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NARRATIVE

TO: David Matos

FROM: Chan Spraley

DATE: July 25, 2013

Facility Name:	**Recovery Technical Solutions**
AIRS No.:	035-00015
Location:	Jackson, GA (Butts County)
Application #:	21618
Date of Application:	January 2, 2013

Background Information

Recovery Technology Solutions, LLC (RTS) submitted Application No. 21618, received January 2, 2013, to construct and operate an oil-based roofing material recycling facility in Jackson, Georgia. Materials include asphalt shingles and various oil-based flat-roof materials. In the recycling process, shingles and flat-roof materials are broken down into their basic components (asphalt oil, mineral granules, sand, calcium carbonates, and fiberglass) through extraction and separation.

Purpose of Application

Recovery Technology Solutions, LLC (RTS) submitted Application No. 21618, received January 2, 2013, to construct and operate an oil-based roofing material recycling facility in Jackson, Georgia (Butts County). The proposed facility is designed to process up to 250 tons per day of oil-based roofing materials, including asphalt shingles and various oil-based flat-roof materials.

The proposed facility is designed to process up to 250 tons per day of oil-based roofing materials, including asphalt shingles and various oil-based flat-roof materials. The typical roofing shingles are composed of approximately 20% fiberglass matting, 25% asphalt oil, 30% filler (sand), and 25% aggregate (rock, mineral granules). Flat-roof materials are typically composed of 80-85% oil and 15-20% fiberglass. In the recycling process, shingles and flat-roof materials are broken down into their basic components (asphalt oil, mineral granules, sand, calcium carbonates, and fiberglass) through extraction and separation. Markets for the facility's final products include the asphalt industry, pavement industry, landscape block manufacturers, fiberglass insulation companies, and the concrete additives industry. RTS will partner with shingle manufacturers, re-roofing contractors and waste management companies to allow them to reduce costly disposal fees while minimizing the amount of construction and demolition waste being sent to landfills.

Equipment List

Raw Material Receiving and Handling

Raw materials (oil-based roofing materials) will be delivered to the facility by truck. Waste material (flashing, wood, asbestos, and other contaminates) is removed and the raw material will be transported to a storage yard by wheel loaders. The raw materials have a natural moisture content of 10 to 20 percent. Due to the large size and high moisture content of the material, PM emissions are considered negligible from this operation.

Grinding and Storage

Roofing material will be transported from the storage yard to a skid mounted Rotochopper (Source Code RC01) and ground to 1.5 inch size. The electric-powered Rotochopper has a throughput capacity of 70 tons per hour. Water will be added to the grinding process to minimize dust and heat generation within the equipment. The Rotochopper is equipped with a magnet to remove any residual metal particles in the roofing material prior to further processing. From the Rotochopper, ground roofing materials will be conveyed to a storage building (500 tons capacity). A water sprinkler system will be used to control temperature and dust in the storage building. Due to the large size, moisture content of the material, and the water injection system on the Rotochopper, PM emissions from raw material grinding and storage are considered negligible.

Drying

Ground roofing material will be conveyed from the storage building to a dryer (Source Code DR01) via a lump breaker. The lump breaker allows for consistent feed to the dryer. Dryer DR01 is equipped with steam heated coils that provide warm air into the dryer (approximately 5^{o}F above ambient temperature) to reduce the moisture content of ground roofing material to less than 6% prior to entering the extraction process. Note that if the temperature in the dryer is too high, the ground roofing material will melt and bind onto itself. Because of the temperature requirement necessary for proper operation of the dryer, VOC emissions from the dryer are expected to be negligible. PM emitted from dryer DR01 will be controlled by a cyclone (Air Pollution Control Device ID CYC1) with control efficiency of 84.5% for PM and 69.0% for PM10/PM2.5. Please note that no metal HAP emissions are expected from the dryer because residual metal particles are removed by the magnet in the Rotochopper prior to drying.

Extraction and Separation Processes

From dryer DR01, the dried roofing materials will be conveyed into two extractors. Toluene from the storage tank (Source ID ST01) or work tank (Source ID ST04) will be added to the extractors to immerse the roofing material. The proprietary extraction process uses a countercurrent continuous approach to ensure maximum extraction of oil from the roofing material with minimal solvent use. The extraction process equipment is designed to process 250 tons per day (tpd) roofing materials.

In the extractors, miscella (toluene laden oil) flows counter-current to the solids flow. As the two streams come in contact, the miscella becomes more concentrated with oil as toluene extracts the oil from solids. Additionally, fresh toluene will be added to the extractors to wash the solids prior to discharge to maximize the overall effectiveness of the extraction process. Products from the extraction process are miscella and toluene laden solids (containing approximately 20% residual toluene). Solvent vapor from the extractors is vented to the vent header to the solvent recovery system. The solvent recovery system consists of a vent condenser and a mineral oil scrubber system (MOS). See section 2.1.6 for details on the solvent recovery system. Toluene recovered in the solvent recovery system will be reused in the process.

Separation Process - Miscella

From the extractors, the miscella is sent to a distillation system (via filters) to separate oil and toluene. The distillation system consists of a first stage evaporator followed by a stripper. Vapor from the distillation system goes through a condenser and is vented back to the vent header. Oil leaving the miscella stripper is pumped through a thin film evaporator (TFE) for final stripping. The TFE is also equipped with a condenser that is vented back to the vent header. The final product from the distillation system is oil (containing approximately 1,000 ppm toluene). The oil will be stored in one of the four storage tanks (Source Code ST03) prior to offsite transfers. Vapors from storage tank ST03 and oil loadout operations will be routed back to the vent header, and any collected toluene will be reused in the extraction process.

Separation Process - Toluene Laden Solids

Solids from the extractors (containing approximately 20% toluene) along with fines collected by the miscella filters are sent to a desolventizer using a vapor tight conveyor feeding system. The desolventizer consists of steam-heated trays to separate toluene and solids. Additionally, direct steam will be added to the desolventizer to facilitate separation of toluene and solids. Vapor from the desolventizer goes through a condenser and is vented back to the vent header. Clean solids from the desolventizer will go through a screening process prior to offsite transfers.

Solid Screening Process and Solid Products Loadout

In the screening process (Source Code SC01), clean solids from the desolventizer are separated to sand, rock and fiber material. SC01 is equipped with a fabric filter to collect dust from the screening process. The material collected in the filter will also be sold as product. After the screening process, rock and sand will be transported by bucket loader to a truck or rail loadout area. Meanwhile, the fiber material from the screening process will be baled prior to offsite transfers.

Vent Header/Solvent Recovery System

All solvent vapors from the extraction and separation process equipment, and storage tanks ST01, ST03, and ST04 are vented to the vent header for toluene recovery. The vent header consists of a vent condenser and mineral oil scrubber system (MOS). Since all recovered toluene will be reused in the process, the vent condenser and MOS system are considered inherent process equipment and not air pollution control devices.

The majority of toluene in the solvent vapor stream will be recovered in the vent condenser and sent to the solvent work tank (Source Code ST04). The uncondensed vapor is vented to the mineral oil scrubber system (MOS) consisting of absorption and stripper columns. Uncondensed vapor from the vent condenser enters the bottom of the absorption column and rises through the tower packing. Meanwhile, cold mineral oil is admitted at the top of the column. As the vapor stream comes in contact with oil, toluene in the vapor stream is absorbed by the mineral oil and the desolventized gases are drawn off through a demister at the top venting to the atmosphere (Stack ID S001). The toluene laden mineral oil leaves the bottom of the absorption column and is pumped through a heat exchanger to the top of the MOS stripper column. In the stripper column, steam is used to separate toluene and mineral oil. The toluene vapors drawn off at the top of the stripping column is routed back to the vent condenser. Toluene-free mineral oil leaves the bottom of the stripper and goes through a heat interchanger back to the top of the absorption column where the cycle is repeated. An additional chiller system may be added to the mineral oil system to further improve efficiency.

The recovered toluene from all condensers in the process is sent to the solvent work tank (Source Code ST04). This tank is designed to separate water and toluene by gravity (using differences in density between the two liquids). Part of the tank is also used for working storage of toluene before it is used in the extractors. Toluene is slightly miscible in water, so the wastewater from ST04 will contain a small amount of toluene making it necessary to distill the toluene from the stream before discharging to the sewer. Consequently, a stripping column is provided to remove residual toluene from water. The toluene vapor from the column is condensed in a process condenser and then sent back to the work tank ST04. The bottom of the distillation column (water) will be discharged to the sewer. Vapor from the solvent work tank ST04 and toluene stripper process condenser are vented to the vent header.

Ancillary Equipment

Ancillary equipment will include the following:

- A 20.1 MMBtu/hr boiler for steam generation (Source Code B001). The boiler will burn natural gas as the primary fuel, with propane as backup fuel.
- A 4.0 MMBtu/hr process heater (Source Code H001) will be used to heat oil for the closed loop hot oil system. The hot oil system will also provide indirect temperature control for oil storage tank ST03. The process heater will burn natural gas as the primary fuel, with propane as backup fuel.
- One 100 HP Electric Motor Fire Pump.
- A cooling tower at 34 gpm capacity.
- Propane storage tank (1,000 gallon).
- Mineral oil drum (55 gallon).

Emission Units

Emissions Units		Air Pollution Control Devices	
ID No.	**Description**	**ID No.**	**Description**
GP01	Oil Extraction, Separation, and Solvent Recovery Process Equipment	NA	NA
DR01	Ground Roofing Material Dryer	CYC1	Cyclone
RC01	Electric Rotochopper	NA	NA
SC01	Solid Screening Equipment	NA	NA
ST01	Toluene Storage Tank (approximately 20,000 gallons)	NA	NA
ST03	Asphalt Oil Storage Tanks (4 total at approximately 40,000 gallons each)	NA	NA
ST04	Solvent Work Tank (approximately 2,100 gallons)	NA	NA
B001	20.1 MMBtu/hr Boiler. Firing natural gas and propane as backup	NA	NA
H001	4 MMBtu/hr Process Heater. Firing natural gas and propane as backup	NA	NA
CT1	Cooling Tower	NA	NA
PS1	Propane Storage Tank (approximately 1,000 gallons)	NA	NA

Emissions Summary

The pollutants of concern include NOx, SO_2, PM, CO, volatile organic compound (VOC), HAP, and Toluene. Greenhouse gas (GHG) emissions are also estimated.

NOx, SO_2, CO, and CO_2 are emitted as products of combustion from the fuel burning equipment at the facility. PM, PM10, and PM2.5 are also emitted from the fuel burning equipment, however, the majority of PM/PM10/PM2.5 emissions are from dryer DR01. VOC and HAP (toluene) are also emitted from the fuel burning equipment in small amounts; however the majority of VOC and HAP (toluene) emissions are from solvent losses in the process.

The extraction process equipment is designed to process 250 tpd roofing material. It is expected that there may be small fluctuations above and below this capacity due to the variation of raw material. There is no physical constraint that will limit the processing rate of the facility. However, to ensure product quality and operation efficiency, the designed process rate of 250 tpd is not expected to be exceeded. If the processing rate increased significantly over the designed rate, product quality could decrease and the extraction process may not be running efficiently (e.g., in relation to toluene loss).

The primary emissions from the proposed facility are toluene losses from oil extraction and separation, and solvent recovery processes (Source ID GP01). As discussed in the previous sections, all of the extraction and separation process equipment and toluene-containing storage tanks (ST01, ST03, and ST04) are vented to the vent header to recover toluene. The vent header consists of a vent condenser and mineral oil scrubber system. It is designed to maximize toluene recycling and, thereby, minimizing toluene emissions. The solvent recovery process equipment is considered inherent process equipment, rather than an air pollution control device because the recovery of toluene is essential for process safety (due to flammability of the solvent) and economics of the project. The estimated solvent recovery rate is 95 percent based on mass balance methodology.

The total solvent (toluene) loss rate for GP01 is estimated to be 0.9 gallons per ton of roofing material processed. This value was estimated by the equipment design vendor and provided to RTS as a guarantee. The total solvent loss rate of 0.9 gal/ton includes solvent losses for which there are no corresponding roofing material processed (i.e.: due to malfunctions, off-spec materials, etc.). These losses are already accounted for in the steady-state air emissions which are based on the total possible air flow into the system assuming it is all emitted into the air (at toluene concentration of 90% LEL). Furthermore, the total solvent loss rate of 0.9 gal/ton also includes solvent losses to water and products (oil and solids), none of which is considered air emissions. Using a solvent loss rate of 0.9 gal/ton and a maximum production rate of 250 tpd, the toluene PTE for GP01 was estimated to be 286.2 tpy. Since toluene is also a VOC, the VOC PTE for GP01 was set equal to the toluene PTE of 286.2 tpy. The facility is requesting a PSD avoidance limit of 249 tpy VOC. Please note that the PTEs of toluene and VOC are conservative and do not represent the predicted actual air emissions for the reasons described in this paragraph.

Facility-Wide Emissions
(in tons per year)

Pollutant	Uncontrolled Annual Emissions (tons/yr)	Controlled Annual Emissions (tons/yr)
CO	9.5	9.5
NOx	15.8	15.8
SO_2	0.3	0.3
VOC	249	75.5
PM/PM10/PM2.5	92.1	7.3
CO_2e	14,516.1	14,516.1
Toluene	249	74.3
Total HAP	249	74.5

Regulatory Applicability

State Rules

Georgia Rule 391-3-1-.03(1)

Applicability: Georgia Rule 391-3-1-.03(1) requires that any person prior to beginning the construction or modification of any facility which may result in air pollution shall obtain a permit for the construction or modification of such facility from the Director upon a determination by the Director that the facility can reasonably be expected to comply with all the provisions of the Act and the rules and regulations promulgated thereunder.

Georgia Rule 391-3-1-.02(2)(d) – Fuel Burning Equipment

Applicability: Georgia Rule 391-3-1-.02(2)(d) [a.k.a Georgia Rule (d)] is an applicable requirement that contains emission standards for particulate matter and visible emissions for the 20.1 MMBtu/hr Boiler (source code B001) that RTS proposes to install.

Emission Standard: The allowable particulate matter emission rate for the boiler under Rule (d) is 0.35 pounds per million BTU heat input in accordance with Georgia Rule (d)2(ii). The allowable opacity limit for said unit is twenty (20) percent except for one six minute period per hour of not more than twenty-seven (27) percent opacity in accordance with Georgia Rule (d)3. The NOx emission standard of Rule (d)4 does not apply to boiler because the boiler does not exceed 250 MMBtu/hr. Because the boiler is fired with natural gas and propane as backup, exceedances of the particulate matter and opacity standards of Rule (d) are not expected to occur.

Georgia Rule 391-3-1-.02(2)(e) – Particulate Matter from Manufacturing Processes

Applicability: Georgia Rule 391-3-1-.02(2)(e) [a.k.a Georgia Rule (e)] is an applicable requirement that establishes an allowable rate of particulate emissions for Manufacturing Processes.

Emission Standard: Subject to this rule, the Permittee shall not cause, let, permit, suffer, or allow the rate of emission from any source involved in the manufacturing process, particulate matter in total quantities equal to or exceeding the following rates:

$E = 4.1\ P^{0.67}$; for process input weight rate up to and including 30 tons per hour;

$E = 55\ P^{0.11} - 40$; for process input weight rate above 30 tons per hour;

where E = emission rate in pounds per hour, and
P = process input weight rate in tons per hour.

Based on the calculations submitted in the application, the facility is not expected to exceed the allowable emissions calculated from the equations in this Rule.

Georgia Rule 391-3-1-.02(2)(g) – Sulfur Dioxide

Applicability: Georgia Rule 391-3-1-.02(2)(g) [a.k.a Georgia Rule (g)] is an applicable requirement that contains emission standards for sulfur dioxide from fuel burning sources. Affected sources at the proposed RTS facility include the 20.1 MMBtu/hr Boiler (source code B001) and the 4.0 MMBtu/hr Process Heater (source code H001).

Emission Standard: Because the fuel burning equipments proposed at RTS are rated at below 100 million BTUs per hour maximum heat input capacity, Georgia Rule (g) limits SO_2 from these sources by imposing a limit on the sulfur content of the fuels burned in them of 2.5 percent by weight in accordance with Georgia Rule (g)2. Because the fuel burning equipments are fired with natural gas and propane as backup and both fuels inherently have sulfur content of less than 2.5% by weight, therefore, compliance with the fuel sulfur content limit is demonstrated using these fuels.

Georgia Rule 391-3-1-.02(2)(n) – Fugitive Dust

Applicability: Georgia Rule 391-3-1-.02(2)(n) [a.k.a Georgia Rule (n)] is an applicable requirement that requires the facility to use reasonable precautions to prevent fugitive dust from becoming airborne.

Georgia Rule 391-3-1-.02(2)(lll) – NO_x Emissions from Fuel Burning Equipment

Applicability: Georgia Rule 391-3-1-.02(2)(lll) [a.k.a Georgia Rule (lll)] is an applicable requirement that contains emission standards for NO_x for the 20.1 MMBtu/hr Boiler (source code B001) that RTS proposes to install.

Emission Standard: Because the boiler proposed at RTS is rated at greater than 10 MMBtu/hr and less than 250 MMBtu/hr maximum heat input capacity and located in Butts County, Georgia Rule (lll) limits the boiler from exceeding 30 ppm NO_x limit at 3% O_2 on a dry basis. The boiler is guaranteed to meet 30 ppm NO_x limit at 3% O_2 on a dry basis while burning natural gas. Only natural gas will be burned during the period from May 1 through September 30 of each year. Georgia Air Protection Branch's Procedures for Testing and Monitoring (PTM) Section 2.119 is used to demonstrate compliance.

Federal Rules - 40 CFR 60 (New Source Performance Standards)

40 CFR 60 Subparts A & Dc – General Provisions and Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units

Applicability: New Source Performance Standard (NSPS) Subpart Dc contains requirements to reduce emissions from the combustion of fuels in process equipment used to produce steam or heat water. The only affected unit at the proposed RTS facility is the 20.1 MMBtu/hr Boiler (source code B001).

Emission Standard: Because the proposed boiler will have a heat input capacity of greater than 10 MMBtu/hr and less than 100 MMBtu/hr and will be constructed, modified, or reconstructed after June 9, 1989, it will be subject to the New Source Performance Standard (NSPS) for Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60 Subpart Dc. Because the boiler will only burn natural gas and propane as backup, the following requirements will apply:

- Submit a notification of actual startup within 15 days after startup. Note that the boiler will be pre-packaged (mass-produced and purchased in completed form), therefore, in accordance with 40 CFR 60.7(a)(1), a notification of the date of construction is not required. [40 CFR 60.48c(a), 40 CFR 60.7]
- Track fuel usage on a monthly basis [40 CFR 60.48c(g)(2)]

The opacity limit does not apply because the boiler is less than 30 MMBtu/hr and does not burn fuel oil.

Federal Rules - 40 CFR 63 (National Emission Standards for HAPs)

40 CFR 63 Subparts A & B – General Provisions and Case-By-Case MACT Review Under Section 112(g) of the Clean Air Amendments of 1990

Applicability: Because the proposed RTS facility will be a new, major source of HAP emissions for which a MACT standard has not been promulgated (and which is not part of a de-listed source category), the operations at the facility must undergo a case-by-case MACT review pursuant to Section 112(g) of the 1990 Clean Air Act Amendments and the associated federal and state regulations that implement the 112(g) requirements, found at 40 CFR Par 63, Subpart B and the Georgia Rules for Air Quality Control at 391-3-1-.02(9)16, respectively.

Emission Standard: 112(g) requires the case-by-case review and application of new source MACT-level controls. The extraction process is designed to be vapor tight. The facility's primary incentive to minimize solvent loss is to achieve high quality final products, as more solvent in the final product reduces its overall quality. The facility also has an incentive to recover as much solvent as possible to reduce the quantity of fresh solvent that needs to be purchased. The process equipment is designed to maximize toluene recycling and reuse in the process system. Additionally, RTS will implement an LDAR program. The LDAR program will include routine visual inspection, instrument monitoring. RTS will submit the following information to the Division for approval: the type of equipment to monitor, monitoring frequency, monitoring method (e.g.: EPA Method 21), and repair requirements.

RTS has proposed as MACT a solvent loss cap of 0.9 gallons per ton of roofing material processed. Compliance with the proposed solvent loss cap will be achieved by utilizing a solvent recovery system that is designed to maximize solvent (toluene) recovery. All recovered solvent will be reused in the process. Furthermore, the solvent recovery system equipment is considered inherent process equipment, rather than an air pollution control device because the recovery of toluene is essential for process safety (due to flammability of the solvent) and economics of the project.

As shown in Table 3.1 of the application, the applicable add-on control equipment is a condenser with a mineral oil absorber. Therefore, installation of a process condenser and mineral oil scrubber established the MACT floor for this analysis. Note that RTS considers the process condenser and mineral oil scrubber system (part of the vent header system) as inherent process equipment because toluene recovered from the system is reused in the process and the recovery rate is essential for the economics of the facility.

Initial compliance demonstrations, ongoing compliance demonstrations, and monitoring requirements were developed based on 40 CFR 63 Subpart GGGG requirements.

40 CFR 63 Subpart SS – NESHAP for for Closed Vent Systems, Control Devices, Recovery Devices and Routing to a Fuel Gas System or a Process

Applicability: National Emission Standards for Hazardous Air Pollutants (NESHAP) Subpart SS establishes requirements for closed vent systems, control devices and routing of air emissions to a fuel gas system or process. These provisions apply when another subpart references the use of this subpart for such air emission control. In this case 40 CFR 63 Subpart EEEE references 40 CFR 63 Subpart SS.

40 CFR 63 Subpart EEEE – NESHAP for Organic Liquids Distribution (Non-Gasoline)

Applicability: National Emission Standards for Hazardous Air Pollutants (NESHAP) Subpart EEEE establishes national emission limitations, operating limits, and work practice standards for organic HAPs emitted from organics liquids distribution operations at major sources of HAP emissions. Toluene storage tank ST01 is subject to the requirements in this subpart because it meets the definition of "Organics Liquids Distribution (OLD) Operation" under 63.2406 and stores "organic liquid" as defined in 63.2406.

Emission Standard: The rule contains requirements for the following:

Storage Tanks

Storage tank ST01 is subject to the storage tank emission limits under Subpart EEEE because it meets the tank capacity and liquid vapor pressure criteria for control in Table 2, item 4 of this subpart. RTS will comply with the storage tank requirements by following the work practice standard (i.e.: routing emissions from ST01 back to the process as specified in 40 CFR Part 63 Subpart SS) as allowed in 63.2346(a)(2) and Table 4, item 1b. Subpart SS (see 63.984 and 63.999(b)(1)) requires the facility to properly design the system to recover the vapors and provide the design evaluation as part of the notification of compliance status.

Transfer Racks

There are no applicable requirements for the toluene transfer rack because it does not meet the criteria in Table 2, items 7 through 10. Note that the transfer rack meets the total actual annual volume of less than 800,000 gallons in Table 2, item 9; however the toluene from ST01 is not loaded into a transport vehicle or filling a container (as defined in 63.2406), therefore, control limit requirements for transfer racks do not apply. Note that the transfer rack will be subject to the notification, recordkeeping, and reporting requirements under 63.2343(a).

Equipment Leak Components

As required by 63.2346 (c), each pump, valve, and sampling connection associated with toluene storage tank ST01 that handles greater than 5% toluene for at least 300 hours per year will comply with the applicable requirements under 40 CFR part 63 Subpart TT (control level 1), Subpart UU (control level 2), or Subpart H.

Note that the following tanks at the facility are not subject to Subpart EEEE:

- Asphalt oil storage tanks (ST03) are not subject because asphalt is specifically excluded in the "organic liquid" definition in 63.2406.
- Solvent work tank (ST04) is not subject because it does not qualify as an affected source as defined in defined in 63.2338. Furthermore, the solvent work tank is considered a "bottoms receiver" as defined in 63.2406, and is therefore excluded from the definition of "storage tank".

40 CFR 63 Subpart DDDDD – NESHAP for Industrial, Commercial, and Institutional Boilers

Applicability: National Emission Standards for Hazardous Air Pollutants (NESHAP) Subpart DDDDD establishes national emission limitations, operating limits, and work practice standards for organic HAPs emitted from industrial boilers at major sources of HAP emissions. Boiler B001 will be considered a new source in the natural gas subcategory and has a heat input capacity of greater than 10 MMBtu/hr.

Emission Standard: The following requirements apply:

- Annual tune-ups are required, since the boiler is in the natural gas subcategory and has a heat input capacity of greater than 10 MMBtu/hr [40 CFR 63.7540(a)(10)]. The specific tune-up requirements are provided in 40 CFR 63.7540(a)(10)(i) through (vi):
- Compliance must be demonstrated by performing the initial tune-up within 180 days of startup [40 CFR 63.7510(f)].
- Subsequent tune-ups must be conducted no more than 13 months after the previous tuneup [40 CFR 63.7515(e)]. If the unit is not operating on the required date of the tune-up, the tune-up must be conducted within one week of startup [40 CFR 63.7540(a)(12)].
- The Notification of Compliance Status (NOCS) must be submitted within 60 days after the compliance demonstration (after the tune-up) [40 CFR 63.7545(e)].
- A statement that the tune-up has been performed must be included in the NOCS [40 CFR 63.7530(d)]; the statement "This facility complies with the requirements in 63.7540(a)(10) to conduct an annual or biennial tune-up, as applicable, of each unit,'' is to be included [40 CFR 63.7545(e)(8)(i)].
- The Initial Notification must be submitted within 15 days of startup [40 CFR 63.7545(c)].
- Annual compliance reports are required and are due January 31 after the first year of operation [40 CFR 63.7550(b)].
- Submit a notification of alternative fuel use within 48 hours of the declaration of each period of natural gas curtailment or supply interruption [40 CFR 63.7545(f)].

Note that the boiler is considered a gas-fired unit pursuant to the following definition [40 CFR 63.7575]: *Unit designed to burn gas 1 subcategory*, which includes any boiler or process heater that burns only natural gas, refinery gas, and/or other gas 1 fuels; with the exception of liquid fuels burned for periodic testing not to exceed a combined total of 48 hours during any calendar year, or during periods of gas curtailment and gas supply emergencies.

The process heater (Source Code H001) will be subject to the same requirements as the boiler, however, the tune-up is only required biennially (instead of annually) [40 CFR 63.7540(a)(11)].

Permitting Rules and Emission Standards That Do Not Apply

The following discussion pertains to air quality standards and permitting requirements that were evaluated for applicability to the proposed RTS facility and were determined not to be applicable.

Georgia Rule 391-3-1-.02(7) – Prevention of Significant Deterioration (PSD)

Applicability and Emission Standards: Georgia Rule 391-3-1-.02(7) adopts by reference 40 CFR 52.21. The federal PSD permitting requirements and associated emission standards do not apply to the proposed RTS facility because the potential emissions of all criteria pollutants, after controls and enforceable permit limits, will be below the corresponding applicability thresholds for PSD review.

Georgia Rule 391-3-1-.02(2)(mmm) – NO_x Emissions from Stationary Gas Turbines and Stationary Engines used to Generate Electricity

Applicability: Georgia Rule 391-3-1-.02(2)(mmm) [a.k.a Georgia Rule (mmm)] does not apply because the fire pump emergency engine does not produce electricity.

40 CFR 60 Subpart Kb - Standard of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels

Applicability: New Source Performance Standard (NSPS) Subpart Kb contains requirements for facilities that have volatile organic liquid storage vessels with a capacity greater than or equal to 75 m^3 for which construction is commenced after July 23, 1984. None of the storage tanks at the facility is subject to this subpart.

- Toluene storage tank (source code ST01) is not subject to this subpart due to its capacity (20,000 gallons = 75.7 m^3) and the material stored (toluene, 3.8 kPa maximum true vapor pressure), which is less than the 27.6 kPa applicability. [60.110b(b)]
- Solvent work tank (source code ST04) is not subject due to its capacity of 2,100 gallons (7.9 m^3).
- Asphalt oil storage tanks (source code ST03) are not subject in accordance with 60.110b(b). Asphalt oil has a maximum true vapor pressure of 0.4 kPa.

40 CFR 60 Subpart UUU - Standard of Performance for Calciners and Dryers in Mineral Industries

Applicability: New Source Performance Standard (NSPS) Subpart UUU is applicable to mineral industries, as defined in 60.731 as "…any facility that processes or produces any of the following minerals, their concentrates or any mixture of which the majority (> 50%) is any of the following minerals or a combination of these minerals: alumina, ball clay, bentonite, diatomite, feldspar, fire clay, fuller's earth, gypsum, industrial sand, kaolin, lightweight aggregate, magnesium compounds, perlite, roofing granules, talc, titanium dioxide, and vermiculite." The proposed facility will process roofing materials containing approximately 28-42% roofing granules, such as sand/aggregate. Therefore, this facility does not meet the definition of a "mineral processing" facility and is exempt from this subpart.

40 CFR 60 Subpart IIII - Standard of Performance for Stationary Compression Ignition Internal Combustion Engines

Applicability: New Source Performance Standard (NSPS) Subpart IIII contains requirements for facilities that have Stationary Compression Ignition (CI) Internal Combustion Engines (ICE) that are manufactured as a certified National Fire Protection Association (NFPA) fire pump engine after July 1, 2006. This rule is not applicable to the 100 HP Electric Motor Fire Pump (source code FP1) that is proposed at RTS because it is not an internal combustion engine.

Acid Rain Program – 40 CFR 72

Applicability: The Acid Rain Program (40 CFR 72) will not apply to RTS, because the boiler's name plate capacity is 25 MWe or less. [40 CFR 72.7(a)(a)]

40 CFR 63 Subpart VV – NESHAP for Oil-Water Separators and Organic-Water Separators

Applicability: New Source Performance Standard (NSPS) Subpart VV is for the control of air emissions from oil-water separators and organic-water separators for which another subpart of 40 CFR parts 60, 61, or 63 references the use of this subpart for such air emission control. RTS does not consider the Solvent Work Tank (ST04) to be a "Organic-water separator." An Organic-water separator, as defined in 63.1041, means a separator that is used to separate organics from water. A separator is defined as a waste management unit, generally a tank, that is used to separate oil or organics from water. A separator consists of not only the separation unit but also the forebay and other separator basins, skimmers, weirs, grit chambers, sludge hoppers, and bar screens that are located directly after the individual drain system and prior to any additional treatment units such as an air flotation unit clarifier or biological treatment unit. Examples of a separator include an API separator, parallel-plate interceptor, and corrugated-plate interceptor with the associated ancillary equipment. ST04 is not a waste management unit. It receives condensation from the process condensers (mostly toluene with small amount of water). Then, the recovered toluene is reused in the process while the water from the tank is sent to the distiller (to remove residual toluene) before being discharged to the sewer.

40 CFR 63 Subpart ZZZZ – NESHAP for Reciprocating Internal Combustion Engine (RICE)
Applicability: National Emission Standards for Hazardous Air Pollutants (NESHAP) Subpart ZZZZ (RICE NESHAP) establishes national emission limitations, operating limits, and work practice standards for organic HAPs emitted from reciprocating internal combustion engines at major sources of HAP emissions. The RICE NESHAP does not apply to the 100 HP Electric Motor Fire Pump (source code FP1) because it is not an internal combustion engine.

Permit Conditions

Condition 2.1 specifies that the Oil Extraction, Separation, and Solvent Recovery Process Equipment (GP01) is subject to 40 CFR Part 63, Subpart B – Case-by-Case MACT.

Condition 2.2 limits VOC emissions to 249 tpy to avoid PSD.

Condition 2.3 establishes an emission limit for the Oil Extraction, Separation, and Solvent Recovery Process Equipment (GP01) under 40 CFR Part 63, Subpart B – Case-by-Case MACT of Solvent Loss Cap of 0.9 gallon of extraction solvent (toluene) per ton of roofing material processed.

Condition 2.4 requires the facility to not exceed a Compliance Ratio of 1.00 under the Case-by-Case MACT 112(g).

Condition 2.5 specifies that the Toluene Storage Tank (ST01) is subject to 40 CFR 63, Subpart EEEE.

Condition 2.6 requires the Oil Extraction, Separation, and Solvent Recovery Process Equipment (GP01) must be operating at all times when toluene emissions from Toluene Storage Tank (ST01) are routed to it.

Condition 2.7 limits the amount of time which the toluene emissions from the Toluene Storage Tank (ST01) bypass the Oil Extraction, Separation, and Solvent Recovery Process Equipment (GP01) to not exceed 240 hours per calendar year per 40 CFR 63 Subpart EEEE.

Condition 2.8 requires that toluene emissions from the Toluene Storage Tank (ST01) to be routed to the Oil Extraction, Separation, and Solvent Recovery Process Equipment (GP01) must meet the conditions listed per 40 CFR 63 Subpart EEEE.

Condition 2.9 requires that the Toluene Storage Tank (ST01) store only toluene per 40 CFR 63 Subpart EEEE.

Condition 2.10 specifies that the Boiler (B001) is subject to 40 CFR 60 Subpart Dc.

Condition 2.11 specifies that the fuel fired in the Boiler (B001) must only be natural gas or propane.

Condition 2.12 incorporates Georgia Rule (d) for the Boiler (B001) and limits PM emissions and opacity.

Condition 2.13 establishes applicable emissions limitations and operational limitation under Georgia Rule (lll) for the Boiler (B001).

Condition 2.14 incorporates Georgia Rule (b) – *visible emissions* to all applicable storage and material handling equipment at the facility.

Condition 2.15 incorporates Georgia Rule (e) to all applicable process equipment and limits PM emissions.

Condition 2.16 requires the facility to implement a site-specific compliance plan for monitoring and recording data necessary for demonstrating compliance with the Case-by-Case MACT 112(g).

Conditions 2.17 and 2.18 require the facility to develop a written Startup, Shutdown and Malfunction Plan (SSM) under the Case-by-Case MACT 112(g).

Condition 2.19 limits the fuel burned in the Boiler (B001) and Process Heater (H001) to contain no more than 2.5 percent sulfur per Georgia Rule (g).

Condition 2.20 specifies that the Boiler (B001) and Process Heater (H001) are subject to 40 CFR 63 Subpart DDDDD.

Condition 2.21 specifies the subcategory that Boiler (B001) and Process Heater (H001) are under in 40 CFR 63 Subpart DDDDD.

Conditions 2.23 and 2.24 specify definitions for Initial Startup Period and Malfunction Period.

Condition 2.25 requires the facility to implement a LDAR program that complies with the requirements described in 40 CFR 63 Subpart H to ensure limited fugitive toluene losses associated with the Oil Extraction, Separation, and Solvent Recovery Process (Source Code GP01) as part of the 40 CFR Part 63, Subpart B – Case-by-Case MACT. This plan should be approved by the Division and kept on site.

Condition 2.26 requires Stage I vapor recovery to be used when filling the toluene tank.

Condition 2.27 requires the facility to comply with the requirements for closed vent systems, control devices and routing of air emissions to a fuel gas system or process. This rule applies when another subpart references the use of this subpart for such air emission control (in this case 40 CFR 63 Subpart EEEE references 40 CFR 63 Subpart SS).

Condition 4.2 requires the facility to monitor the operation and maintenance of the Cyclone (CYC1) to ensure all interior components are properly functioning, maintained, and free of leaks.

Condition 5.2 requires the facility to operate a gas consumption meter on Boiler (B001) or record all deliveries of fuel burn in that boiler per 40 CFR 60 Subpart Dc.

Condition 5.3 incorporates applicable emissions limitation of Georgia Rule (lll) for Boiler (B001).

Conditions 5.4 and 5.5 incorporate applicable tune-ups required for Boiler (B001) and Process Heater (H001) per 40 CFR 63 Subpart DDDDD.

Conditions 5.6 through 5.10 were developed for the Case-by-Case MACT. Condition 5.6 requires the facility to record the quantity of roofing material processed. Condition 5.7 requires the facility to calculate a Compliance Ratio which compares the actual HAP loss to allowable HAP loss for the previous 12 months using procedures described in Condition 5.8. Condition 5.8 outlines the procedure to calculate a compliance ratio. Condition 5.9 requires the facility to record the actual solvent loss using procedures in Condition 5.8. Condition 5.10 requires the facility to determine and record the weighted average volume fraction of HAP in the actual solvent loss using information and procedures in Condition 5.8.

Condition 5.11 requires the facility to perform daily visible emissions checks from the cyclone. All checks shall be recorded in a log. Or as an alternative, the facility may record daily differential pressures across the cyclone.

Conditions 7.4 and 7.5 require the facility to provide startup notification and records regarding fuel burned in Boiler B001 per 40 CFR 60 Dc.

Condition 7.6 requires the facility to maintain all boiler NOx emissions monitoring results and calibration data as required by Condition 5.7 per Georgia Rule (lll).

Conditions 7.7 and 7.8 require the facility to maintain and calculate all VOCs and calculate monthly and 12 consecutive month total VOC emissions to avoid PSD. The facility is required to notify the Division if it exceeds the tons per month or tons per year specified.

Conditions 7.9 through 7.13 were developed for the Case-by-Case MACT. Condition 7.9 requires the facility to maintain records specified in the condition. Condition 7.10 requires the facility to submit compliance, deviation, and SSM reports specified in the condition. Condition 7.11 requires the facility to submit semi-annual reports containing any excess emissions, exceedances, and/or excursions and shall contain the specified information listed in the condition. Condition 7.12 specifies each excess emissions, exceedances, and excursions that should be included in the semi-annual report required in Condition 7.11. Condition 7.13 requires the facility to submit the site-specific compliance plan including samples or monthly records and calculations required by Condition 7.9 for approval.

As part of the Case-by-Case MACT, Conditions 7.14 and 7.15 establish the recordkeeping requirements of the LDAR program the facility must implement that complies with the requirements described in 40 CFR 63 Subpart H for the fugitive toluene losses associated with the Oil Extraction, Separation, and Solvent Recovery Process (Source Code GP01). Condition 7.14 requires the facility to maintain records that demonstrate compliance with Condition 2.25. Condition 7.15 requires the facility to submit a periodic report within 90 days following the end of each 6 month reporting period. The periodic reports shall contain the specified information in the condition that is consistent with the LDAR program that complies with the requirements described in 40 CFR 63 Subpart H.

Conditions 7.16 through 7.19 establish the recordkeeping requirements of 40 CFR 63 Subpart DDDDD for the Boiler (B001) and Process Heater (H001). Condition 7.16 requires the facility to maintain records specified in the condition for the Boiler (B001). Condition 7.17 requires the facility to submit the notifications specified in the condition for the Boiler (B001) and Process Heater (H001). Condition 7.18 requires the facility to submit annual compliance certification report for Boiler (B001). Condition 7.19 requires the facility to submit biennial compliance certification report for the Process Heater (H001).

Conditions 7.20 through 7.24 incorporate the recordkeeping requirements of 40 CFR 63 Subpart EEEE for the Toluene Storage Tank (ST01). Condition 7.20 requires the facility to prepare a design evaluation (or engineering assessment) for Toluene Storage Tank (Source Code ST01) that demonstrates that requirements in Condition 2.8 are being met. Condition 7.21 requires the facility to submit semiannual compliance reports for the Toluene Storage Tank (Source Code ST01) as specified. Condition 7.22 requires the facility submit a Notification of Compliance Status (NOCS) for Toluene Storage Tank (ST01) within 240 days of startup as specified. Condition 7.23 specifies the information that must be included in the NOCS required in Condition 7.22 or the First Compliance Report required in Condition 7.21a, whichever occurs first. Condition 7.24 specifies the events that require reporting since the last reporting of a compliance report.

Condition 8.3 requires the facility to submit a Title V application within 12 months from the date of initial startup of the facility.

Condition 8.4 voids this permit if commencement of construction does not begin within 18 months from the issuance of the permit.

Toxic Impact Assessment

A Toxic Impact Assessment (TIA) was conducted by both RTS and EPD using the SCREEN3 model. Toluene was modeled at the potential to emit rate of 65.34 lb/hr (286 tpy) and was estimated to emit at rates that do not exceed acceptable ambient concentrations. See attached spreadsheet for all results.

Summary & Recommendations

In summary, it is recommended that Air Quality Permit No. 3999-035-0015-E-01-0 be issued to Recovery Technology Solutions located on 325 Alabama Boulevard, Jackson, Georgia (Butts County). A Public Advisory was issued and expired on February 8, 2013. No comments were received. The facility is a PSD minor source but is a Title V major source due to its VOC/HAP/Toluene emissions. Therefore, RTS will be required to submit a Title V Major Source Operating Permit Application within one year after startup of the facility.