TRADEBE
Environmental Services™

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December 19, 2017

Mr. Barnes Johnson,
United States Environmental Protection Agency
USEPA Headquarters
William Jefferson Clinton Building
1200 Pennsylvania Avenue, N. W.
Mail Code: 5301P
Washington, DC 20460

Re: Environmental Technology Council's Request For A Meeting To Discuss Inconsistent Compliance For Thermal Desorption Units That Process Hazardous Waste letter dated July 29, 2016

Dear Mr. Johnson:

Enclosed please find the Tradebe Environmental Services, LLC (Tradebe) comments pertaining to Environmental Technology Council's "*Request For A meeting To Discuss Inconsistent Compliance For Thermal Desorption Units That Process Hazardous Waste*" letter (i.e., the ETC letter) dated July 29, 2016, also enclosed. Tradebe is providing these comments to the United States Environmental Protection Agency (USEPA) to clarify Tradebe's position on statements made by ETC in their letter and to provide information Tradebe believes is pertinent to the Thermal Desorber discussions raised by ETC in their letter.

Tradebe appreciates the opportunity to provide these comments to the USEPA. Should you have questions regarding the information submitted, please contact me at 219.397.3951 or email me at: tita.lagrimas@tradebe.com .

Respectfully,
Tradebe Treatment and Recycling, LLC

Tita Lagrimas
Executive Vice President of Regulatory Affairs

Enclosure

cc: Mike Galbraith, USEPA
Gary Victorine, USEPA Region V
Bruce Kizer, IDEM
Jeff Beswick, Tradebe
Sergio Nusimovich, Tradebe
Sarah Kowalczyk, Tradebe
Bob O'Brien, Tradebe
Lawrence Criswell, Tradebe

Tradebe Response to Environmental Technology Council (ETC)

Tradebe Environmental Services, LLC (Tradebe) has developed these written narratives as comments to the ETC's letter to the USEPA, dated July 29, 2016. Tradebe's comments will provide the reader clarity and accuracy regarding the differences between Tradebe's Solid Distillation Unit and Region VI Waste Treatment Units for to produce a fuel.

Tradebe comments will refer to USEPA and other guidance documents analyzed throughout the Tradebe ETC letter review process.

Tradebe Background

Tradebe operates a Treatment Storage and Disposal facility (TSDF) in East Chicago, Indiana. The facility's activities include container and bulk waste management, distillation/material recovery, lab pack management, non-hazardous waste management, and cylinder management. The material recovery operations include four (4) distinct recycling operations including three (3) recycling units, common to the recycling industry for liquid solvent recovery. These processes are Pot Still; Thin Film Evaporator and a Fractionation Column. The fourth (4th) recycling operation is a patented, state of the art technology, identified the Solids Distillation System (SDS), that recovers hydrocarbons contained in feedstock material. This technology was formally presented to USEPA Headquarters, Region V, and the Indiana Department of Environmental Management (IDEM) in 2002 by Pollution Control Industries, Inc. (PCI) personnel, prior to any SDS construction activities. Tradebe acquired PCI in 2008 and sought confirmation of the regulatory status of SDS prior to the investment in construction. Once these agencies acknowledged the recycling technology they deferred to IDEM on regulatory status of SDS, a state of the art technology was in fact an exempt recycling activity. Tradebe then committed to the construction of an indirectly heated Anaerobic Thermal Desorption Unit (ATDUs) to be used for the recovery of hydrocarbons contained in solid material, including debris such as rags, wipes, filters, personnel protection equipment that is contaminated with paints, solvents and coatings. Thermal Desorption Units (TDUs) operate in an oxygen deprived atmosphere are described in the industry and by the USEPA as Anaerobic Thermal Desorption Units.

Tradebe has continued to work closely with the state agency, IDEM, and the USEPA Region V personnel throughout the years on the aspects of recycling.

As stated above, Tradebe operates these ATDUs (i.e., SDS) for the recovery of hydrocarbons (i.e., recycling operations). The recovered hydrocarbons (i.e., solvents) from the SDS units are sold as a degreaser/cleaner product. A Safety Data Sheet, formally known as Material Safety Data Sheet (MSDS), is provided to any customer that purchases the Tradebe SDS Degreaser.

Tradebe ATDU Operation

The ATDU operations are similar to other production processes. The initial step is to feed the Hydrocarbon containing material into the process; feed material is first processed through a shredder to reduce the material size to facilitate maximum surface area contact in the indirectly heated ATDU. Once the material has been reduced to the desired size, the feedstock material is conveyed into the ATDU. The ATDU, an indirectly naturally gas fired unit, heats the feed stock material to the level where hydrocarbons are transformed to a vapor phase. The feed, sizing, conveyor and ATDU operations are conducted in an oxygen deprived (i.e., Nitrogen rich) atmosphere.

The generated vapors are cooled and re-condensed into a liquid state. The liquid is collected and placed into a product storage tank as the Degreaser Product. This product is sold as the Tradebe SDS Degreaser. There are no additional distillation (e.g., fractionalization) activities after the hydrocarbons are recovered.

As with any production or recycling process, the process byproducts from the SDS operations are subject to a waste determination and are then managed as required by state and federal law(s).

Again, as with any production or recycling operations, the air emissions must be evaluated to determine the regulatory requirements. The SDS operations air emissions are directed to emission control devices. Particulate matter emissions are controlled by a baghouse. Vapors (i.e., volatile organic constituents) that are not condensed in the first stage are directed to either an air assisted Flare unit or carbon control units.

Who we (ETC) are

Tradebe's Comment: The ETC is an association comprised of Hazardous Waste treatment companies to which Tradebe Environmental Services, LLC is not a member of, nor has Tradebe or the former organization purchased by Tradebe in 2008, Pollution Control Industries, Inc., ever been a member of.

Why we've (ETC) contacted you

Tradebe's Comment: ETC membership is comprised of several organizations that are also Tradebe's direct competitors that provide various methods of hazardous waste treatment and disposal, such as hazardous waste incineration and landfill. Tradebe operates the ATDUs for the recovery of hydrocarbons that is sold as a degreasing product; historically this material may have been sent for disposal.

Who this matter concerns

Tradebe's Comment: The first paragraph by ETC states that the intent of the Tradebe ATDUs is to not perform in a manner other than as hydrocarbon recovery/recycling units. ETC states "[h]owever, the two TDUs for thermally destroying hazardous waste are allegedly "exempted" from the company's RCRA permit." As previously stated, PCI personnel worked diligently with the IDEM and USEPA personnel prior to installation of the SDS unit, focusing on the regulatory status of an operation that recovers material from a waste. This cooperative review ended with a joint consensus that the SDS unit, which recovers material from a waste to create a product, would be a recycling unit. The USEPA had determined that recycling units were (are) exempt from certain RCRA regulations.

Inspections by regulatory agencies have supported the fact that Tradebe recycling activities (liquid and solid operations) were recovering hydrocarbons from waste materials.

ETC then states "Tradebe's TDUs have a combined total maximum throughput rate of 78,000 tons of waste per year, which is comparable to a large, commercial RCRA permitted incinerator." In this statement ETC is comparing the Tradebe recycling units to waste disposal activities conducted by ETC membership. The 78,000 tons referenced by ETC is information Tradebe provided in a permit application that requests the maximum permitted capacity for the unit's operating on a 24/7/365 basis with no down time, (which is not an actual throughput rate). Tradebe recycling units cannot be compared to incinerator as their operating principals, technology, footprint, and outputs are significantly different.

Inconsistent enforcement between EPA Region V and other EPA regional offices

Tradebe's Comment: The statement of "inconsistent enforcement" is not a relevant statement when one is educated on the history of SDS; how meetings were held with USEPA Headquarters, Region V, and the Indiana Department of Environmental Management prior to the operation of the SDS. As stated previously, these regulatory status discussions began in 2002. Tradebe believes it needs to be recognized that PCI worked with the agencies and did not order equipment or construct a SDS Recycling Unit until the agencies confirmed that the SDS would be classified as a recycling unit. Upon confirmation, PCI then worked with the IDEM on permitting the SDS process. Most recently, Tradebe has met with the agency and proactively responded to the Agencies questions.

Tradebe does not have site-specific knowledge for the other Region VI operations. However, the documents reviewed by Tradebe as a result of the ETC's repetitive communication with IDEM and Region

V, indicates that ETC is trying to compare the Tradebe recycling ATDUs units to units at hazardous waste organizations that are treating and/or conducting disposal/fuel blending activities. Unlike Tradebe, these other organizations were/are utilizing their equipment for activities other than the recovery of hydrocarbons to produce a degreaser product. These other organizations' TDU operations are not comparable with how Tradebe operates the SDS Units.

Neither the Rineco nor the US Ecology / TDX Associates units, discussed by ETC, were recovering hydrocarbons to produce a degreasing product to offer for sale. Both operations were producing a fuel, from the recovered hydrocarbons; with a final process being energy recovery. Based on court documents, Tradebe concludes:

> In the Rineco case, hydrocarbons that were recovered were collected and sent to a cement kiln as fuel. The Rineco unit was identified as a metal recycling unit designed to remove residual from scrap steel.
>
> The original configuration for the US Ecology / TDX Associates unit, which is advertised as producing a RCRA excluded fuel, had the process off gas emissions not sent to an emission control device but were instead directed back to the thermal desorber's natural gas burner. This burner provided the heat for the thermal desorber.

As stated above, Tradebe SDS Units are recovering hydrocarbons and producing a degreasing product to offer for sale, not as a fuel for sale. The thermal desorbers operating in Region VI are operating in a completely different manner and with a different operational objective than Tradebe's SDS Units.

When Tradebe (PCI) first began investigating the regulatory status of units which recover hydrocarbons for the production of a degreaser product, Tradebe (PCI) personnel were advised by the IDEM to inform Region V and seek their concurrence SDS is a recycling unit, prior to returning to IDEM for the SDS construction to install air permit, as these regulatory decisions are to be made by them (Region V)[. In summary, prior to installation of Tradebe's units, Region V and the IDEM personnel came to the same conclusion that the SDS units are recycling units.

In support of conferring to the state and regional agencies, we refer to the April 26, 1989 Lowrance Memo, RCRA Online Document Number RO 11426[1], which clearly states on page 3 *"Ultimately, however, these determinations are made by the Regions and authorized States."*

<u>*Thermal destruction of hazardous waste in TDUs*</u>

Tradebe's Comments: ETC suggests that the Tradebe ATDUs are incineration units. However, the USEPA's own guidance, *"A Citizen's Guidance to Thermal Desorption"*[2], regarding the USEPA's use of Thermal Desorption Units advised that *"A Thermal Desorption Unit is not the same as an incinerator, which heats contaminated materials to temperatures high enough to destroy the contaminates."*

Additionally, the USEPA has utilized Thermal Desorption units at Superfund sites and approved the use of Thermal Desorption units for other contaminated cleanup projects for decades. USEPA personnel have authored numerous documents that are about or contain information on the use of Thermal Desorption units for the processing of material containing (e.g., contaminated with) hydrocarbons to generate off gases and then recover the off gases.

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1 RCRA Online Document Number RO 11426, dated April 26, 1989 and authored by Ms. Sylvia K Lowrance.

2 USEPA's "A Citizen's Guide to Thermal Desorption" September 2012

Through the Region V review of the Tradebe SDS units brought on by the ETC, Tradebe has worked with the Region V technical personnel. Tradebe has provided information to the USEPA Region V personnel that states that technology operating in reduced oxygen environments are not incinerators; refer to a report by Michael Theroux, Gasification VS. Incineration, January 2014.[3]

The Theroux document provides ample support for thermal units operating in a reclamation manner and not being classified as an incinerator. At question was whether a thermal unit processing sewage sludge was acting as an incinerator as opposed to a gasification unit? The USEPA decided that the sewage sludge gasification process was not incineration; USEPA based the decision on part that: *"no flame is applied or propagated in the gasifier and the gasifier prevents combustion by limiting the air to sludge ratio such that combustion cannot occur. Therefore, we do not believe that the gasifier is an SSI, because it does not combust sewage sludge"*.

Additionally, an USEPA guidance document identifies the characteristics of an incinerator. In a memorandum, RCRA Online Document Number RO 14238 [4], Ms. Elizabeth A Cotsworth, USEPA Office of Solid Waste, Hazardous Waste Acting Director, advised Ms. Julie Anderson, Director of USEPA Region IX Waste Management Division, on various issues relating to Combustion. Regarding operation of a unit outside the limits of flammability, Ms. Cotsworth responded with *"Controlled flame combustion is the defining character of incineration. If the system discussed operates outside the limits of flammability, such that a flame is never formed, it is reasonable to conclude that that it is not an incinerator."*

1. Mass balance

   Tradebe's Comments: ETC has tried to apply Mass Balance values from Tradebe's sales brochures. ETC has indicated that for Rineco, Region VI used sales and other information (not permit required) to develop site-specific process data to develop mass balance values. Tradebe maintains the records and data required by the site's operating permits which have been reviewed by various agency personnel.

2. Unit controls

   Tradebe's Comments: Tradebe recovers hydrocarbons from the feed materials including paint waste, rags, resins coatings and polymers, as well as plastics and production debris that are contained with hydrocarbon constituents. Discarded commercial chemical products that contain hydrocarbons could also qualify as feedstock. The USEPA has published guidance on what reclamation is, as well as candidate feedstock material that will yield hydrocarbons for recovery. Tradebe defers to the RCRA Online document number RO 11726 dated February 23, 1993[5]. In this letter, Ms. Lowrance states on page 2, *"As you know, EPA defines "recycling" as including use/reuse, and reclamation (see 40 CFR 261.2(c)(4)(5), and (7). Reclamation is further defined to be either regeneration or the recovery of a usable product"*.

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3 Michael Theroux Gasification VS Incineration, January 2014

4 RCRA Online Document Number 14238, not dated and authored by Elizabeth A Cotsworth, Acting Director Office of Solid Waste

5 RCRA Online document 11726, dated February 23, 1993 and authored by Ms. Sylvia K Lowrance. In this letter, to Mr. N.G. Kaul, P.E., Director for the Division of Hazardous Substances Regulation for the New York State Department of Environmental Conservation.

On pages 2 and 3, Ms. Lowrance states: *"You then described this paint as being reclaimed to recover the solvent, resulting in a stillbottom containing the pigments and associated metals. We would view the off-specification paint, to be reclaimed, as excluded from the definition of solid waste. Although the reclamation process is recovering a usable product form the paint (i.e., solvent), and is not regenerating the paint to make a new paint, this activity is nevertheless reclamation and therefore the off-specification paint is not a solid waste. Of course, the residual stillbottoms generated during the reclamation, if characteristically hazardous, would be subject to Subtitle C requirements at the point of generation (i.e., when removed from the distillation unit), assuming they are discarded"*.

Tradebe has established requirements for material considered as potential SDS feed stock. Tradebe's Approval Department reviews and approves the information for material shipped into the facilities based upon the SDS Approval Parameters

Flares are regulatorily classified as an emission control device, as are carbon absorption units, baghouses, wet scrubbers, oxidizers and waste heat boilers and not integral parts of a process..

ETC states that "EPA has stated in technical papers that oxygen levels in thermal desorbtion units must be maintained at less than 2 percent to limit combustion *How to Evaluate Alternative Cleanup Technologies for Underground Storage Tank Sites, Chapter VI: Low-Level Temperature Thermal Desorption* (EPA 510-B-95-007)."[6]

This statement by ETC was not how the EPA statement read. The USEPA references a Thermal screw, which is a particular type of Low Temperature Thermal Desorber. The USEPA statement reads as: *"Systems that operate in an inert atmosphere (e.g., Thermal screws) do not have limitations on the concentration of organics that can be processed. In inert atmospheres the concentration of oxygen is too low (<2 percent by volume) to support combustion."*

3. Char –By product generation

Tradebe's Comment: The presence of char in itself does not constitute combustion as suggested by ETC. Tradebe's review of the Char indicates that majority of the Char compound exiting the SDS units is comprised of glass and other silica based materials, metal flake, metal oxides, and a mixture of other inorganic materials, and not all carbon.

The remaining fraction of the Char that is carbon based is derived from low temperature pyrolysis that occurs inside of the SDS unit as a result of the oxygen deprived environment. The source of this carbon fraction in the Char is part of the feedstock for the SDS operations. The paper, cardboard, plastics and rags containing organic compounds, as building blocks, are pyrolyzed when feed into the SDS operations and the end result is carbon.

As previously implied in the RCRA Online document number RO 11726 [4], *"byproducts generated from a process, being discarded, must have a waste characterization"*. Tradebe has conducted waste characterization on the Char material and continues to review the Char generated from the process. The Char waste is deemed Hazardous Waste as it is derived from waste originating from hazardous waste. As such, the Char is sent off site for disposal utilizing a hazardous waste manifest to facilities permitted to process the waste. Contrary to ETC's inaccurate claim, the Char does NOT have to meet the treatment standards in 40 CFR 268 as Tradebe sends the Char material off-site for treatment prior to disposal.

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6 USEPA's How to Evaluate Alternative Cleanup Technologies for Underground Storage Tank Sites, Chapter VI: Low Level Thermal Desorption (EPA 510-B-95-007)

The waste shipment information has been inspected by agency inspectors for the Char shipments, as stated by ETC (e.g., IDEM Inspection Report Jan 7, 2016).

4. TDU vent non-condensed gases

Tradebe's Comment: As with various operations at production or waste processing facilities, emissions from the processing units are required by regulations to be directed and controlled by emission control devices. As previously stated, Flares are one type of an emission control device. In the Tradebe facility Air Permit, there are various types of emission control devices listed. For the SDS Units, emissions from the processes are directed to three types of emission control devices.

The type of emission control devices utilized by Tradebe is dependent upon the type of emission. Particulate matter is controlled by baghouses. Organic constituents are controlled by either carbon absorption units or by an air assisted open flame Flare. It is also important to highlight that prior to the control devices, Tradebe's SDS operations are designed to maximize recovery of the hydrocarbons through a two stage condensation system, hydrocarbons that cannot be condensed due to its low boiling point that are directed to the emission control device.

It is correct in noting that Tradebe's ATDUs (as with most ATDUs) are designed to intentionally drive off hydrocarbons. However, Tradebe's SDS Units are designed to recover hydrocarbons, which produce the SDS Degreaser product. To do so the hydrocarbons must first be liberated from the feedstock material, which is done by the SDS Units use of indirect heat,. The SDS operation performs reclamation of solvents as illustrated in Ms. Lowrance's stated example in the RCRA Online document number RO11726.

Again the Flare has no association to the management of the recovered product; it is an emission control device as are the carbon absorption units, both of which are independent of the process unit.

ETC' misstated Tradebe's operations specifically for the Flare design. Tradebe's Flare, is an open flame device and not as ETC described in their July 2015 letter as an enclosed device. The Tradebe Flare is observed daily by Tradebe SDS operators and other Tradebe personnel. Tradebe's Flare is a designed emission control device which is operated in a similar fashion as other production processes operate emission control devices, such as after burners, and oxidizers/waste heat boilers.

In support of Tradebe's position, we refer to the USEPA comments regarding Thermal Desorbers having emission control devices. Referring back to the USEPA's "A Citizen's Guide to Thermal Desorption" the EPA states *"Gas collection equipment captures the contaminated vapors. Vapors often require further treatment, such as removing dust particles. The remaining organic vapors are usually destroyed using a thermal oxidizer, which heats the vapors to temperatures high enough to convert them to carbon dioxide and water vapor. At some sites with high concentrations of organic vapors, the vapors may be collected and condensed to change them back to a liquid form. The liquid chemicals may be recycled for reuse or treated by incineration. If the concentration of contaminates are low enough, and dust is not a problem, the vapors may be released without treatment to the atmosphere."*

On the last page of this USEPA document, the USEPA states, *"If necessary, they (emission control units) collect and treat the gases that are produced in the desorber."*

This USEPA document clearly states that the Thermal Desorption unit is independent of the off-gas (i.e., emission) control device. Both units, the Thermal Desorption and the emission control device, have distinct functions pertaining to the management of contaminates from a ATDU feedstock, thus contradicting both the ETC and the Region VI statements regarding a process's emission control device is a RCRA regulated unit

However this leads to a question. Does ETC intend for the USEPA to regulate every operation that has VOC air emissions generated from a process and controlled by an emission control device such as a flare, oxidizer /waste heat boiler as a Waste incinerator?

Tradebe's Recycling Units

Tradebe's Comments: In these series of paragraphs, ETC continues to compare the Tradebe operations to other organizations' TDUs. As we previously stated, Tradebe's SDS Units recover and produce a Degreasing/Cleaning material from the recovered hydrocarbons. Tradebe is not aware of these other organizations producing a product sold as a degreaser / cleaner. Information for the other units' recovered material indicates the material is sent off site as an "Exempt" fuel.

ETC also incorrectly cites USEPA regulations and guidance by indicating that by-products or waste from a Recycling process that is sent off site for fuel blending automatically invalidates the Recycling activity. Again, Tradebe refers to the USEPA's document for guidance; RCRA Online Document Number 11726 [4] in which Ms. Lowrance discusses the recycling of Non-listed Commercial chemical products. Ms. Lowrance states *"You describe this paint as being reclaimed to recover the solvent, resulting in a still bottom containing the pigments and associated metals. We would view the off-specification paint, to be reclaimed, as excluded from the definition of solid waste. Although the reclamation process is recovering a usable product from the paint (i.e., solvent), and is not regenerating the paint to make new paint, this activity is nevertheless reclamation and therefore the off-specification paint is not a solid waste. Of course, the residual still bottoms generated during reclamation, if characteristically hazardous would be subject to Subtitle C requirements at the point of generation (i.e., when removed from the distillation unit), assuming they are to be discarded."*

Ms. Lowrance confirms the USEPA's position regarding byproducts generated from a recycling / reclamation process and more importantly this document establishes:

1. Recovery of materials from a feed stock is considered reclamation;
2. Reclamation of feed stock material is Exempt for the solid waste regulations; and
3. Waste generated from a recycling process and then disposed of as a hazardous waste does not invalidate the reclamation process.

EPA Region VI Determination Letter

Tradebe's Comment: As Tradebe previously stated, Region VI ATDUs are operating in a different manner and with a different intended purpose; they are not product producing recovery units, as are the Tradebe SDS units.

Previous efforts by ETC to EPA

Tradebe's Comment: Tradebe is aware of ETC's efforts and pursuit of the USEPA to have Tradebe's SDS Units regulated as waste incineration units. Tradebe disagrees with ETC's arguments and position for the reasons set forth above.

ETC's threat to file a RCRA Citizen Suit

Tradebe's Comments: Tradebe believes that the SDS regulatory status has been evaluated from a multitude of angles, with consistent responses from the regulators and that Tradebe is of the opinion that this would be an inefficient use of the courts resources.