*51 - 112*	*09/09/20 21:30*	*09/17/20 10:29*	*1*

Lab Sample ID: LCS 180-328104/2-C
Matrix: Solid
Analysis Batch: 330134

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 328104

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1016	1330	904		ug/Kg		68	48 - 122
PCB-1260	1330	1210		ug/Kg		91	47 - 127

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*89*		*61 - 132*
DCB Decachlorobiphenyl (Surr)	*83*		*61 - 132*
Tetrachloro-m-xylene (Surr)	*56*		*51 - 112*
Tetrachloro-m-xylene (Surr)	*62*		*51 - 112*

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: 180-103654-31 MS — **Client Sample ID: FSA-TREAT-8 10% TerraBond MG**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 330134 — **Prep Batch: 328104**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1016	ND	F1	1580	12700	F1	ug/Kg	☼	801	48 - 122
PCB-1260	2800	F1	1580	5350	F1	ug/Kg	☼	161	47 - 127

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*131*	**3 p*	*61 - 132*
DCB Decachlorobiphenyl (Surr)	*744*	*X*	*61 - 132*
Tetrachloro-m-xylene (Surr)	*82*		*51 - 112*
Tetrachloro-m-xylene (Surr)	*79*		*51 - 112*

Lab Sample ID: 180-103654-31 MSD — **Client Sample ID: FSA-TREAT-8 10% TerraBond MG**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 330134 — **Prep Batch: 328104**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-1016	ND	F1	1540	12400	F1	ug/Kg	☼	801	48 - 122	3	40
PCB-1260	2800	F1	1540	4340		ug/Kg	☼	100	47 - 127	21	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*63*	**3 p*	*61 - 132*
DCB Decachlorobiphenyl (Surr)	*421*	*X*	*61 - 132*
Tetrachloro-m-xylene (Surr)	*76*		*51 - 112*
Tetrachloro-m-xylene (Surr)	*84*		*51 - 112*

Lab Sample ID: MB 180-328411/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 329092 — **Prep Batch: 328411**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.00040	0.00019	mg/L		09/03/20 10:15	09/10/20 12:18	1
PCB-1221	ND		0.00040	0.00023	mg/L		09/03/20 10:15	09/10/20 12:18	1
PCB-1232	ND		0.00040	0.00021	mg/L		09/03/20 10:15	09/10/20 12:18	1
PCB-1242	ND		0.00040	0.00014	mg/L		09/03/20 10:15	09/10/20 12:18	1
PCB-1248	ND		0.00040	0.00012	mg/L		09/03/20 10:15	09/10/20 12:18	1
PCB-1254	ND		0.00040	0.00018	mg/L		09/03/20 10:15	09/10/20 12:18	1
PCB-1260	ND		0.00040	0.00016	mg/L		09/03/20 10:15	09/10/20 12:18	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*90*		*59 - 144*	*09/03/20 10:15*	*09/10/20 12:18*	*1*
DCB Decachlorobiphenyl (Surr)	*92*		*59 - 144*	*09/03/20 10:15*	*09/10/20 12:18*	*1*
Tetrachloro-m-xylene (Surr)	*71*		*45 - 133*	*09/03/20 10:15*	*09/10/20 12:18*	*1*
Tetrachloro-m-xylene (Surr)	*75*		*45 - 133*	*09/03/20 10:15*	*09/10/20 12:18*	*1*

Lab Sample ID: LCS 180-328411/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 329092 — **Prep Batch: 328411**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1016	0.0400	0.0329		mg/L		82	55 - 124

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: LCS 180-328411/2-A
Matrix: Solid
Analysis Batch: 329092

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 328411

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
PCB-1260			0.0400	0.0372		mg/L		93	56 - 122		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*93*		*59 - 144*
DCB Decachlorobiphenyl (Surr)	*89*		*59 - 144*
Tetrachloro-m-xylene (Surr)	*67*		*45 - 133*
Tetrachloro-m-xylene (Surr)	*73*		*45 - 133*

Lab Sample ID: LCSD 180-328411/3-A
Matrix: Solid
Analysis Batch: 329092

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 328411

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-1016			0.0400	0.0346		mg/L		87	55 - 124	5	23
PCB-1260			0.0400	0.0372		mg/L		93	56 - 122	0	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*100*		*59 - 144*
DCB Decachlorobiphenyl (Surr)	*91*		*59 - 144*
Tetrachloro-m-xylene (Surr)	*68*		*45 - 133*
Tetrachloro-m-xylene (Surr)	*75*		*45 - 133*

Lab Sample ID: LB 180-327993/1-B
Matrix: Solid
Analysis Batch: 329092

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 328411

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.00040	0.00019	mg/L		09/03/20 10:15	09/10/20 14:12	1
PCB-1221	ND		0.00040	0.00023	mg/L		09/03/20 10:15	09/10/20 14:12	1
PCB-1232	ND		0.00040	0.00021	mg/L		09/03/20 10:15	09/10/20 14:12	1
PCB-1242	ND		0.00040	0.00014	mg/L		09/03/20 10:15	09/10/20 14:12	1
PCB-1248	ND		0.00040	0.00012	mg/L		09/03/20 10:15	09/10/20 14:12	1
PCB-1254	ND		0.00040	0.00018	mg/L		09/03/20 10:15	09/10/20 14:12	1
PCB-1260	ND		0.00040	0.00016	mg/L		09/03/20 10:15	09/10/20 14:12	1

Surrogate	*LB %Recovery*	*LB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*99*		*59 - 144*	*09/03/20 10:15*	*09/10/20 14:12*	*1*
DCB Decachlorobiphenyl (Surr)	*93*		*59 - 144*	*09/03/20 10:15*	*09/10/20 14:12*	*1*
Tetrachloro-m-xylene (Surr)	*69*		*45 - 133*	*09/03/20 10:15*	*09/10/20 14:12*	*1*
Tetrachloro-m-xylene (Surr)	*75*		*45 - 133*	*09/03/20 10:15*	*09/10/20 14:12*	*1*

QC Sample Results

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-5

Method: EPA 6010D - Metals (ICP)

Lab Sample ID: MB 180-329231/1-A
Matrix: Solid
Analysis Batch: 330282

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 329231

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.050	0.00085	mg/L		09/10/20 16:10	09/17/20 17:12	1
Barium	ND		0.20	0.0026	mg/L		09/10/20 16:10	09/17/20 17:12	1
Cadmium	ND		0.050	0.00028	mg/L		09/10/20 16:10	09/17/20 17:12	1
Chromium	ND		0.050	0.00078	mg/L		09/10/20 16:10	09/17/20 17:12	1
Lead	ND		0.050	0.0029	mg/L		09/10/20 16:10	09/17/20 17:12	1
Beryllium	ND		0.0040	0.00033	mg/L		09/10/20 16:10	09/17/20 17:12	1
Arsenic	ND		0.050	0.0041	mg/L		09/10/20 16:10	09/17/20 17:12	1
Nickel	ND		0.040	0.0015	mg/L		09/10/20 16:10	09/17/20 17:12	1
Antimony	ND		0.010	0.0034	mg/L		09/10/20 16:10	09/17/20 17:12	1
Thallium	ND		0.020	0.0033	mg/L		09/10/20 16:10	09/17/20 17:12	1

Lab Sample ID: LCS 180-329231/2-A
Matrix: Solid
Analysis Batch: 330282

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 329231

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	0.250	0.249		mg/L		100	80 - 120
Barium	1.00	0.969		mg/L		97	80 - 120
Cadmium	0.500	0.503		mg/L		101	80 - 120
Chromium	0.500	0.484		mg/L		97	80 - 120
Lead	0.500	0.493		mg/L		99	80 - 120
Beryllium	0.500	0.496		mg/L		99	80 - 120
Arsenic	1.00	1.01		mg/L		101	80 - 120
Nickel	0.500	0.493		mg/L		99	80 - 120
Antimony	0.250	0.254		mg/L		102	80 - 120
Thallium	1.00	0.976		mg/L		98	80 - 120

Lab Sample ID: LB 180-327993/27-F
Matrix: Solid
Analysis Batch: 330282

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 329231

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.50	0.0085	mg/L		09/10/20 16:10	09/17/20 17:25	1
Barium	ND		2.0	0.026	mg/L		09/10/20 16:10	09/17/20 17:25	1
Cadmium	ND		0.50	0.0028	mg/L		09/10/20 16:10	09/17/20 17:25	1
Chromium	ND		0.50	0.0078	mg/L		09/10/20 16:10	09/17/20 17:25	1
Lead	ND		0.50	0.029	mg/L		09/10/20 16:10	09/17/20 17:25	1
Beryllium	ND		0.040	0.0033	mg/L		09/10/20 16:10	09/17/20 17:25	1
Arsenic	ND		0.50	0.041	mg/L		09/10/20 16:10	09/17/20 17:25	1
Nickel	ND		0.40	0.015	mg/L		09/10/20 16:10	09/17/20 17:25	1
Antimony	ND		0.10	0.034	mg/L		09/10/20 16:10	09/17/20 17:25	1
Thallium	ND		0.20	0.033	mg/L		09/10/20 16:10	09/17/20 17:25	1

Lab Sample ID: 180-103654-31 MS
Matrix: Solid
Analysis Batch: 330282

Client Sample ID: FSA-TREAT-8 10% TerraBond MG
Prep Type: TCLP
Prep Batch: 329231

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	ND		2.50	2.49		mg/L		100	75 - 125

Method: EPA 6010D - Metals (ICP) (Continued)

Lab Sample ID: 180-103654-31 MS — **Client Sample ID: FSA-TREAT-8 10% TerraBond MG**
Matrix: Solid — **Prep Type: TCLP**
Analysis Batch: 330282 — **Prep Batch: 329231**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Barium	0.31	J	10.0	9.80		mg/L		95	75 - 125
Cadmium	0.0043	J	5.00	4.92		mg/L		98	75 - 125
Chromium	ND		5.00	4.80		mg/L		96	75 - 125
Lead	ND		5.00	4.76		mg/L		95	75 - 125
Beryllium	ND		5.00	4.86		mg/L		97	75 - 125
Arsenic	ND		10.0	10.1		mg/L		101	75 - 125
Nickel	0.085	J	5.00	4.93		mg/L		97	75 - 125
Antimony	0.038	J	2.50	2.51		mg/L		99	75 - 125
Thallium	ND		10.0	9.14		mg/L		91	75 - 125

Lab Sample ID: 180-103654-31 MSD — **Client Sample ID: FSA-TREAT-8 10% TerraBond MG**
Matrix: Solid — **Prep Type: TCLP**
Analysis Batch: 330282 — **Prep Batch: 329231**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Silver	ND		2.50	2.44		mg/L		98	75 - 125	2	20
Barium	0.31	J	10.0	9.68		mg/L		94	75 - 125	1	20
Cadmium	0.0043	J	5.00	4.92		mg/L		98	75 - 125	0	20
Chromium	ND		5.00	4.73		mg/L		95	75 - 125	1	20
Lead	ND		5.00	4.74		mg/L		95	75 - 125	0	20
Beryllium	ND		5.00	4.81		mg/L		96	75 - 125	1	20
Arsenic	ND		10.0	10.1		mg/L		101	75 - 125	0	20
Nickel	0.085	J	5.00	4.94		mg/L		97	75 - 125	0	20
Antimony	0.038	J	2.50	2.52		mg/L		99	75 - 125	0	20
Thallium	ND		10.0	9.11		mg/L		91	75 - 125	0	20

Method: EPA 6020B - Metals (ICP/MS)

Lab Sample ID: MB 180-329133/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 331557 — **Prep Batch: 329133**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.10	0.032	mg/Kg		09/10/20 08:32	09/26/20 23:52	1
Barium	ND		1.0	0.13	mg/Kg		09/10/20 08:32	09/26/20 23:52	1
Beryllium	ND		0.10	0.071	mg/Kg		09/10/20 08:32	09/26/20 23:52	1
Cadmium	ND		0.10	0.017	mg/Kg		09/10/20 08:32	09/26/20 23:52	1
Chromium	ND		0.20	0.083	mg/Kg		09/10/20 08:32	09/26/20 23:52	1
Silver	ND		0.10	0.027	mg/Kg		09/10/20 08:32	09/26/20 23:52	1
Nickel	ND		0.10	0.093	mg/Kg		09/10/20 08:32	09/26/20 23:52	1
Lead	ND		0.10	0.10	mg/Kg		09/10/20 08:32	09/26/20 23:52	1
Antimony	ND		0.20	0.043	mg/Kg		09/10/20 08:32	09/26/20 23:52	1
Thallium	ND		0.10	0.069	mg/Kg		09/10/20 08:32	09/26/20 23:52	1

Lab Sample ID: LCS 180-329133/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 331557 — **Prep Batch: 329133**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	100	101		mg/Kg		101	80 - 120

Method: EPA 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 180-329133/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 331557 — **Prep Batch: 329133**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Barium	100	107		mg/Kg		107	80 - 120
Beryllium	50.0	50.6		mg/Kg		101	80 - 120
Cadmium	50.0	51.7		mg/Kg		103	80 - 120
Chromium	50.0	52.4		mg/Kg		105	80 - 120
Silver	25.0	25.1		mg/Kg		100	80 - 120
Nickel	50.0	51.1		mg/Kg		102	80 - 120
Lead	50.0	53.6		mg/Kg		107	80 - 120
Antimony	25.0	27.0		mg/Kg		108	80 - 120
Thallium	100	114		mg/Kg		114	80 - 120

Lab Sample ID: 180-103654-31 MS — **Client Sample ID: FSA-TREAT-8 10% TerraBond MG**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 331557 — **Prep Batch: 329133**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	12		108	128		mg/Kg	☼	108	75 - 125
Barium	570		108	1970	4	mg/Kg	☼	1298	75 - 125
Beryllium	0.38	J	54.2	57.6		mg/Kg	☼	106	75 - 125
Cadmium	13		54.2	79.4		mg/Kg	☼	122	75 - 125
Chromium	120	F1	54.2	284	F1	mg/Kg	☼	309	75 - 125
Silver	2.2		27.1	30.4		mg/Kg	☼	104	75 - 125
Nickel	160	F1	54.2	364	F1	mg/Kg	☼	375	75 - 125
Lead	1100		54.2	2000	4	mg/Kg	☼	1745	75 - 125
Antimony	19	F1	27.1	59.9	F1	mg/Kg	☼	150	75 - 125
Thallium	ND		108	110		mg/Kg	☼	102	75 - 125

Lab Sample ID: 180-103654-31 MSD — **Client Sample ID: FSA-TREAT-8 10% TerraBond MG**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 331557 — **Prep Batch: 329133**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	12		107	124		mg/Kg	☼	105	75 - 125	3	20
Barium	570		107	1900	4	mg/Kg	☼	1241	75 - 125	4	20
Beryllium	0.38	J	53.7	56.1		mg/Kg	☼	104	75 - 125	3	20
Cadmium	13		53.7	77.4		mg/Kg	☼	119	75 - 125	3	20
Chromium	120	F1	53.7	277	F1	mg/Kg	☼	301	75 - 125	2	20
Silver	2.2		26.9	29.3		mg/Kg	☼	101	75 - 125	4	20
Nickel	160	F1	53.7	351	F1	mg/Kg	☼	353	75 - 125	4	20
Lead	1100		53.7	1940	4	mg/Kg	☼	1644	75 - 125	3	20
Antimony	19	F1	26.9	57.1	F1	mg/Kg	☼	141	75 - 125	5	20
Thallium	ND		107	107		mg/Kg	☼	99	75 - 125	3	20

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-328429/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 328649 — **Prep Batch: 328429**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00010	mg/L		09/04/20 05:40	09/05/20 10:22	1

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: LCS 180-328429/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 328649 — **Prep Batch: 328429**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00250	0.00252		mg/L		101	80 - 120

Lab Sample ID: LB 180-327993/1-E — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: TCLP**
Analysis Batch: 328649 — **Prep Batch: 328429**

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00010	mg/L		09/04/20 05:40	09/05/20 10:35	1

Method: EPA 7471B - Mercury (CVAA)

Lab Sample ID: MB 180-329662/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 330201 — **Prep Batch: 329662**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.033	0.021	mg/Kg		09/15/20 05:34	09/17/20 10:58	1

Lab Sample ID: LCS 180-329662/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 330201 — **Prep Batch: 329662**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.417	0.336		mg/Kg		81	80 - 120

Lab Sample ID: 180-103654-31 MS — **Client Sample ID: FSA-TREAT-8 10% TerraBond MG**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 330201 — **Prep Batch: 329662**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	1.7		0.163	1.88	E 4	mg/Kg	☼	84	80 - 120

Lab Sample ID: 180-103654-31 MSD — **Client Sample ID: FSA-TREAT-8 10% TerraBond MG**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 330201 — **Prep Batch: 329662**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	1.7		0.151	1.64	E 4	mg/Kg	☼	-71	80 - 120	14	20

Method: EPA 9045D - pH

Lab Sample ID: LCS 180-330428/1 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 330428

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.0		SU		100	99 - 101

Method: EPA 9045D - pH (Continued)

Lab Sample ID: 180-103654-31 DU
Matrix: Solid
Analysis Batch: 330428

Client Sample ID: FSA-TREAT-8 10% TerraBond MG
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	11.0	HF		11.0		SU				0.6	2

QC Association Summary

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-5

GC/MS Semi VOA

Leach Batch: 327993

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-32	FSA-TREAT-1 10% TerraBond MG	TCLP	Solid	EPA 1311	
180-103654-33	FSA-TREAT-3 10% TerraBond MG	TCLP	Solid	EPA 1311	
180-103654-34	FSA-TREAT-4 10% TerraBond MG	TCLP	Solid	EPA 1311	
180-103654-35	FSA-TREAT-6 10% TerraBond MG	TCLP	Solid	EPA 1311	
180-103654-36	FSA-TREAT-9 10% TerraBond MG	TCLP	Solid	EPA 1311	
LB 180-327993/1-G	Method Blank	TCLP	Solid	EPA 1311	

Prep Batch: 328971

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-32	FSA-TREAT-1 10% TerraBond MG	TCLP	Solid	3520C	327993
180-103654-33	FSA-TREAT-3 10% TerraBond MG	TCLP	Solid	3520C	327993
180-103654-34	FSA-TREAT-4 10% TerraBond MG	TCLP	Solid	3520C	327993
180-103654-35	FSA-TREAT-6 10% TerraBond MG	TCLP	Solid	3520C	327993
180-103654-36	FSA-TREAT-9 10% TerraBond MG	TCLP	Solid	3520C	327993
LB 180-327993/1-G	Method Blank	TCLP	Solid	3520C	327993
MB 180-328971/1-A	Method Blank	Total/NA	Solid	3520C	
LCS 180-328971/2-A	Lab Control Sample	Total/NA	Solid	3520C	
LCSD 180-328971/3-A	Lab Control Sample Dup	Total/NA	Solid	3520C	

Prep Batch: 329359

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-32	FSA-TREAT-1 10% TerraBond MG	Total/NA	Solid	3541	
180-103654-33	FSA-TREAT-3 10% TerraBond MG	Total/NA	Solid	3541	
180-103654-34	FSA-TREAT-4 10% TerraBond MG	Total/NA	Solid	3541	
180-103654-35 - DL	FSA-TREAT-6 10% TerraBond MG	Total/NA	Solid	3541	
180-103654-35	FSA-TREAT-6 10% TerraBond MG	Total/NA	Solid	3541	
180-103654-36	FSA-TREAT-9 10% TerraBond MG	Total/NA	Solid	3541	
MB 180-329359/1-A	Method Blank	Total/NA	Solid	3541	
LCS 180-329359/2-A	Lab Control Sample	Total/NA	Solid	3541	

Analysis Batch: 329579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-32	FSA-TREAT-1 10% TerraBond MG	TCLP	Solid	EPA 8270D	328971
180-103654-33	FSA-TREAT-3 10% TerraBond MG	TCLP	Solid	EPA 8270D	328971
180-103654-34	FSA-TREAT-4 10% TerraBond MG	TCLP	Solid	EPA 8270D	328971
180-103654-35	FSA-TREAT-6 10% TerraBond MG	TCLP	Solid	EPA 8270D	328971
180-103654-36	FSA-TREAT-9 10% TerraBond MG	TCLP	Solid	EPA 8270D	328971
LB 180-327993/1-G	Method Blank	TCLP	Solid	EPA 8270D	328971
MB 180-328971/1-A	Method Blank	Total/NA	Solid	EPA 8270D	328971
LCS 180-328971/2-A	Lab Control Sample	Total/NA	Solid	EPA 8270D	328971
LCSD 180-328971/3-A	Lab Control Sample Dup	Total/NA	Solid	EPA 8270D	328971

Analysis Batch: 329731

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 180-329359/1-A	Method Blank	Total/NA	Solid	EPA 8270D	329359
LCS 180-329359/2-A	Lab Control Sample	Total/NA	Solid	EPA 8270D	329359

Analysis Batch: 329762

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-32	FSA-TREAT-1 10% TerraBond MG	Total/NA	Solid	EPA 8270D	329359

QC Association Summary

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-5

GC/MS Semi VOA

Analysis Batch: 329892

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-33	FSA-TREAT-3 10% TerraBond MG	Total/NA	Solid	EPA 8270D	329359
180-103654-34	FSA-TREAT-4 10% TerraBond MG	Total/NA	Solid	EPA 8270D	329359
180-103654-35	FSA-TREAT-6 10% TerraBond MG	Total/NA	Solid	EPA 8270D	329359
180-103654-36	FSA-TREAT-9 10% TerraBond MG	Total/NA	Solid	EPA 8270D	329359

Analysis Batch: 330141

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-35 - DL	FSA-TREAT-6 10% TerraBond MG	Total/NA	Solid	EPA 8270D	329359

GC Semi VOA

Leach Batch: 327993

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-31	FSA-TREAT-8 10% TerraBond MG	TCLP	Solid	EPA 1311	
180-103654-32	FSA-TREAT-1 10% TerraBond MG	TCLP	Solid	EPA 1311	
180-103654-33	FSA-TREAT-3 10% TerraBond MG	TCLP	Solid	EPA 1311	
180-103654-34	FSA-TREAT-4 10% TerraBond MG	TCLP	Solid	EPA 1311	
180-103654-35	FSA-TREAT-6 10% TerraBond MG	TCLP	Solid	EPA 1311	
180-103654-36	FSA-TREAT-9 10% TerraBond MG	TCLP	Solid	EPA 1311	
LB 180-327993/1-B	Method Blank	TCLP	Solid	EPA 1311	
LB 180-327993/1-D	Method Blank	TCLP	Solid	EPA 1311	

Prep Batch: 328097

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-31	FSA-TREAT-8 10% TerraBond MG	Total/NA	Solid	3541	
180-103654-32	FSA-TREAT-1 10% TerraBond MG	Total/NA	Solid	3541	
180-103654-33	FSA-TREAT-3 10% TerraBond MG	Total/NA	Solid	3541	
180-103654-34	FSA-TREAT-4 10% TerraBond MG	Total/NA	Solid	3541	
180-103654-35	FSA-TREAT-6 10% TerraBond MG	Total/NA	Solid	3541	
180-103654-36	FSA-TREAT-9 10% TerraBond MG	Total/NA	Solid	3541	
MB 180-328097/1-A	Method Blank	Total/NA	Solid	3541	
LCS 180-328097/2-A	Lab Control Sample	Total/NA	Solid	3541	
180-103654-36 MS	FSA-TREAT-9 10% TerraBond MG	Total/NA	Solid	3541	
180-103654-36 MSD	FSA-TREAT-9 10% TerraBond MG	Total/NA	Solid	3541	

Prep Batch: 328104

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-31	FSA-TREAT-8 10% TerraBond MG	Total/NA	Solid	3541	
180-103654-32	FSA-TREAT-1 10% TerraBond MG	Total/NA	Solid	3541	
180-103654-33	FSA-TREAT-3 10% TerraBond MG	Total/NA	Solid	3541	
180-103654-34	FSA-TREAT-4 10% TerraBond MG	Total/NA	Solid	3541	
180-103654-35	FSA-TREAT-6 10% TerraBond MG	Total/NA	Solid	3541	
180-103654-36	FSA-TREAT-9 10% TerraBond MG	Total/NA	Solid	3541	
MB 180-328104/1-C	Method Blank	Total/NA	Solid	3541	
LCS 180-328104/2-C	Lab Control Sample	Total/NA	Solid	3541	
180-103654-31 MS	FSA-TREAT-8 10% TerraBond MG	Total/NA	Solid	3541	
180-103654-31 MSD	FSA-TREAT-8 10% TerraBond MG	Total/NA	Solid	3541	

Prep Batch: 328411

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-31	FSA-TREAT-8 10% TerraBond MG	TCLP	Solid	3510C	327993

GC Semi VOA (Continued)

Prep Batch: 328411 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-32	FSA-TREAT-1 10% TerraBond MG	TCLP	Solid	3510C	327993
180-103654-33	FSA-TREAT-3 10% TerraBond MG	TCLP	Solid	3510C	327993
180-103654-34	FSA-TREAT-4 10% TerraBond MG	TCLP	Solid	3510C	327993
180-103654-35	FSA-TREAT-6 10% TerraBond MG	TCLP	Solid	3510C	327993
180-103654-36	FSA-TREAT-9 10% TerraBond MG	TCLP	Solid	3510C	327993
LB 180-327993/1-B	Method Blank	TCLP	Solid	3510C	327993
MB 180-328411/1-A	Method Blank	Total/NA	Solid	3510C	
LCS 180-328411/2-A	Lab Control Sample	Total/NA	Solid	3510C	
LCSD 180-328411/3-A	Lab Control Sample Dup	Total/NA	Solid	3510C	

Prep Batch: 328413

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-31	FSA-TREAT-8 10% TerraBond MG	TCLP	Solid	3510C	327993
180-103654-32	FSA-TREAT-1 10% TerraBond MG	TCLP	Solid	3510C	327993
180-103654-33	FSA-TREAT-3 10% TerraBond MG	TCLP	Solid	3510C	327993
180-103654-34	FSA-TREAT-4 10% TerraBond MG	TCLP	Solid	3510C	327993
180-103654-35	FSA-TREAT-6 10% TerraBond MG	TCLP	Solid	3510C	327993
180-103654-36	FSA-TREAT-9 10% TerraBond MG	TCLP	Solid	3510C	327993
LB 180-327993/1-D	Method Blank	TCLP	Solid	3510C	327993
MB 180-328413/1-A	Method Blank	Total/NA	Solid	3510C	
LCS 180-328413/2-A	Lab Control Sample	Total/NA	Solid	3510C	
LCSD 180-328413/3-A	Lab Control Sample Dup	Total/NA	Solid	3510C	

Analysis Batch: 329092

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-31	FSA-TREAT-8 10% TerraBond MG	TCLP	Solid	EPA 8082A	328411
180-103654-32	FSA-TREAT-1 10% TerraBond MG	TCLP	Solid	EPA 8082A	328411
180-103654-33	FSA-TREAT-3 10% TerraBond MG	TCLP	Solid	EPA 8082A	328411
180-103654-34	FSA-TREAT-4 10% TerraBond MG	TCLP	Solid	EPA 8082A	328411
180-103654-35	FSA-TREAT-6 10% TerraBond MG	TCLP	Solid	EPA 8082A	328411
180-103654-36	FSA-TREAT-9 10% TerraBond MG	TCLP	Solid	EPA 8082A	328411
LB 180-327993/1-B	Method Blank	TCLP	Solid	EPA 8082A	328411
MB 180-328411/1-A	Method Blank	Total/NA	Solid	EPA 8082A	328411
LCS 180-328411/2-A	Lab Control Sample	Total/NA	Solid	EPA 8082A	328411
LCSD 180-328411/3-A	Lab Control Sample Dup	Total/NA	Solid	EPA 8082A	328411

Analysis Batch: 329123

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-31	FSA-TREAT-8 10% TerraBond MG	TCLP	Solid	EPA 8081B	328413
180-103654-32	FSA-TREAT-1 10% TerraBond MG	TCLP	Solid	EPA 8081B	328413
180-103654-33	FSA-TREAT-3 10% TerraBond MG	TCLP	Solid	EPA 8081B	328413
180-103654-34	FSA-TREAT-4 10% TerraBond MG	TCLP	Solid	EPA 8081B	328413
180-103654-35	FSA-TREAT-6 10% TerraBond MG	TCLP	Solid	EPA 8081B	328413
180-103654-36	FSA-TREAT-9 10% TerraBond MG	TCLP	Solid	EPA 8081B	328413
LB 180-327993/1-D	Method Blank	TCLP	Solid	EPA 8081B	328413
MB 180-328413/1-A	Method Blank	Total/NA	Solid	EPA 8081B	328413
LCS 180-328413/2-A	Lab Control Sample	Total/NA	Solid	EPA 8081B	328413
LCSD 180-328413/3-A	Lab Control Sample Dup	Total/NA	Solid	EPA 8081B	328413

QC Association Summary

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-5

GC Semi VOA

Analysis Batch: 329392

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-31	FSA-TREAT-8 10% TerraBond MG	Total/NA	Solid	EPA 8081B	328097
180-103654-32	FSA-TREAT-1 10% TerraBond MG	Total/NA	Solid	EPA 8081B	328097
180-103654-33	FSA-TREAT-3 10% TerraBond MG	Total/NA	Solid	EPA 8081B	328097
180-103654-34	FSA-TREAT-4 10% TerraBond MG	Total/NA	Solid	EPA 8081B	328097
180-103654-35	FSA-TREAT-6 10% TerraBond MG	Total/NA	Solid	EPA 8081B	328097
180-103654-36	FSA-TREAT-9 10% TerraBond MG	Total/NA	Solid	EPA 8081B	328097
MB 180-328097/1-A	Method Blank	Total/NA	Solid	EPA 8081B	328097
LCS 180-328097/2-A	Lab Control Sample	Total/NA	Solid	EPA 8081B	328097
180-103654-36 MS	FSA-TREAT-9 10% TerraBond MG	Total/NA	Solid	EPA 8081B	328097
180-103654-36 MSD	FSA-TREAT-9 10% TerraBond MG	Total/NA	Solid	EPA 8081B	328097

Cleanup Batch: 329978

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-31	FSA-TREAT-8 10% TerraBond MG	Total/NA	Solid	3665A	328104
180-103654-32	FSA-TREAT-1 10% TerraBond MG	Total/NA	Solid	3665A	328104
180-103654-33	FSA-TREAT-3 10% TerraBond MG	Total/NA	Solid	3665A	328104
180-103654-34	FSA-TREAT-4 10% TerraBond MG	Total/NA	Solid	3665A	328104
180-103654-35	FSA-TREAT-6 10% TerraBond MG	Total/NA	Solid	3665A	328104
180-103654-36	FSA-TREAT-9 10% TerraBond MG	Total/NA	Solid	3665A	328104
MB 180-328104/1-C	Method Blank	Total/NA	Solid	3665A	328104
LCS 180-328104/2-C	Lab Control Sample	Total/NA	Solid	3665A	328104
180-103654-31 MS	FSA-TREAT-8 10% TerraBond MG	Total/NA	Solid	3665A	328104
180-103654-31 MSD	FSA-TREAT-8 10% TerraBond MG	Total/NA	Solid	3665A	328104

Cleanup Batch: 329979

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-31	FSA-TREAT-8 10% TerraBond MG	Total/NA	Solid	3660B	329978
180-103654-32	FSA-TREAT-1 10% TerraBond MG	Total/NA	Solid	3660B	329978
180-103654-33	FSA-TREAT-3 10% TerraBond MG	Total/NA	Solid	3660B	329978
180-103654-34	FSA-TREAT-4 10% TerraBond MG	Total/NA	Solid	3660B	329978
180-103654-35	FSA-TREAT-6 10% TerraBond MG	Total/NA	Solid	3660B	329978
180-103654-36	FSA-TREAT-9 10% TerraBond MG	Total/NA	Solid	3660B	329978
MB 180-328104/1-C	Method Blank	Total/NA	Solid	3660B	329978
LCS 180-328104/2-C	Lab Control Sample	Total/NA	Solid	3660B	329978
180-103654-31 MS	FSA-TREAT-8 10% TerraBond MG	Total/NA	Solid	3660B	329978
180-103654-31 MSD	FSA-TREAT-8 10% TerraBond MG	Total/NA	Solid	3660B	329978

Analysis Batch: 330134

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-31	FSA-TREAT-8 10% TerraBond MG	Total/NA	Solid	EPA 8082A	329979
180-103654-32	FSA-TREAT-1 10% TerraBond MG	Total/NA	Solid	EPA 8082A	329979
180-103654-33	FSA-TREAT-3 10% TerraBond MG	Total/NA	Solid	EPA 8082A	329979
180-103654-34	FSA-TREAT-4 10% TerraBond MG	Total/NA	Solid	EPA 8082A	329979
180-103654-36	FSA-TREAT-9 10% TerraBond MG	Total/NA	Solid	EPA 8082A	329979
MB 180-328104/1-C	Method Blank	Total/NA	Solid	EPA 8082A	329979
LCS 180-328104/2-C	Lab Control Sample	Total/NA	Solid	EPA 8082A	329979
180-103654-31 MS	FSA-TREAT-8 10% TerraBond MG	Total/NA	Solid	EPA 8082A	329979
180-103654-31 MSD	FSA-TREAT-8 10% TerraBond MG	Total/NA	Solid	EPA 8082A	329979

QC Association Summary

Client: ENTACT, LLC
Project/Site: Madbury Treatability Study

Job ID: 180-103654-5

GC Semi VOA

Analysis Batch: 330350

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-35	FSA-TREAT-6 10% TerraBond MG	Total/NA	Solid	EPA 8082A	329979

Metals

Leach Batch: 327993

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-31	FSA-TREAT-8 10% TerraBond MG	TCLP	Solid	EPA 1311	
180-103654-32	FSA-TREAT-1 10% TerraBond MG	TCLP	Solid	EPA 1311	
180-103654-33	FSA-TREAT-3 10% TerraBond MG	TCLP	Solid	EPA 1311	
180-103654-34	FSA-TREAT-4 10% TerraBond MG	TCLP	Solid	EPA 1311	
180-103654-35	FSA-TREAT-6 10% TerraBond MG	TCLP	Solid	EPA 1311	
180-103654-36	FSA-TREAT-9 10% TerraBond MG	TCLP	Solid	EPA 1311	
LB 180-327993/1-E	Method Blank	TCLP	Solid	EPA 1311	
LB 180-327993/27-F	Method Blank	TCLP	Solid	EPA 1311	
180-103654-31 MS	FSA-TREAT-8 10% TerraBond MG	TCLP	Solid	EPA 1311	
180-103654-31 MSD	FSA-TREAT-8 10% TerraBond MG	TCLP	Solid	EPA 1311	

Prep Batch: 328429

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-31	FSA-TREAT-8 10% TerraBond MG	TCLP	Solid	7470A	327993
180-103654-32	FSA-TREAT-1 10% TerraBond MG	TCLP	Solid	7470A	327993
180-103654-33	FSA-TREAT-3 10% TerraBond MG	TCLP	Solid	7470A	327993
180-103654-34	FSA-TREAT-4 10% TerraBond MG	TCLP	Solid	7470A	327993
180-103654-35	FSA-TREAT-6 10% TerraBond MG	TCLP	Solid	7470A	327993
180-103654-36	FSA-TREAT-9 10% TerraBond MG	TCLP	Solid	7470A	327993
LB 180-327993/1-E	Method Blank	TCLP	Solid	7470A	327993
MB 180-328429/1-A	Method Blank	Total/NA	Solid	7470A	
LCS 180-328429/2-A	Lab Control Sample	Total/NA	Solid	7470A	

Analysis Batch: 328649

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-31	FSA-TREAT-8 10% TerraBond MG	TCLP	Solid	EPA 7470A	328429
180-103654-32	FSA-TREAT-1 10% TerraBond MG	TCLP	Solid	EPA 7470A	328429
180-103654-33	FSA-TREAT-3 10% TerraBond MG	TCLP	Solid	EPA 7470A	328429
180-103654-34	FSA-TREAT-4 10% TerraBond MG	TCLP	Solid	EPA 7470A	328429
180-103654-35	FSA-TREAT-6 10% TerraBond MG	TCLP	Solid	EPA 7470A	328429
180-103654-36	FSA-TREAT-9 10% TerraBond MG	TCLP	Solid	EPA 7470A	328429
LB 180-327993/1-E	Method Blank	TCLP	Solid	EPA 7470A	328429
MB 180-328429/1-A	Method Blank	Total/NA	Solid	EPA 7470A	328429
LCS 180-328429/2-A	Lab Control Sample	Total/NA	Solid	EPA 7470A	328429

Prep Batch: 329133

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-31	FSA-TREAT-8 10% TerraBond MG	Total/NA	Solid	3050B	
180-103654-32	FSA-TREAT-1 10% TerraBond MG	Total/NA	Solid	3050B	
180-103654-33	FSA-TREAT-3 10% TerraBond MG	Total/NA	Solid	3050B	
180-103654-34	FSA-TREAT-4 10% TerraBond MG	Total/NA	Solid	3050B	
180-103654-35	FSA-TREAT-6 10% TerraBond MG	Total/NA	Solid	3050B	
180-103654-36	FSA-TREAT-9 10% TerraBond MG	Total/NA	Solid	3050B	
MB 180-329133/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 180-329133/2-A	Lab Control Sample	Total/NA	Solid	3050B	

Metals (Continued)

Prep Batch: 329133 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-31 MS	FSA-TREAT-8 10% TerraBond MG	Total/NA	Solid	3050B	
180-103654-31 MSD	FSA-TREAT-8 10% TerraBond MG	Total/NA	Solid	3050B	

Prep Batch: 329231

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-31	FSA-TREAT-8 10% TerraBond MG	TCLP	Solid	3010A	327993
180-103654-32	FSA-TREAT-1 10% TerraBond MG	TCLP	Solid	3010A	327993
180-103654-33	FSA-TREAT-3 10% TerraBond MG	TCLP	Solid	3010A	327993
180-103654-34	FSA-TREAT-4 10% TerraBond MG	TCLP	Solid	3010A	327993
180-103654-35	FSA-TREAT-6 10% TerraBond MG	TCLP	Solid	3010A	327993
180-103654-36	FSA-TREAT-9 10% TerraBond MG	TCLP	Solid	3010A	327993
LB 180-327993/27-F	Method Blank	TCLP	Solid	3010A	327993
MB 180-329231/1-A	Method Blank	Total/NA	Solid	3010A	
LCS 180-329231/2-A	Lab Control Sample	Total/NA	Solid	3010A	
180-103654-31 MS	FSA-TREAT-8 10% TerraBond MG	TCLP	Solid	3010A	327993
180-103654-31 MSD	FSA-TREAT-8 10% TerraBond MG	TCLP	Solid	3010A	327993

Prep Batch: 329662

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-31	FSA-TREAT-8 10% TerraBond MG	Total/NA	Solid	7471B	
180-103654-32	FSA-TREAT-1 10% TerraBond MG	Total/NA	Solid	7471B	
180-103654-33	FSA-TREAT-3 10% TerraBond MG	Total/NA	Solid	7471B	
180-103654-34	FSA-TREAT-4 10% TerraBond MG	Total/NA	Solid	7471B	
180-103654-35	FSA-TREAT-6 10% TerraBond MG	Total/NA	Solid	7471B	
180-103654-36	FSA-TREAT-9 10% TerraBond MG	Total/NA	Solid	7471B	
MB 180-329662/1-A	Method Blank	Total/NA	Solid	7471B	
LCS 180-329662/2-A	Lab Control Sample	Total/NA	Solid	7471B	
180-103654-31 MS	FSA-TREAT-8 10% TerraBond MG	Total/NA	Solid	7471B	
180-103654-31 MSD	FSA-TREAT-8 10% TerraBond MG	Total/NA	Solid	7471B	

Analysis Batch: 330201

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-31	FSA-TREAT-8 10% TerraBond MG	Total/NA	Solid	EPA 7471B	329662
180-103654-32	FSA-TREAT-1 10% TerraBond MG	Total/NA	Solid	EPA 7471B	329662
180-103654-33	FSA-TREAT-3 10% TerraBond MG	Total/NA	Solid	EPA 7471B	329662
180-103654-34	FSA-TREAT-4 10% TerraBond MG	Total/NA	Solid	EPA 7471B	329662
180-103654-35	FSA-TREAT-6 10% TerraBond MG	Total/NA	Solid	EPA 7471B	329662
180-103654-36	FSA-TREAT-9 10% TerraBond MG	Total/NA	Solid	EPA 7471B	329662
MB 180-329662/1-A	Method Blank	Total/NA	Solid	EPA 7471B	329662
LCS 180-329662/2-A	Lab Control Sample	Total/NA	Solid	EPA 7471B	329662
180-103654-31 MS	FSA-TREAT-8 10% TerraBond MG	Total/NA	Solid	EPA 7471B	329662
180-103654-31 MSD	FSA-TREAT-8 10% TerraBond MG	Total/NA	Solid	EPA 7471B	329662

Analysis Batch: 330282

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-31	FSA-TREAT-8 10% TerraBond MG	TCLP	Solid	EPA 6010D	329231
180-103654-32	FSA-TREAT-1 10% TerraBond MG	TCLP	Solid	EPA 6010D	329231
180-103654-33	FSA-TREAT-3 10% TerraBond MG	TCLP	Solid	EPA 6010D	329231
180-103654-34	FSA-TREAT-4 10% TerraBond MG	TCLP	Solid	EPA 6010D	329231
180-103654-35	FSA-TREAT-6 10% TerraBond MG	TCLP	Solid	EPA 6010D	329231
180-103654-36	FSA-TREAT-9 10% TerraBond MG	TCLP	Solid	EPA 6010D	329231

Metals (Continued)

Analysis Batch: 330282 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LB 180-327993/27-F	Method Blank	TCLP	Solid	EPA 6010D	329231
MB 180-329231/1-A	Method Blank	Total/NA	Solid	EPA 6010D	329231
LCS 180-329231/2-A	Lab Control Sample	Total/NA	Solid	EPA 6010D	329231
180-103654-31 MS	FSA-TREAT-8 10% TerraBond MG	TCLP	Solid	EPA 6010D	329231
180-103654-31 MSD	FSA-TREAT-8 10% TerraBond MG	TCLP	Solid	EPA 6010D	329231

Analysis Batch: 331557

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-31	FSA-TREAT-8 10% TerraBond MG	Total/NA	Solid	EPA 6020B	329133
180-103654-32	FSA-TREAT-1 10% TerraBond MG	Total/NA	Solid	EPA 6020B	329133
180-103654-33	FSA-TREAT-3 10% TerraBond MG	Total/NA	Solid	EPA 6020B	329133
180-103654-34	FSA-TREAT-4 10% TerraBond MG	Total/NA	Solid	EPA 6020B	329133
180-103654-35	FSA-TREAT-6 10% TerraBond MG	Total/NA	Solid	EPA 6020B	329133
180-103654-36	FSA-TREAT-9 10% TerraBond MG	Total/NA	Solid	EPA 6020B	329133
MB 180-329133/1-A	Method Blank	Total/NA	Solid	EPA 6020B	329133
LCS 180-329133/2-A	Lab Control Sample	Total/NA	Solid	EPA 6020B	329133
180-103654-31 MS	FSA-TREAT-8 10% TerraBond MG	Total/NA	Solid	EPA 6020B	329133
180-103654-31 MSD	FSA-TREAT-8 10% TerraBond MG	Total/NA	Solid	EPA 6020B	329133

General Chemistry

Analysis Batch: 329059

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-31	FSA-TREAT-8 10% TerraBond MG	Total/NA	Solid	2540G	
180-103654-32	FSA-TREAT-1 10% TerraBond MG	Total/NA	Solid	2540G	
180-103654-33	FSA-TREAT-3 10% TerraBond MG	Total/NA	Solid	2540G	
180-103654-34	FSA-TREAT-4 10% TerraBond MG	Total/NA	Solid	2540G	
180-103654-35	FSA-TREAT-6 10% TerraBond MG	Total/NA	Solid	2540G	
180-103654-36	FSA-TREAT-9 10% TerraBond MG	Total/NA	Solid	2540G	

Analysis Batch: 330428

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103654-31	FSA-TREAT-8 10% TerraBond MG	Total/NA	Solid	EPA 9045D	
180-103654-32	FSA-TREAT-1 10% TerraBond MG	Total/NA	Solid	EPA 9045D	
180-103654-33	FSA-TREAT-3 10% TerraBond MG	Total/NA	Solid	EPA 9045D	
180-103654-34	FSA-TREAT-4 10% TerraBond MG	Total/NA	Solid	EPA 9045D	
180-103654-35	FSA-TREAT-6 10% TerraBond MG	Total/NA	Solid	EPA 9045D	
180-103654-36	FSA-TREAT-9 10% TerraBond MG	Total/NA	Solid	EPA 9045D	
LCS 180-330428/1	Lab Control Sample	Total/NA	Solid	EPA 9045D	
180-103654-31 DU	FSA-TREAT-8 10% TerraBond MG	Total/NA	Solid	EPA 9045D	

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

Chain of Custody Record

eurofins Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☑ Other: **New Hampshire DES**

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Client Contact		Project Manager: Thad Slaughter	Site Contact: Ray Johnson	Date: 3/13/2020	COC No: 1
Company Name	ENTACT	Tel/Fax: 214-415-2975	Lab Contact:	Carrier:	1 of 10 COCs
Address	1 East Oak Hill Drive, Suite 102	Analysis Turnaround Time			Sampler:
City/State/Zip	Westmont, IL 60559	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone	214-415-2975	TAT if different from Below _____			Walk-in Client:
FAX		☑ 2 weeks			Lab Sampling:
Project Name:	NEMR of Madbury, NH	☐ 1 week			
Site:	290 Knox Marsh Rd. Madbury, NH	☐ 2 days			Job / SDG No.:
P O #	143-145286-18001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Bis(2-ethylhexyl) phthalate	Di-n-octyl phthalate	3-Methyphenol	PCBs	p, p'-DDT	Corrosivity of a solid	*PAHs	Antimony, Arsenic, Barium,	Beryllium, Cadmium, Chromium,	Lead, Mercury, Nickel, Silver,	Thallium	Sample Specific Notes:
FSA-Treat-1	3/11/2020	0900	C	**ASR	1	N	Y	X	X	X	X	X	X	X	X	X	X	X	*PAHs: anthracene,
																			benzo(a)anthracene, benzo(a)pyrene,
																			benzo(b)fluoranthene,
																			benzo(g,h,i)perylene, chrysene,
																			fluoranthene, indeno(1,2,3-cd)pyrene
																			phenanthrene, and pyrene
																			** processed automotive shredder
																			residue

180-103654 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments: For each analyte, total and TCLP analysis is needed for unstabilized and stabilized samples. If there are any questions please contact Ray Johnson of Tetra Tech at 508-786-2356 or ray.johnson@tetratech.com. Please note, the sample material is a characteristic hazardous waste because of TCLP lead.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ | Therm ID No.:_____

Relinquished by:	Company: TetraTech	Date/Time: 3/13/20 1147	Received by:	Company: TTL	Date/Time: 3/13/20 1147
Relinquished by:	Company: TTL	Date/Time: 3/16/20 1700	Received by:	Company: Bonnie	Date/Time: 3/17/20 900
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.21, dated 4/4/2019

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

Chain of Custody Record

eurofins Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☑ Other: **New Hampshire DES** **TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica**

Client Contact		Project Manager: Thad Slaughter	Site Contact: Ray Johnson	Date: 3/13/2020	COC No: 2
Company Name	ENTACT	Tel/Fax: 214-415-2975	Lab Contact:	Carrier:	2 of 10 COCs
Address	1 East Oak Hill Drive, Suite 102	Analysis Turnaround Time			Sampler:
City/State/Zip	Westmont, IL 60559	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone	214-415-2975	TAT if different from Below _____			Walk-in Client:
FAX		☑ 2 weeks			Lab Sampling:
Project Name:	NEMR of Madbury, NH	☐ 1 week			
Site:	290 Knox Marsh Rd. Madbury, NH	☐ 2 days			Job / SDG No.:
P O #	143-145286-18001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Bis(2-ethylhexyl) phthalate	Di-n-octyl phthalate	3-Methylphenol	PCBs	p, p'-DDT	Corrosivity of a solid	*PAHs	Antimony, Arsenic, Barium,	Beryllium, Cadmium, Chromium,	Lead, Mercury, Nickel, Silver,	Thallium	Sample Specific Notes:
FSA-Treat-2	3/11/2020	0920	C	**ASR	1	N	N	X	X	X	X	X	X	X	X	X	X	X	*PAHs: anthracene,
																			benzo(a)anthracene, benzo(a)pyrene,
																			benzo(b)fluoranthene,
																			benzo(g,h,i)perylene, chrysene,
																			fluoranthene, indeno(1,2,3-cd)pyrene
																			phenanthrene, and pyrene
																			** processed automotive shredder
																			residue

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments: For each analyte, total and TCLP analysis is needed for unstabilized and stabilized samples. If there are any questions please contact Ray Johnson of Tetra Tech at 508-786-2356 or ray.johnson@tetratech.com. Please note, the sample material is a characteristic hazardous waste because of TCLP lead.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company: Tetra Tech	Date/Time: 3/13/20 1147	Received by:	Company: TAL	Date/Time: 3/13/20 1147
Relinquished by:	Company: TAL	Date/Time: 3/11/20 1700	Received by:	Company: Eurofins	Date/Time: 3/11/20 1700
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.21, dated 4/4/2019

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

Chain of Custody Record

eurofins Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☑ Other: **New Hampshire DES**

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Client Contact		Project Manager: Thad Slaughter	Site Contact: Ray Johnson	Date: 3/13/2020	COC No: 3
Company Name	ENTACT	Tel/Fax: 214-415-2975	Lab Contact:	Carrier:	3 of 10 COCs
Address	1 East Oak Hill Drive, Suite 102	Analysis Turnaround Time			Sampler:
City/State/Zip	Westmont, IL 60559	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone	214-415-2975	TAT if different from Below _____			Walk-in Client:
FAX		☑ 2 weeks			Lab Sampling:
Project Name:	NEMR of Madbury, NH	☐ 1 week			
Site:	290 Knox Marsh Rd. Madbury, NH	☐ 2 days			Job / SDG No.:
P O #	143-145286-18001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Bis(2-ethylhexyl) phthalate	Di-n-octyl phthalate	3-Methyphenol	PCBs	p, p'-DDT	Corrosivity of a solid	*PAHs	Antimony, Arsenic, Barium,	Beryllium, Cadmium, Chromium,	Lead, Mercury, Nickel, Silver,	Thallium	Sample Specific Notes:
FSA-Treat-3	3/11/2020	0940	C	**ASR	1	N	N	X	X	X	X	X	X	X	X	X	X	X	*PAHs: anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene phenanthrene, and pyrene ** processed automotive shredder residue

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments: For each analyte, total and TCLP analysis is needed for unstabilized and stabilized samples. If there are any questions please contact Ray Johnson of Tetra Tech at 508-786-2356 or ray.johnson@tetratech.com. Please note, the sample material is a characteristic hazardous waste because of TCLP lead.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	Tetra Tech	3/17/20 1147		TTL	3/13/20 1147
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	TTL	3/17/20 1702		Bonpith	3/17/20 1702
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.21, dated 4/4/2019

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

Chain of Custody Record

eurofins Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☑ Other: **New Hampshire DES** **TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica**

Client Contact		Project Manager: Thad Slaughter	Site Contact: Ray Johnson	Date: 3/13/2020	COC No: 4
Company Name	ENTACT	Tel/Fax: 214-415-2975	Lab Contact:	Carrier:	4 of 10 COCs
Address	1 East Oak Hill Drive, Suite 102	Analysis Turnaround Time			Sampler:
City/State/Zip	Westmont, IL 60559	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone	214-415-2975	TAT if different from Below _____			Walk-in Client:
FAX		☑ 2 weeks			Lab Sampling:
Project Name:	NEMR of Madbury, NH	☐ 1 week			
Site:	290 Knox Marsh Rd. Madbury, NH	☐ 2 days			Job / SDG No.:
P O #	143-145286-18001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Bis(2-ethylhexyl) phthalate	Di-n-octyl phthalate	3-Methyphenol	PCBs	p, p'-DDT	Corrosivity of a solid	*PAHs	Antimony, Arsenic, Barium,	Beryllium, Cadmium, Chromium,	Lead, Mercury, Nickel, Silver,	Thallium	Sample Specific Notes:
FSA-Treat-4	3/11/2020	1000	C	**ASR	1	N	Y	X	X	X	X	X	X	X	X	X	X	X	*PAHs: anthracene,
																			benzo(a)anthracene, benzo(a)pyrene,
																			benzo(b)fluoranthene,
																			benzo(g,h,i)perylene, chrysene,
																			fluoranthene, indeno(1,2,3-cd)pyrene
																			phenanthrene, and pyrene
																			** processed automotive shredder
																			residue

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments: For each analyte, total and TCLP analysis is needed for unstabilized and stabilized samples. If there are any questions please contact Ray Johnson of Tetra Tech at 508-786-2356 or ray.johnson@tetratech.com. Please note, the sample material is a characteristic hazardous waste because of TCLP lead.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company: Tetra Tech	Date/Time: 3/13/20 1147	Received by:	Company: TT	Date/Time: 3/13/20 1147
Relinquished by:	Company: TT	Date/Time: 3/17/20 1207	Received by:	Company: Eurofins	Date/Time: 3/17/20 0900
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.21, dated 4/4/2019

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

Chain of Custody Record

eurofins Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☑ Other: **New Hampshire DES** **TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica**

Client Contact		Project Manager: Thad Slaughter	Site Contact: Ray Johnson	Date: 3/13/2020	COC No: 5
Company Name	ENTACT	Tel/Fax: 214-415-2975	Lab Contact:	Carrier:	5 of 10 COCs
Address	1 East Oak Hill Drive, Suite 102	Analysis Turnaround Time			Sampler:
City/State/Zip	Westmont, IL 60559	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone	214-415-2975	TAT if different from Below _____			Walk-in Client:
FAX		☑ 2 weeks			Lab Sampling:
Project Name:	NEMR of Madbury, NH	☐ 1 week			
Site:	290 Knox Marsh Rd. Madbury, NH	☐ 2 days			Job / SDG No.:
P O #	143-145286-18001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Bis(2-ethylhexyl) phthalate	Di-n-octyl phthalate	3-Methyphenol	PCBs	p, p'-DDT	Corrosivity of a solid	*PAHs	Antimony, Arsenic, Barium,	Beryllium, Cadmium, Chromium,	Lead, Mercury, Nickel, Silver,	Thallium	Sample Specific Notes:
FSA-Treat-5	3/11/2020	1030	C	**ASR	1	N	N	X	X	X	X	X	X	X	X	X	X	X	*PAHs: anthracene,
																			benzo(a)anthracene, benzo(a)pyrene,
																			benzo(b)fluoranthene,
																			benzo(g,h,i)perylene, chrysene,
																			fluoranthene, indeno(1,2,3-cd)pyrene
																			phenanthrene, and pyrene
																			** processed automotive shredder
																			residue

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments: For each analyte, total and TCLP analysis is needed for unstabilized and stabilized samples. If there are any questions please contact Ray Johnson of Tetra Tech at 508-786-2356 or ray.johnson@tetratech.com. Please note, the sample material is a characteristic hazardous waste because of TCLP lead.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company: Tetra Tech	Date/Time: 3/13/20 1147	Received by:	Company: TTI	Date/Time: 3/13/20 1147
Relinquished by:	Company: TTI	Date/Time: 3/17/20 1700	Received by:	Company: Courier	Date/Time: 3/17/20 900
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.21, dated 4/4/2019

Eurofins TestAmerica, Pittsburgh
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RIDC Park
Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

Chain of Custody Record

eurofins Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☑ Other: **New Hampshire DES** **TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica**

Client Contact		Project Manager: Thad Slaughter	Site Contact: Ray Johnson	Date: 3/13/2020	COC No: 6
Company Name	ENTACT	Tel/Fax: 214-415-2975	Lab Contact:	Carrier:	6 of 10 COCs
Address	1 East Oak Hill Drive, Suite 102	Analysis Turnaround Time			Sampler:
City/State/Zip	Westmont, IL 60559	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone	214-415-2975	TAT if different from Below _____			Walk-in Client:
FAX		☑ 2 weeks			Lab Sampling:
Project Name:	NEMR of Madbury, NH	☐ 1 week			
Site:	290 Knox Marsh Rd. Madbury, NH	☐ 2 days			Job / SDG No.:
P O #	143-145286-18001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Bis(2-ethylhexyl) phthalate	Di-n-octyl phthalate	3-Methyphenol	PCBs	p, p'-DDT	Corrosivity of a solid	*PAHs	Antimony, Arsenic, Barium,	Beryllium, Cadmium, Chromium,	Lead, Mercury, Nickel, Silver,	Thallium	Sample Specific Notes:
FSA-Treat-6	3/11/2020	1100	C	**ASR	1	N	N	X	X	X	X	X	X	X	X	X	X	X	*PAHs: anthracene,
																			benzo(a)anthracene, benzo(a)pyrene,
																			benzo(b)fluoranthene,
																			benzo(g,h,i)perylene, chrysene,
																			fluoranthene, indeno(1,2,3-cd)pyrene
																			phenanthrene, and pyrene
																			** processed automotive shredder
																			residue

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments: For each analyte, total and TCLP analysis is needed for unstabilized and stabilized samples. If there are any questions please contact Ray Johnson of Tetra Tech at 508-786-2356 or ray.johnson@tetratech.com. Please note, the sample material is a characteristic hazardous waste because of TCLP lead.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ | Therm ID No.:_____

Relinquished by:	Company: Tetra Tech	Date/Time: 3/13/20 1145	Received by:	Company: TTL	Date/Time: 3/13/20 1147
Relinquished by:	Company: TTL	Date/Time: 3/16/20 1700	Received by:	Company: Eurofins	Date/Time: 3/17/20 900
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.21, dated 4/4/2019

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

Chain of Custody Record

eurofins Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☑ Other: **New Hampshire DES** **TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica**

Client Contact		Project Manager: Thad Slaughter	Site Contact: Ray Johnson	Date: 3/13/2020	COC No: 7
Company Name	ENTACT	Tel/Fax: 214-415-2975	Lab Contact:	Carrier:	7 of 10 COCs
Address	1 East Oak Hill Drive, Suite 102	Analysis Turnaround Time			Sampler:
City/State/Zip	Westmont, IL 60559	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone	214-415-2975	TAT if different from Below _____			Walk-in Client:
FAX		☑ 2 weeks			Lab Sampling:
Project Name:	NEMR of Madbury, NH	☐ 1 week			
Site:	290 Knox Marsh Rd. Madbury, NH	☐ 2 days			Job / SDG No.:
P O #	143-145286-18001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Bis(2-ethylhexyl) phthalate	Di-n-octyl phthalate	3-Methyphenol	PCBs	p, p'-DDT	Corrosivity of a solid	*PAHs	Antimony, Arsenic, Barium,	Beryllium, Cadmium, Chromium,	Lead, Mercury, Nickel, Silver,	Thallium	Sample Specific Notes:
FSA-Treat-7	3/11/2020	1120	C	**ASR	1	N	N	X	X	X	X	X	X	X	X	X	X	X	*PAHs: anthracene,
																			benzo(a)anthracene, benzo(a)pyrene,
																			benzo(b)fluoranthene,
																			benzo(g,h,i)perylene, chrysene,
																			fluoranthene, indeno(1,2,3-cd)pyrene
																			phenanthrene, and pyrene
																			** processed automotive shredder
																			residue

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments: For each analyte, total and TCLP analysis is needed for unstabilized and stabilized samples. If there are any questions please contact Ray Johnson of Tetra Tech at 508-786-2356 or ray.johnson@tetratech.com. Please note, the sample material is a characteristic hazardous waste because of TCLP lead.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	Tetra Tech	3/13/20 1147		TTR	3/13/20 1147
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	TTR	3/16/20 1707		Eurofins	3/17/20 920
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.21, dated 4/4/2019

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

Chain of Custody Record

eurofins Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☑ Other: **New Hampshire DES** **TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica**

Client Contact		**Project Manager:** Thad Slaughter	**Site Contact:** Ray Johnson	**Date:** 3/13/2020	COC No: 8
Company Name	ENTACT	**Tel/Fax:** 214-415-2975	**Lab Contact:**	**Carrier:**	8 of 10 COCs
Address	1 East Oak Hill Drive, Suite 102	**Analysis Turnaround Time**			Sampler:
City/State/Zip	Westmont, IL 60559	☑ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only:**
Phone	214-415-2975	TAT if different from Below _____			Walk-in Client:
FAX		☑ 2 weeks			Lab Sampling:
Project Name:	NEMR of Madbury, NH	☐ 1 week			
Site:	290 Knox Marsh Rd. Madbury, NH	☐ 2 days			Job / SDG No.:
P O #	143-145286-18001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Bis(2-ethylhexyl) phthalate	Di-n-octyl phthalate	3-Methyphenol	PCBs	p, p'-DDT	Corrosivity of a solid	*PAHs	Antimony, Arsenic, Barium,	Beryllium, Cadmium, Chromium,	Lead, Mercury, Nickel, Silver,	Thallium	Sample Specific Notes:
FSA-Treat-8	3/11/2020	1145	C	**ASR	1	N	N	X	X	X	X	X	X	X	X	X	X	X	*PAHs: anthracene,
																			benzo(a)anthracene, benzo(a)pyrene,
																			benzo(b)fluoranthene,
																			benzo(g,h,i)perylene, chrysene,
																			fluoranthene, indeno(1,2,3-cd)pyrene
																			phenanthrene, and pyrene
																			** processed automotive shredder
																			residue

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments: For each analyte, total and TCLP analysis is needed for unstabilized and stabilized samples. If there are any questions please contact Ray Johnson of Tetra Tech at 508-786-2356 or ray.johnson@tetratech.com. Please note, the sample material is a characteristic hazardous waste because of TCLP lead.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	Tetra Tech	3/13/20 1147		TR	3/13/20 1147
Relinquished by:	Company: TR	Date/Time: 3/11/20 1700	Received by:	Company: Bonnie	Date/Time: 3/11/20 900 E
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.21, dated 4/4/2019

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301 Alpha Drive
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Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

Chain of Custody Record

eurofins Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☑ Other: **New Hampshire DES** **TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica**

Client Contact		Project Manager: Thad Slaughter	Site Contact: Ray Johnson	Date: 3/13/2020	COC No: 9
Company Name	ENTACT	Tel/Fax: 214-415-2975	Lab Contact:	Carrier:	9 of 10 COCs
Address	1 East Oak Hill Drive, Suite 102	Analysis Turnaround Time			Sampler:
City/State/Zip	Westmont, IL 60559	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone	214-415-2975	TAT if different from Below _____			Walk-in Client:
FAX		☑ 2 weeks			Lab Sampling:
Project Name:	NEMR of Madbury, NH	☐ 1 week			
Site:	290 Knox Marsh Rd. Madbury, NH	☐ 2 days			Job / SDG No.:
P O #	143-145286-18001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Bis(2-ethylhexyl) phthalate	Di-n-octyl phthalate	3-Methyphenol	PCBs	p, p'-DDT	Corrosivity of a solid	*PAHs	Antimony, Arsenic, Barium,	Beryllium, Cadmium, Chromium,	Lead, Mercury, Nickel, Silver,	Thallium	Sample Specific Notes:
FSA-Treat-9	3/11/2020	1210	C	**ASR	1	N	N	X	X	X	X	X	X	X	X	X	X	X	*PAHs: anthracene,
																			benzo(a)anthracene, benzo(a)pyrene,
																			benzo(b)fluoranthene,
																			benzo(g,h,i)perylene, chrysene,
																			fluoranthene, indeno(1,2,3-cd)pyrene
																			phenanthrene, and pyrene
																			** processed automotive shredder
																			residue

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments: For each analyte, total and TCLP analysis is needed for unstabilized and stabilized samples. If there are any questions please contact Ray Johnson of Tetra Tech at 508-786-2356 or ray.johnson@tetratech.com. Please note, the sample material is a characteristic hazardous waste because of TCLP lead.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company: Tetra Tech	Date/Time: 3/13/20 1147	Received by:	Company:	Date/Time: 3/13/20 1147
Relinquished by:	Company:	Date/Time: 3/11/20 1200	Received by:	Company:	Date/Time: 3/12/20 9:20
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.21, dated 4/4/2019

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

Chain of Custody Record

eurofins Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☑ Other: **New Hampshire DES** **TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica**

Client Contact		Project Manager: Thad Slaughter	Site Contact: Ray Johnson	Date: 3/13/2020	COC No: 10
Company Name	ENTACT	Tel/Fax: 214-415-2975	Lab Contact:	Carrier:	10 of 10 COCs
Address	1 East Oak Hill Drive, Suite 102	Analysis Turnaround Time			Sampler:
City/State/Zip	Westmont, IL 60559	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone	214-415-2975	TAT if different from Below _____			Walk-in Client:
FAX		☑ 2 weeks			Lab Sampling:
Project Name:	NEMR of Madbury, NH	☐ 1 week			
Site:	290 Knox Marsh Rd. Madbury, NH	☐ 2 days			Job / SDG No.:
P O #	143-145286-18001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Bis(2-ethylhexyl) phthalate	Di-n-octyl phthalate	3-Methyphenol	PCBs	p, p'-DDT	Corrosivity of a solid	*PAHs	Antimony, Arsenic, Barium,	Beryllium, Cadmium, Chromium,	Lead, Mercury, Nickel, Silver,	Thallium	Sample Specific Notes:
FSA-Treat-10	3/11/2020	1230	C	**ASR	1	N	N	X	X	X	X	X	X	X	X	X	X	X	*PAHs: anthracene,
																			benzo(a)anthracene, benzo(a)pyrene,
																			benzo(b)fluoranthene,
																			benzo(g,h,i)perylene, chrysene,
																			fluoranthene, indeno(1,2,3-cd)pyrene
																			phenanthrene, and pyrene
																			** processed automotive shredder
																			residue

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments: For each analyte, total and TCLP analysis is needed for unstabilized and stabilized samples. If there are any questions please contact Ray Johnson of Tetra Tech at 508-786-2356 or ray.johnson@tetratech.com. Please note, the sample material is a characteristic hazardous waste because of TCLP lead.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company: Tetra Tech	Date/Time: 3/13/20 1147	Received by:	Company: TAL	Date/Time: 3/13/20 1147
Relinquished by:	Company: TAL	Date/Time: 3/11/2020 2000	Received by:	Company: Bonded	Date/Time: 3/12/20 9:00
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.21, dated 4/4/2019

TestAme

THE LEADER IN ENVIRONM

ORIGIN ID:EHTA (413) 572-4000
SHIPPING DEPT
TESTAMERICA WESTFIELD
501 SOUTHAMPTON RD
SUITE C
WESTFIELD, MA 010851592
UNITED STATES US

SH
AC
CA
BI

TO SAMPLE RECEIVING
TESTAMERICA PITTSBURGH
301 ALPHA DRIVE

PITTSBURGH PA 15238
(412) 963-7058
INV:
PO:
REF:
DEPT:

1 of 10
TRK# 0201 1095 8110 2345
MASTER

TUE -
PRIOR

NA AGCA

152
PIT
PA-US

Uncorrected temp 18.6 °C
Thermometer ID 17
no ice
CF 0 Initials MJ

PT-WI-SR-001 effective 11/8/18

180-103654 Waybill

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ORIGIN ID:EHTA (413) 572-4000
SHIPPING DEPT
TESTAMERICA WESTFIELD
501 SOUTHAMPTON RD
SUITE C
WESTFIELD, MA 010851592
UNITED STATES US

SHIP DATE: 16MAR20
ACTWGT: 34.65 LB
CAD: 108917564/CAFE3311

BILL RECIPIENT

TO SAMPLE RECEIVING
TESTAMERICA PITTSBURGH
301 ALPHA DRIVE

PITTSBURGH PA 15238
(412) 963-7058 REF:
INV:
PO: DEPT:

FedEx Express

2 of 10
MPS# 0263 1095 8110 2356
Mstr# 1095 8110 2345 0201

TUE - 17 MAR 10:30
PRIORITY OVERNIGH

NA AGCA

15238
PA-US PIT

Uncorrected temp 18.6 °C
Thermometer ID 17
CF 0 No ice
Initials

PT-WI-SR-001 effective 11/8/18

STATES

TO SAMPLE RE
TESTAMERICA
301 ALPHA DRI

PITTSBURGH PA 15238

(412) 963-7058 REF:

INV: PO: DEPT:

FedEx Express

E

3 of 10

MPS# 0263 1095 8110 2367

Mstr# 1095 8110 2345 0201

TUE - 17 MAR 10:30
PRIORITY OVERNIGH

1523
PA-US PI

NA AGCA

Uncorrected temp 19.4 °C

Thermometer ID 17

CF 0 No ice Initials

PT-WI-SR-001 effective 11/8/18

4 of 10

MPS# 0263 1095 8110 2378

Mstr# 1095 8110 2345

0201

TUE – 17 MAR 10:30A

PRIORITY OVERNIGHT

NA AGCA

15238

PA-US PIT

Uncorrected temp 16.8 °C

Thermometer ID 17

CF 0 Initials JB

PT-WI-SR-001 effective 11/8/18

J19121

5 of 10

MPS# 0263 1095 8110 2389

Mstr# 1095 8110 2345

0201

TUE – 17 MAR 10:30A
PRIORITY OVERNIGHT

NA AGCA

15238
PA-US PIT

Uncorrected temp 17.6 °C
Thermometer ID 17
CF -0 no ice
Initials MY

PT-WI-SR-001 effective 11/8/18

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Part 159469-434 RIT EXP 07/20

ORIGIN ID:EHTA (413) 572-4000
SHIPPING DEPT
TESTAMERICA WESTFIELD
501 SOUTHAMPTON RD
SUITE C
WESTFIELD, MA 010851592
UNITED STATES US

SHIP DATE: 16MAR20
ACTWGT: 40.60 LB
CAD: 108917564/CAFE3311

BILL RECIPIENT

TO SAMPLE RECEIVING
TESTAMERICA PITTSBURGH
301 ALPHA DRIVE

PITTSBURGH PA 15238

(412) 963-7058 REF:
INV:
PO: DEPT:

FedEx Express

6 of 10

MPS# 0263 1095 8110 2390

Mstr# 1095 8110 2345

0201

TUE - 17 MAR 10:30
PRIORITY OVERNIGH

NA AGCA

15238
PA-US PI

Uncorrected temp 26.2 °C
Thermometer ID 17
CF 0 no ice
Initials MJ
PT-WI-SR-001 effective 11/8/18

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Part # 159469-434 REV EXP 07/20 ee

ORIGIN ID:EHTA (413) 572-4000
SHIPPING DEPT
TESTAMERICA WESTFIELD
501 SOUTHAMPTON RD
SUITE C
WESTFIELD, MA 010851592
UNITED STATES US

SHIP DATE: 16MAR20
ACTWGT: 41.55 LB
CAD: 108917564/CAFE3311

BILL RECIPIENT

TO SAMPLE RECEIVING
TESTAMERICA PITTSBURGH
301 ALPHA DRIVE

PITTSBURGH PA 15238

(412) 963-7058 REF:
INV:
PO: DEPT:

FedEx Express

7 of 10

TUE - 17 MAR 10:30
PRIORITY OVERNIGH

MPS# 0263 1095 8110 2404
Mstr# 1095 8110 2345 0201

NA AGCA

15238
PA-US PI

Uncorrected temp 17.6 °C
Thermometer ID 011
CF 0 no ice Initials

PT-WI-SR-001 effective 11/8/18

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ORIGIN ID:EHTA (413) 572-4000
SHIPPING DEPT
TESTAMERICA WESTFIELD
501 SOUTHAMPTON RD
SUITE C
WESTFIELD, MA 010851592
UNITED STATES US

SHIP DATE: 16MAR20
ACTWGT: 45.50 LB
CAD: 108917564/CAFE3311

BILL RECIPIENT

TO SAMPLE RECEIVING
TESTAMERICA PITTSBURGH
301 ALPHA DRIVE

PITTSBURGH PA 15238
(412) 963-7058
INV:
PO:
REF:
DEPT:

FedEx Express

8 of 10
MPS# 0263 1095 8110 2415
Mstr# 1095 8110 2345
0201

TUE - 17 MAR 10:30A
PRIORITY OVERNIGHT

NA AGCA

15238
PA-US PIT

Uncorrected temp 15.7 °C
Thermometer ID 17
CF 0 no ice
Initials

PT-WI-SR-001 effective 11/8/18

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Part # 159469-434 RIT EXP 07/20 ee

ORIGIN ID:EHTA (413) 572-4000
SHIPPING DEPT
TESTAMERICA WESTFIELD
501 SOUTHAMPTON RD
SUITE C
WESTFIELD, MA 010851592
UNITED STATES US

SHIP DATE: 16MAR20
ACTWGT: 35.25 LB
CAD: 108917564/CAFE3311

BILL RECIPIENT

TO **SAMPLE RECEIVING**
TESTAMERICA PITTSBURGH
301 ALPHA DRIVE

PITTSBURGH PA 15238

(412) 963-7058
INV:
PO:
REF:
DEPT:

FedEx Express

9 of 10

MPS# 0263 **1095 8110 2426**

Mstr# 1095 8110 2345

0201

TUE - 17 MAR 10:30A
PRIORITY OVERNIGHT

NA AGCA

15238
PIT PA-US

Uncorrected temp 17.4 °C
Thermometer ID 17
no ice
CF 6 Initials NG

PT-WI-SR-001 effective 11/8/18

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Part # 159459-434 Rt1 EXP 07/20 ee

ORIGIN ID:EHTA (413) 572-4000
SHIPPING DEPT
TESTAMERICA WESTFIELD
501 SOUTHAMPTON RD
SUITE C
WESTFIELD, MA 010851592
UNITED STATES US

SHIP DATE: 16MAR20
ACTWGT: 51.75 LB
CAD: 108917564/CAFE3311

BILL RECIPIENT

TO SAMPLE RECEIVING
TESTAMERICA PITTSBURGH
301 ALPHA DRIVE

PITTSBURGH PA 15238

(412) 963-7058 REF:
INV:
PO: DEPT:

FedEx Express

10 of 10

MPS# 0263 1095 8110 2437

Mstr# 1095 8110 2345 0201

TUE - 17 MAR 10:30
PRIORITY OVERNIGH

NA AGCA

15238
PA-US PIT

Uncorrected temp 19.8 °C
Thermometer ID 17
CF 0 no ice Initials MJ

PT-WI-SR-001 effective 11/8/18

Login Sample Receipt Checklist

Client: ENTACT, LLC

Job Number: 180-103654-5

Login Number: 103654
List Number: 1
Creator: Say, Thomas C

List Source: Eurofins TestAmerica, Pittsburgh

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

Appendix B

Waste Analysis Plan

WASTE ANALYSIS PLAN
FEASIBILITY STUDY AREA
NEW ENGLAND METAL RECYCLING LLC
290 KNOX MARSH ROAD
MADBURY, NEW HAMPSHIRE
NHDES SITE #: 198705022
PROJECT NUMBER: 8795

This Waste Analysis Plan (WAP) describes the proposed approach for sampling and analysis of treated auto shredder residue (ASR) which, based on visual inspection, contains less than 50% soil and less than 50% non-earthen materials with a particle size greater than 60 mm (2.36 inches), during implementation of remedial actions in a portion of the New England Metal Recycling LLC (NEMR) property. This material was generally derived from past screening/processing of ASR for metal recovery and is located within the portion of the NEMR property identified in previous reports as the Feasibility Study (FS) Area. It is noted that the exact boundary between the FS Area and the Eastern Test Pit (ETP) Area may vary slightly from the idealized linear boundary shown on previously submitted figures, a boundary which was estimated based on observations made in multiple soil borings and test pits advanced near the boundary between the FS Area and ETP Area.

Because the material in the FS Area does not meet the definition of soil pursuant to 40 CFR 268.2(k) or debris pursuant to 40 CFR 268.2(g), the New Hampshire Department of Environmental Services (NHDES) has determined it is classified as “as-generated waste.” The material in the FS Area was discussed in detail in the October 2018 Design Plans and Construction Specifications Report, including the results of a comprehensive program of disposal characterization sampling and analysis conducted in August and September 2018.

The remaining material in the FS Area contains TCLP lead concentrations exceeding the 5.0 mg/l threshold for classification as a characteristic hazardous waste, and is the subject of a petition for a Site-Specific Variance from Otherwise Applicable Treatment Standards (the Variance Request) which is being submitted concurrently with this WAP. This WAP has been prepared based on the assumption that the Variance Request will be approved as written, and as such is based on the following treatment goals:

- Treatment by microencapsulation (stabilization) as necessary to reduce TCLP lead concentrations to less than the Universal Treatment Standard (UTS) of 0.75 mg/l.
- Treatment of cadmium, a metal Underlying Hazardous Constituent (UHC) in the waste, as necessary to reduce its TCLP concentrations to below the UTS of 0.11 mg/l.
- Treatment of 7 potential additional metal UHCs (*i.e.*, antimony, barium, beryllium, mercury, nickel, thallium and silver) as necessary to reduce TCLP concentrations below their respective UTSs.
- Treatment of organic UHCs and potential UHCs as necessary to reduce concentrations below the standards proposed in the Variance Request.

Post-treatment sampling and analysis will be performed to evaluate whether the goals set forth above are met. The specific sampling and analysis methods, and related details, are explained in detail below.

SAMPLING METHODOLOGY AND FREQUENCY OF ANALYSIS

Assuming approval of the Variance Request, the processed ASR in the FS Area will be stabilized by mixing with a powdered stabilizing agent, anticipated to be TerraBond® Mg, at a rate of 10% by weight within a containment building located on the property. The stabilized material will be segregated into stockpiles, each having a volume of approximately 500 cubic yards or less. The numbers of the 2018 disposal characterization sampling grid or grids used to generate each stockpile will be recorded so that the applicable disposal characterization sample or samples are correlated with the corresponding

stockpile. Each stockpile will be given a unique identification number, and the post-treatment confirmatory samples will be numbered in a corresponding manner, so the material can be tracked and managed based on the analytical results for each sample. The stockpiles will be stored in one or more containment buildings, in accordance with the requirements of Env-Hw 509.02(a)(9) and 40 CFR 265 Subpart DD, until the results of the post-treatment sampling are received and demonstrate treatment was successful and the material can be managed as non-hazardous.

The samples collected from each stockpile of treated material for laboratory analysis will include both discrete and composite samples to address applicable requirements for assessing whether the treated material is no longer a characteristic hazardous waste and evaluating compliance with land disposal restriction requirements. Specifically, composite samples of treated material must be analyzed to demonstrate that the treated material does not exhibit the New Hampshire characteristic of corrosivity. In addition, grab samples must be analyzed to determine whether the treated material complies with the applicable land disposal restrictions, including the alternative standards proposed in the Variance Request. Although confirmation that the treated material no longer exhibits the characteristic of toxicity for lead is generally done based on composite samples, because TCLP lead levels must also be reduced to below the UTS of 0.75 mg/l (which is far more stringent than the characteristic level of 5.0 mg/l), and because confirmation of such reductions must be based on grab samples, only grab samples will be used to ensure that both the characteristic level and the UTS level for lead are achieved. The sampling requirements established per NHDES and USEPA regulations are consistent with protocols established by Waste Management for transport to the Turnkey Landfill in Rochester, New Hampshire, the anticipated disposal facility for the treated material.

The proposed approach to sample collection and analysis for the composite and grab samples is discussed below.

Composite Samples

Composite samples will be collected from each stockpile so that the sampling frequency is one composite sample per 100 tons or less, and each composite sample will be created using four grab samples collected randomly from the stockpile. To ensure that the post-treatment grab samples are random samples of the material in each stockpile, the stockpile or portion thereof which is being sampled will be considered as being comprised of twelve sub-sections. The sub-sections are identified by material on the north, south, east and west sides of the area of material being sampled at locations on the surface, mid-depth and base of the stockpile. The grids will be numbered from one to twelve, with grids one to four corresponding to the north, south, east and west surface samples, respectively, grids five to eight corresponding to the north, south, east and west mid-depth samples, respectively, and grids nine to twelve corresponding to the north, south, east and west base samples, respectively.

To create the composite samples, four of the twelve grids will be sampled using a shovel or scoop in a manner which obtains material that is representative of each grid, with the specific grids sampled to create the composite sample selected using a random number table. The random number table will be created using the Excel =RANDBETWEEN(X,Y) function, with X=1 and Y=12, generating four random numbers between one and twelve for each column on the spreadsheet. An example of a random number table generated using that approach is attached for reference.

Prior to implementation of the treatment and sampling program ten spreadsheets of random numbers will be generated, each comprised of fifty columns, to generate 500 combinations of four random numbers between one and twelve. Having 500 combinations will be sufficient for the FS Area, as it is estimated there is approximately 12,000 tons of material which, at a sampling frequency of one composite sample per 100 tons, indicates that approximately 120 composite samples will be collected. For each 100-ton area being sampled the four numbers in the next available column on the spreadsheet will be used to identify where to collect grab samples from the twelve possible sampling grids. After the grab samples are collected the spreadsheet will be marked so that the columns are used sequentially to identify the

sampling grids and no column is used more than once. Columns in which a number appears more than once will be skipped, so that each composite sample is comprised of four grab samples.

Each of the four samples will be divided into two samples of equal volume, with one-half of each sample retained for analysis as discussed in the following section. The remainder of each of the four samples will be thoroughly mixed together to create a uniform composite sample, and a portion of the composite sample will be submitted for laboratory analysis. Sample collection and mixing to create the composite samples will be conducted in the containment building.

Grab (Discrete) Samples

As noted above, a portion of each of the four samples collected per 100 tons will be retained as discrete samples. Each discrete sample will be individually mixed to create a uniform sample, and a portion of each sample will be submitted for laboratory analysis. Sample collection and homogenization will be conducted in the containment building.

ANALYTICAL PARAMETERS AND METHOD

The post-treatment samples will be submitted to a NHDES-certified laboratory for analysis as summarized below:

Composite Samples (1/100 tons):

Analyte	Method	Protocol
pH	EPA 9045D	SW-846

Discrete Samples (4/100 tons):

Analyte(s)	Method	Protocol
TCLP Antimony, Barium, Beryllium, Cadmium, Lead, Nickel, Silver and Thallium	EPA 6010D	SW-846
TCLP Mercury	EPA 7470A	SW-846
Semi-Volatile Organic Compounds	EPA 8270D	SW-846
PCBs	EPA 8082A	SW-846

The comparison standards for the analyses identified above are the UTS for the specified TCLP metals, 12.5 for pH, and the Alternative Treatment Standards proposed in the Variance Request for the other compounds specified in that Request. If the treatment objectives are not met the subject stockpile(s) will be re-treated and re-sampled to attempt to achieve the required standards. In the unlikely event a standard is not achieved after multiple treatment events, and it is concluded that additional treatment is not likely to achieve the required standard, the stockpile will be segregated for disposal at an alternative receiving facility permitted to accept the material.

SAMPLE HANDLING AND CHAIN-OF-CUSTODY

The samples of treated material will be handled and shipped to the analytical laboratory in accordance with 40 CFR 261.4(d), as incorporated by reference in Env-Hw 401.03(b)(13). Chain-of-Custody (COC) forms will be used to track possession of the post-treatment samples from collection until delivery to the analytical laboratory. The COC will identify the time and date of sample collection; the sample collector's name, mailing address, and telephone number; size and number of sample containers; the location of the sample and sample number; analyses to be run; the date of shipment; a description of the samples; and the laboratory's name, mailing address and telephone number . The samples will be collected in pre-cleaned glass sampling containers provided by the laboratory, and kept cold during storage,

transportation, and shipping. Samples will be shipped to the analytical laboratory via overnight delivery service or laboratory courier. A trip blank will be included with each cooler shipped to the laboratory, and duplicate samples will be submitted for analysis at a frequency of one duplicate per 20 samples per analytical method.

Attachment Example of Random Number Spreadsheet

P:\145286\143-145286-18001\DOCS\REPORTS\DESIGN PLANS REPORT\REMEDIATION PLANS_2020\WASTE ANALYSIS PLANS\WAP_FS AREA\WAP_FSA_OCTOBER 2020.DOCX

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
1	12	11	9	9	9	1	5	6	7	2	11	11	2	12	9	10	9	1	6	12	3
2	9	6	2	12	11	3	8	12	4	4	7	7	1	9	5	9	1	10	5	5	12
3	2	8	11	5	3	8	9	8	3	9	2	11	11	5	12	8	11	11	12	5	4
4	10	3	5	7	2	6	4	3	10	12	6	6	11	12	4	5	5	7	4	7	7

Appendix C

Proposed Site-Specific Variance

Proposed Site-Specific Variance

Based on a petition filed by New England Metal Recycling LLC ("NEMR" or the "Company") on February 21, 2019 and substantially revised on October 16, 2020, the New Hampshire Department of Environmental Services ("NHDES" or the "Department") hereby grants NEMR a site-specific variance from otherwise applicable treatment standards under the Land Disposal Restrictions ("LDR") program pursuant to 40 C.F.R. § 268.44(h), as incorporated by reference in Env-Hw 1202.01.

This variance applies to certain auto shredder residue ("ASR") material located in an area of the NEMR site at 290 Knox Marsh Road in Madbury, New Hampshire that Is known as the Feasibility Study ("FS") Area. The specific ASR material covered by this variance (hereinafter referred to as "SP-ASR") is ASR material that exhibits the hazardous waste characteristic of toxicity due to leachable lead levels (EPA Hazardous Waste No. D008), and that, based on visual inspection, contains less than 50% soil and less than 50% non-earthen materials with a particle size greater than 60 mm. The Company intends to excavate this material, treat it onsite, and ship it offsite for disposal as part of ongoing remediation at the site that is being supervised by NHDES.

Under this variance, the SP-ASR material mentioned above is hereby excluded from the treatment standards under § 268.40 Table – Treatment Standards for Hazardous Wastes, and are subject to the following conditions:

(1) The SP-ASR must be treated by means of microencapsulation (stabilization).

(2) The treatment process must be performed in containment building(s) that are constructed and operated in accordance with applicable requirements of 40 C.F.R. Part 265, Subpart DD, as incorporated by reference in Env-Hw 507.01(c) and 509.01(a)(9), as well as a design plan that is approved by NHDES.

(3) The ratio of stabilization agent to waste must be kept within reasonable bounds to ensure against impermissible dilution.

(4) Hazardous constituents in the treated SP-ASR sludge (or in the TCLP extract of the SP-ASR where indicated) must be at or below the concentration values indicated in the following table:

Regulated Hazardous Constituent	Alternative LDR Treatment Standard (mg/mg unless otherwise noted)
Characteristic Metal	
Lead	0.75 mg/L (TCLP)
Metal UHC	
Cadmium	0.11 mg/L (TCLP)
Potential Additional Metal UHCs	
Antimony	1.15 mg/L (TCLP)
Barium	21 mg/L (TCLP)
Beryllium	1.22 mg/L (TCLP)
Mercury	0.025 mg/L (TCLP)
Nickel	11 mg/L (TCLP)
Silver	0.14 mg/L (TCLP)
Thallium	0.20 mg/L (TCLP)
Phthalate UHCs	
Bis(2-ethylhexyl)phthalate ("BEHP")	763.8
Di-*n*-octyl phthalate ("DNOP")	158.2
Other Organic UHCs	
PCBs (total)	39.6

Potential Additional Organic UHCs (PAHs)	
Anthracene	3.4
Benz(a)anthracene	3.4
Benzo(a)pyrene	3.4
Benzo(b)fluoranthene	6.8
Benzo(g, h, i)perylene	1.8
Chrysene	3.4
Fluoranthene	3.4
Indeno(1,2.3-c,d)pyrene	3.4
Phenanthrene	5.6
Pyrene	8.2

[<u>NOTE</u>: ***As discussed in the Variance Petition, NEMR believes it is not necessary to establish numerical treatment standards for the Potential Additional Metal UHCs (since they do not appear to actually exceed UTS levels in the untreated material, as required under the UHC definition) or for any of the organics (since they are not leachable in either the untreated or treated material, and in the case of the PAHs because they appear to be present only due to asphalt contamination).***]**

(5) NEMR must follow the Waste Analysis Plan that it submitted to NHDES on October 16, 2020, as that plan has been approved by NHDES (or as may be amended by the Company with approval from the Department), in order to confirm that the treated SP-ASR meets the alternative LDR treatment standards specified in Paragraph (4) above and does not exhibit the hazardous waste characteristic of toxicity due to leachable lead or the hazardous waste characteristic of corrosivity.

(6) The treated SP-ASR material must be disposed in the Waste Management, Inc. Turnkey Landfill in Rochester, New Hampshire, or another landfill with similar safeguards.

This treatability variance will be valid until October 30, 2022. NEMR may petition for additional time if unforeseen delays occur (*e.g.*, because of accidents, equipment malfunctions, natural disasters, or pandemics), provided the Company can demonstrate a good faith effort to complete the remediation.