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December 21, 2012

Mr. Eric Cornwell
Air Protection Branch
Georgia Environmental Protection Division
4244 International Parkway, Suite 120
Atlanta, Georgia 30354

Subject: **SIP Air Permit Application**
Recovery Technology Solutions, LLC
325 Alabama Boulevard, Jackson, GA 30233

Dear Mr. Cornwell:

The enclosed air permit application is being submitted on behalf of Recovery Technology Solutions, LLC (RTS) for the proposed construction and operation of an oil-based roofing material recycling facility to be constructed in Jackson, Butts County, Georgia.

With this permit application, RTS requests a PSD avoidance limit of 249 tons per year for VOC. The potential emissions for all other PSD regulated pollutants are below the PSD major source threshold for each pollutant. The potential emissions of the highest individual HAP (toluene) and Total HAPs are above the 10/25 tpy HAP major source thresholds; therefore, the proposed facility is considered a major source of HAP. The potential emissions of GHG pollutants (calculated as CO_2 equivalent) will be less than the 100,000 ton per year major source threshold.

Please call me if you have any questions or require additional information.

Sincerely,

Tri Medlock
Associate

Enclosure: SIP Permit Application (2 Copies)

cc: Tom Branhan, Recovery Technology Solutions, LLC

Prepared for:

RECOVERY TECHNOLOGY SOLUTIONS, LLC
325 Alabama Boulevard
Jackson, GA 30233

SIP AIR PERMIT APPLICATION
Recovery Technology Solutions
Oil-based Roofing Material Recycling Facility
Jackson, Georgia

Prepared by:

1050 Crown Pointe Parkway, Suite 550
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December 2012

SIP AIR PERMIT APPLICATION
RECOVERY TECHNOLOGY SOLUTIONS
OIL-BASED ROOFING MATERIAL RECYCLING FACILITY
325 Alabama Boulevard
Jackson, GA 30233

Prepared for:

RECOVERY TECHNOLOGY SOLUTIONS, LLC
325 Alabama Boulevard
Jackson, GA 30233

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December 2012

EPS

SIP AIR PERMIT APPLICATION
RECOVERY TECHNOLOGY SOLUTIONS
OIL-BASED ROOFING MATERIAL RECYCLING FACILITY
325 Alabama Boulevard
Jackson, GA 30233

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APPENDICES

1 INTRODUCTION

Recovery Technology Solutions, LLC (RTS) proposes to construct and operate an oil-based roofing material recycling facility in Jackson, Butts County, Georgia. The facility is proposed to be permitted as a minor source with respect to Prevention of Significant Deterioration (PSD) pollutants, and a major source of hazardous air pollutants (HAPs). The primary HAP to be emitted from the facility is toluene. This application submittal provides a description of the project equipment, air pollution control devices, air emissions, applicable regulations, and compliance demonstration methods. Additionally, since the proposed facility is a new major source of HAPs and there is no applicable promulgated Maximum Achievable Control Technology (MACT), a Case-by-Case MACT (for the facility's extraction and separation process sources) is provided in Appendix D.

1.1 Submittal Organization

This submittal is organized into six (6) sections with additional appendices. The six main sections and appendices are as follows:

Section 1.0 (Introduction) identifies the contact personnel, a summary of the permit application organization, and a general description of the proposed facility.

Section 2.0 (Facility Description) provides background information on oil-based roofing material recycling process and equipment.

Section 3.0 (Emissions Estimates) contains emissions summary information.

Section 4.0 (Regulatory Analysis) presents a detailed regulatory review for the project.

Section 5.0 (Testing and Monitoring) presents the proposed testing & monitoring for the project.

Section 6.0 (Exempt Equipment) provides the list of equipment that are exempt from permitting.

Appendix A (SIP Application Forms) contains the required permit application forms and supporting figures.

Appendix B (Supporting Data and Calculations) contains the emission calculations supporting the permit application.

Appendix C (Toxic Impact Assessment) contains the air toxics impact assessment (i.e., dispersion modeling report).

Appendix D (Case-by-Case MACT) contains the Case-by-Case MACT for the facility extraction and separation process sources.

Appendix E (Emissions References) contains the references used to estimate emissions.

1.2 Application Contacts

The contact persons for additional information regarding this submittal are Mr. Tom Branhan of Recovery Technology Solutions, LLC and Ms. Tri Medlock of EPS who is the air quality permitting consultant for this project. Mr. Branhan may be reached at (612) 294-2312, and Ms. Medlock may be reached at (404) 315-9113.

1.3 Facility Location

The facility is proposed to be located in Jackson, Georgia. The proposed location is provided in Figure 1 below.

Figure 1
Proposed Facility Location

2 FACILITY DESCRIPTION

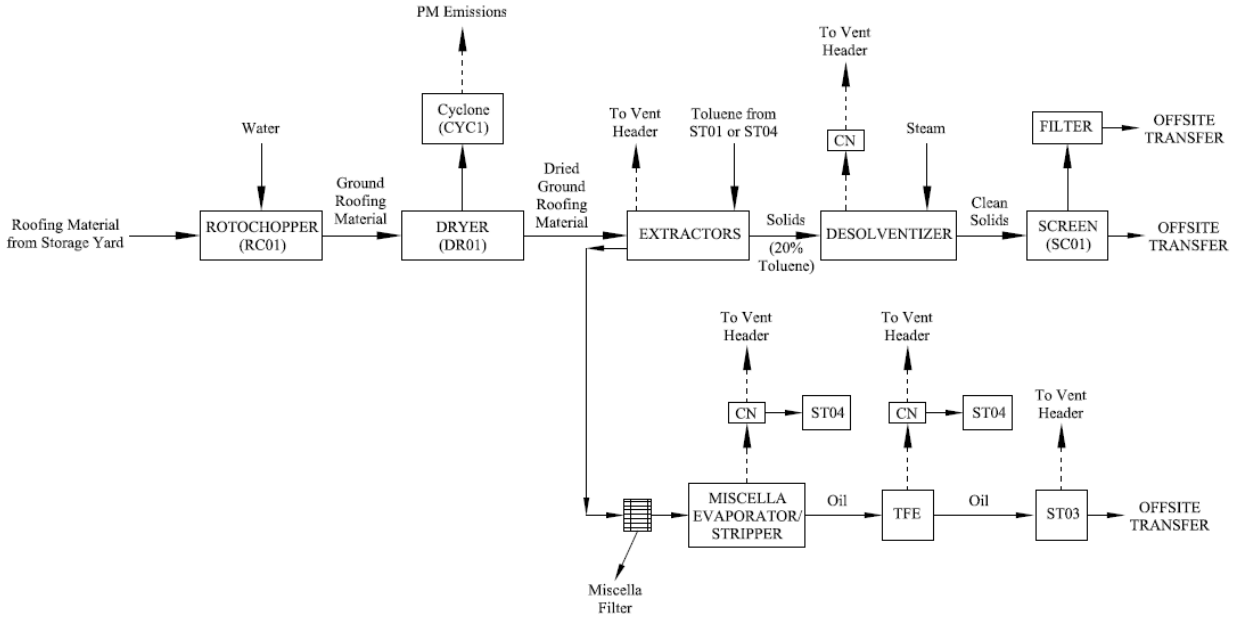
With this permit application, RTS proposes to construct and operate an oil-based roofing material recycling facility in Jackson, Georgia (Butts County). The proposed facility is designed to process up to 250 tons per day of oil-based roofing materials including asphalt shingles and various oil-based flat-roof materials.

The 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 (C&D) waste being sent to landfills.

2.1 Process Description

A simplified process flow diagram for the facility is provided in Figure 2 below.

Figure 2
Extraction and Separation Process Flow Diagram



2.1.1 Raw Material Receiving and Handling

Raw materials (oil-based roofing materials) will be delivered to the facility by truck. It is anticipated that oil-based roofing materials delivered to the facility will be pre-sorted to remove flashing, wood, other contaminants encountered in tear-off shingle streams, and any roofing materials containing asbestos. Any excess roofing material waste is then separated by hand and deposited into waste bins. Once the waste material has been removed, the raw material will be transported to a storage yard (approximately one acre) 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, particulate matter (PM) emissions from raw material receiving and handling are considered negligible.

2.1.2 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 high moisture content of the material, PM emissions from raw material grinding and storage are considered negligible.

2.1.3 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 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 $PM_{10}/PM_{2.5}$. 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.

2.1.4 Extraction and Separation Processes

From dryer DR01, the dried roofing materials will be conveyed into two extractors. Toluene from 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 counter-current 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.

2.1.4.1 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 the storage tanks ST03 and oil loadout operations will be routed back to the vent header, and any collected toluene will be reused in the extraction process.

2.1.4.2 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.

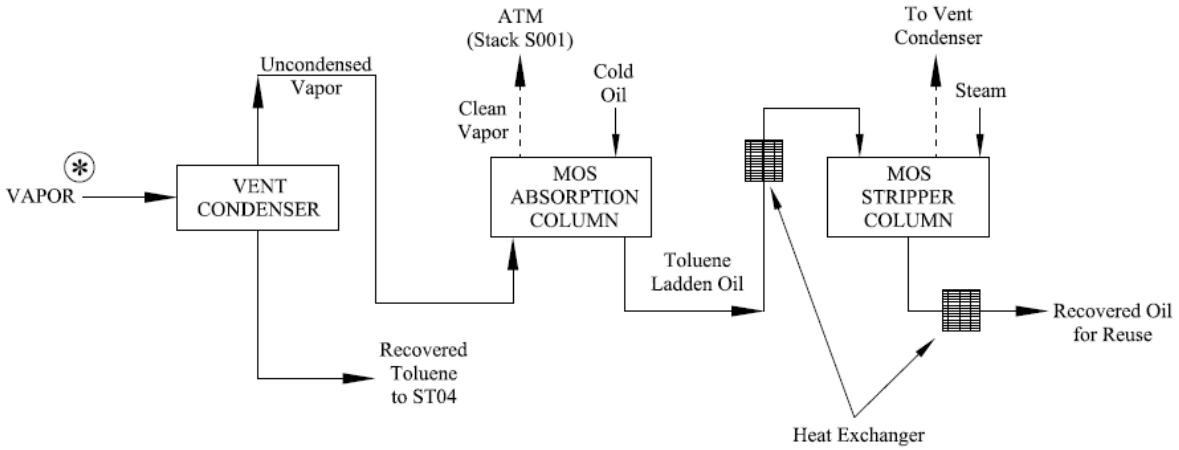
2.1.5 Solid Screening Process and Solid Products Loadout

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.

2.1.6 Vent Header/Solvent Recovery System

A simplified process flow diagram for the solvent recovery system is provided in Figure 3 below.

Figure 3
Solvent Recovery Process Flow Diagram



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 gasses 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.

2.2 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 diesel emergency fire pump at 500 HP.
- A cooling tower at 34 gpm capacity.
- Propane storage tank (1,000 gallon).
- Mineral oil drum (55 gallon).

3 EMISSIONS ESTIMATES

For the purposes of this application, the pollutants of concern were restricted to regulated pollutants under the 1990 Clean Air Act Amendments. These pollutants include NO_x, SO_2, PM, CO, volatile organic compound (VOC), HAP, and Toluene. Greenhouse gas (GHG) emissions are also estimated. HAP (toluene) emissions will be discussed in detail in the Case-by-Case MACT Analysis (Appendix D).

NO_x, SO_2, CO, and CO_2 are emitted as products of combustion from the fuel burning equipment at the facility. PM, PM_{10}, and $PM_{2.5}$ are also emitted from the fuel burning equipment, however, the majority of $PM/PM_{10}/PM_{2.5}$ 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).

3.1 Emissions Summary

The facility-wide predicted actual and potential emissions are presented in Table 3.1. Calculations supporting the emission estimates presented in this permit application are provided in Appendix B.

Table 3.1
Facility Wide Emissions Summary

Pollutant	Potential to Emit (tpy)	Predicted Actual Emissions (tpy)	HAP Major Source Threshold (tpy)	PSD Major Source Threshold (tpy)
PM*	91.6	3.6	---	250
PM_{10}	92.1	7.3	---	250
$PM_{2.5}$	92.1	7.3	---	250
NO_x	15.8	15.8	---	250
SO_2	0.3	0.3	---	250
CO	9.5	9.5	---	250
VOC	249**	75.5	---	250
CO_2e***	14,516.1	14,516.1	---	100,000
Toluene (highest single HAP)	249****	74.3	10	---
Total HAPs	249****	74.5	25	---

*PM only includes filterable PM for PDS and NSR purposes in accordance with EPA FR Notice "*Implementation of the New Source Review (NSR) Program for Particulate Matter Less Than 2.5 Micrometers (PM2.5): Amendment to the Definition of ''Regulated NSR Pollutant'' Concerning Condensable Particulate Matter*", 77FR65107, dated 10/25/2012[1]
**Requested PSD Minor Limit
***Greenhouse Gases measured as Carbon Dioxide equivalent, CO_2e
****Toluene is a VOC, therefore, set toluene potential to emit (PTE) equal to VOC PTE

As shown in Table 3.1 above, the potential emissions for PM, PM_{10}, $PM_{2.5}$, NO_x, SO_2, and CO are below the PSD major source threshold of 249 tons per year for each pollutant. The potential emissions for VOC are set equal to a PSD avoidance limit of 249 tons per year. Additionally, the potential emissions for CO_2e are also below the PSD major source threshold of 100,000 tons per year. The potential emissions of the highest individual HAP (toluene) and Total HAP are above the 10/25 tpy HAP major source thresholds. Therefore, the proposed facility is considered a major source of HAP.

3.2 Toluene Emissions

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

[1] http://www.gpo.gov/fdsys/pkg/FR-2012-10-25/pdf/2012-25978.pdf

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 (see Appendix E – Emissions References for details). As shown in Appendix B, 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. As shown in Table 3.1 above, 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.

The toluene predicted actual air emissions of GP01 are shown in Table 3.2.

Table 3.2
GP01 Predicted Actual Toluene Emissions Summary

GP01	**Toluene Predicted Actual Emissions (tpy)**	**VOC Predicted Actual Emissions (tpy)**
A1. Steady - State Air Emissions	15.1	Same as toluene
A2. Steady - State Fugitives	39.4	Same as toluene
B5. Other System Losses - Process Equipment Cleaning	19.8	Same as toluene
TOTAL	**74.3**	Same as toluene

4 REGULATORY ANALYSIS

Requirements for control of air pollution in Georgia are contained in Georgia's Rules for Air Quality Control, Chapter 391-3-1. Subparts of the Code that are potentially applicable to the proposed project are discussed below.

4.1 Prevention of Significant Deterioration of Air Quality [391-3-1-.02(7)]

4.1.1 Non-GHG Emissions

RTS is not categorized in one of the 28 listed source categories in 40 CFR 52.21(b)(1)(i)(a) including "Chemical Process Plants (SIC 28XX)[2]". The proposed facility will operate under SIC code 3999 – *Manufacturing Industries, Not Elsewhere Classified* and NAICS code 339999 – *All Other Miscellaneous Manufacturing*. Therefore, the PSD major source threshold is 250 tons per year for regulated non-GHG pollutants. As shown in Table 3.1 above, the potential emissions for PM, PM_{10}, $PM_{2.5}$, NO_x, SO_2, and CO are below the PSD major source threshold of 249 tons per year for each pollutant. Additionally, as shown in Appendix B, RTS is also a "true minor" source of the other PSD pollutants (e.g., lead, beryllium, mercury, hydrogen sulfide, total reduced sulfur compounds) because its potential emissions for these PSD pollutants are less than the respective PSD major source thresholds for each pollutant. The potential emissions for VOC are set equal to a PSD avoidance limit of 249 tons per year.

4.1.2 GHG Emissions

GHG pollutants will be emitted from the following sources:

- Boiler (Source Code B001). The boiler will burn natural gas as main fuel and propane as back up. As shown in Appendix B, the potential emissions from the boiler are estimated to be 11,970 tons/yr CO_2e.
- Process heater (Source Code H001). The process heater will burn natural gas as main fuel and propane as back up. As shown in Appendix B, the potential emissions from the process heater are estimated to be 2,403 tons/yr CO_2e.

[2] http://www.epa.gov/NSR/fr/20070501_24060.pdf

- Emergency fire pump (Source Code FP1). The emergency fire pump may be operated for up 100 hours per year for testing and maintenance purposes. The emissions from the testing and maintenance and emergency use of the fire pump (up to 500 hr/yr total) are estimated to be 144 tons/yr CO_2e.

The total combined CO_2e emissions from the sources listed above are 14,516 tons/yr, which is less than the major source threshold of 100,000 tons/yr. Therefore, the facility is considered a true minor source of PSD (GHG emissions).

4.2 New Source Performance Standards [391-3-1-.02(8)]

4.2.1 NSPS for Small Industrial-Commercial-Institutional Steam Generating Units [40 CFR Part 60 Subpart Dc]

Boiler B001 has a heat input capacity of greater than 10 MMBtu/hr and less than or equal to 100 MMBtu/hr and will be constructed, modified, or reconstructed after June 9, 1989. Therefore, it is subject to NSPS Dc. Boiler B001 burns natural gas as primary fuel and propane as backup. In accordance with 40 CFR 60.41c, propane falls under the definition of "natural gas". Therefore, the following requirements will apply:

- Submit a notification of actual startup within 15 days after startup. Please note that the boiler will be pre-packaged (i.e.: 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)].

Note that an opacity limit does not apply because the boiler is less than 30 MMBtu/hr and does not burn fuel oil. Additionally, process heater H001 is not subject to NSPS Dc because of its size (4 MMBtu/hr).

4.2.2 NSPS for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) [40 CFR Part 60 Subpart Kb]

This subpart applies to volatile organic liquid storage vessel with a capacity greater than or equal to 75 m^3 for which construction, reconstruction, or modification is commenced after July 23, 1984. None of the storage tank at the facility is subject to this subpart for the following reasons:

- Toluene storage tank (Source Code ST01) is exempt due to its capacity (20,000 gallons, 75.7 m^3) and the material stored (toluene, 3.8 kPa maximum true vapor pressure). In accordance with 60.110b (b):

(b) This subpart does not apply to storage vessels with a capacity greater than or equal to 151 m^3 storing a liquid with a maximum true vapor pressure less than 3.5 kilopascals (kPa) or with a capacity greater than or equal to 75 m^3 but less than 151 m^3 storing a liquid with a maximum true vapor pressure less than 15.0 kPa.

- Solvent work tank (ST04) is exempt due to its capacity (2,100 gallons, 7.9 m^3).
- Asphalt oil storage tanks (Source Code ST03) are exempt in accordance with 60.110b (b). Note that asphalt oil has a maximum true vapor pressure of 0.4 kPa.

4.2.3 NSPS for Stationary Compression Ignition Internal Combustion Engines [40 CFR Part 60 Subpart IIII]

The NSPS for Stationary Compression Ignition (CI) Internal Combustion Engines (ICE) (40 CFR Part 60 Subpart IIII) applies to owners and operators of CI ICES that are manufactured as a certified National Fire Protection Association (NFPA) fire pump engine after July 1, 2006. This rule is applicable to RTS because a 500 HP fire pump (Source Code FP1) will be installed at the facility.

Compliance will be achieved by purchasing a certified engine which meet the applicable emissions limits specified in 40 CFR §60.4205(b). A non-resettable hour meter will be installed, and non-emergency operation for maintenance and readiness testing of the engine will be limited to 100 hours per year (per §60.4209(a) and §60.4211(e)). Furthermore, RTS will maintain records of engine operation while in service (per §60.4214(b)), and operate and maintain the engine according to the engine manufacturer's written instructions, or using facility-written procedures that are approved by the engine manufacturer (per §60.4206 and §60.4211(a)).

Additionally, diesel burned in the fire pump must meet the ultra-low sulfur diesel requirements (i.e.: containing 15 ppm sulfur or less), and minimum cetane index of 40 or maximum aromatic content of 35 volume percent in accordance with §60.4207(b).

4.2.4 NSPS for Calciners and Dryers in Mineral Industries [40 CFR Part 60 Subpart UUU]

This subpart is applicable to mineral industries, 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 percent) 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 plant" and is therefore exempt from this subpart.

4.3 National Emission Standards for Hazardous Air Pollutants (NESHAP) [40 CFR Parts 61 and 63; 391-3-1-.02(9)]

The proposed facility will be a major source of HAP because the potential toluene and total HAP emissions are estimated to be 286.2 tons/year and 286.4 tons/year respectively.

4.3.1 NESHAP for Organic Liquids Distribution (Non-Gasoline) [40 CFR Part 63 Subpart EEEE]

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 subpart EEEE because it meets the definition of "Organics Liquids Distribution (OLD) Operation" under §63.2406 and stores "organic liquid" as defined in §63.2406. Subpart EEEE contains requirements for the following:

4.3.1.1 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.

4.3.1.2 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 apply. Note that the transfer rack will comply with the notification, recordkeeping, and reporting requirements under §63.2343(a).

4.3.1.3 Equipment Leak Components

As required by 63.246 (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 3 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".

4.3.2 NESHAP for Industrial, Commmercial, and Institutional Boilers [40 CFR Part 63 Subpart DDDDD]

Because RTS is a major source of HAP emissions, boiler B001 will be subject to NESHAP DDDDD ("Boiler MACT"). Boiler B001 will be considered a new source, since construction will commence after June 4, 2010. The following requirements[3] will apply:

- Annual tune-ups are required, since the boilers are in the natural gas subcategory and each 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):

  (i) As applicable, inspect the burner, and clean or replace any components of the burner as necessary (you may delay the burner inspection until the next scheduled unit shutdown, but you must inspect each burner at least once every 36 months);

  (ii) Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available;

  (iii) Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly;

  (iv) Optimize total emissions of carbon monoxide. This optimization should be consistent with the manufacturer's specifications, if available;

  (v) Measure the concentrations in the effluent stream of carbon monoxide in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made); and

  (vi) Maintain on-site and submit, if requested by the Administrator, an annual report containing the information in paragraphs (a)(10)(vi)(A) through (C):

    (A) The concentrations of carbon monoxide in the effluent stream in parts per million by volume, and oxygen in volume percent, measured before and after the adjustments of the boiler;

[3] On January, 9, 2012, the D.C. Circuit Court of Appeals rejected the May 16, 2011 EPA stay of the effective date of the Boiler MACT and CISWI NSPS final rules published on March 21, 2011.

(B) A description of any corrective actions taken as a part of the combustion adjustment; and

(C) The type and amount of fuel used over the 12 months prior to the annual adjustment, but only if the unit was physically and legally capable of using more than one type of fuel during that period. Units sharing a fuel meter may estimate the fuel use by each unit.

- 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 tune-up [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)], including the following information:

  (1) Company name and address.

  (2) Identification of the affected unit.

  (3) Type of alternative fuel that the facility intends to use.

  (5) Dates when the alternative fuel use is expected to begin and end.

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* 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 boilers, however, the tune-up is only required biennially (instead of annually) [40 CFR 63.7540(a)(11)].

4.3.3 NESHAP for Reciprocating Internal Combustion Engine (RICE) [40 CFR Part 63 Subpart ZZZZ]

The RICE NESHAP applies to fire pump FP1; however, the only applicable requirement is to meet any applicable provisions of NSPS IIII (40 CFR 63.6590(c)). No further requirements, including the initial notification and other NESHAP provisions, apply to the fire pump engine under this rule. See section 4.2.3 for discussion on the NSPS IIII requirements.

4.4 Title V Operating Permits [391-3-1-.03(10) and 40 CFR Part 70]

The proposed facility is a major source of HAP and the potential emissions of VOC are greater than the Title V major source threshold of 100 tons per year. As required by 40 CFR Part 70, RTS will submit a Title V permit application within one year of startup of the facility.

4.5 Acid Rain Program [40 CFR 72]

The Acid Rain Program (40 CFR 72) will not apply to the RTS facility, because the boiler's name plate capacity is 25 MWe or less [40 CFR 72.7(a)(1)].

4.6 Fuel Burning Equipment [391-3-1-.02(2)(d)]

The following limits will apply to the boiler:

- PM: 0.35 lb/MMBtu (calculated using equation in 391-3-1-.02(2)(d)2(ii))
- Opacity: 20%, except for one 6-minute period per hour of no more than 27% opacity

4.7 Sulfur Dioxide [391-3-1-.02(2)(g)]

The following limit will apply to all fuel burning equipment at the facility:

- Fuel sulfur content of no more than 2.5% by weight.
- Boiler B001 and process heater H001 burn natural gas as main fuel and propane as backup. Both natural gas and propane inherently have sulfur content of less than 2.5% by weight, therefore compliance with the fuel sulfur content limit is met for these emission units.

Fire pump FP1 burns diesel and is subject to NSPS IIII (see Section 4.2.3). The sulfur content requirement of Rule (g) is subsumed by the NSPS IIII limit of 15 ppm.

4.8 Fugitive Dust [391-3-1-.02(2)(n)]

RTS will be required to take all reasonable precautions to prevent fugitive dust from becoming airborne and to maintain visible emissions from fugitive dust below 20% opacity.

4.9 NOx [391-3-1-.02(2)(III)]

The proposed facility will be located in Butts county. The following limit will apply to Boiler B001 during the period from May 1 to September 30 of each year:

- 30 ppm NOx at 3% O2 on a dry basis.

The boiler to be installed is guaranteed to meet 30 ppm NOx at 3% O2 while burning natural gas. Only natural gas will be burned during the period from May 1 through September 30 of each year.

Pursuant to Georgia Air Protection Branch's Procedures for Testing and Monitoring (PTM) Section 2.119, the following compliance demonstration methods are required:

- Conduct a tune-up and NOx measurement between March 1 and May 1 of each calendar year to demonstrate that emissions are below 30 ppm at 3% O2. If the initial startup occurs during the period from May 1 to September 30, perform the tune-up and NOx measurement within the first 120 hours of operation.
- Perform the tune-up using manufacturer recommended settings for reduced NOx emissions or by using a NOx analyzer. Adjustments shall be made, as needed, so that NOx emissions are reduced in a manner consistent with good combustion practices and safe fuel-burning equipment operation.
- After the tune-up, conduct three NOx test runs of at least 30 minutes each in duration. If the average rate exceeds 30 ppm NOx at 3% O2, a repeat test must be conducted prior to May 1, or daily if the tune-up occurs between May 1 and September 30, until a compliant measurement is observed.
- Following the tune-up, from the period May 1 through September 30 of each year, the boiler must be operated using the settings determined during the annual tune-up. If no parameters can be monitored to indicate the performance of the boiler, the facility must certify in writing by October 15 of each year that no adjustments have been made to the since the NOx measurement was conducted.
- As an alternative to annual tune-ups and NOx measurements, if the boiler performs with a measured NOx concentration of less than or equal to 15 ppm at 3% O2, then the NOx measurement frequency may be reduced to 48 calendar month intervals (i.e., once every four years).

4.10 Other Non-Applicable Regulations

The following VOC Control regulations were reviewed for potential applicability - and, determined to be non-applicable to the proposed facility - because even though the proposed facility is located outside the 13 non-attainment counties[4], the PTE is greater than 100 tpy of VOC, and 391-3-1-.02(2)(a)6(i)(I) does not provide a direct exemption from these rules:

4.10.1 Rule 391-3-1-.02(2)(bb) Petroleum Liquid Storage

Rule (bb) does not apply because there is no petroleum liquid storage at the proposed facility.

4.10.2 Rule 391-3-1-.02(2)(dd) Cutback Asphalt

Rule (dd) does not apply because the proposed facility does not use paving asphalt.

4.10.3 Rule 391-3-1-.02(2)(ee) Petroleum Refinery

Rule (ee) does not apply because the proposed facility is not a petroleum refinery as defined in 391-3-1-.02(2)(ee)(4)(vi).

4.10.4 Rule 391-3-1-.02(2)(nn) VOC Emissions from External Floating Roof Tanks

Rule (nn) does not apply because there are no external floating roof tanks at the proposed facility.

4.10.5 Rule 391-3-1-.02(2)(tt) VOC Emissions from Major Sources

Rule (tt) does not apply because the proposed facility is not located in one of the 20 subject counties[5].

4.10.6 Rule 391-3-1-.02(2)(vv) Volatile Organic Liquid Handling and Storage

Rule (vv) does not apply because the proposed facility is not subject to other VOC requirements under 391-3-1-.02.

[4] Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Henry, Paulding, and Rockdale counties.

[5] Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Henry, Paulding, Rockdale, Barrow, Bartow, Carroll, Hall, Newton, Spalding, and Walton counties.

4.11 Toxic Impact Assessment

A toxic impact assessment was performed for the facility. Based on the results of the SCREEN3 model, the concentration of toluene emitted from the facility will be below the Georgia Acceptable Ambient Concentrations (AACs). The results of this assessment are provided in Appendix C.

5 TESTING AND MONITORING

To demonstrate compliance with the proposed emissions limits and applicable regulations, the following testing and monitoring are proposed.

5.1 Testing

No testing is proposed with this permit application.

5.2 Monitoring

Table 5.2 provides a summary of the proposed monitoring.

Table 5.2
Proposed Monitoring

Pollutant	Parameter	Frequency	Averaging Period	Requirement / Regulation
Extraction, Separation, and Solvent Recovery Process GP01 Subject to Case-by-Case MACT				
Toluene	LDAR (Visual leak inspection and Instrument Monitoring)	TBD	TBD	Voluntary
Toluene	Solvent Loss Rate (calculated as specified in Case-by-Case MACT Analysis)	Monthly	12-Month	Case-by-Case MACT (see Appendix D)
Boiler B1				
N/A	Fuel Usage	Monthly	N/A	NSPS Dc
Fire Pump FP1				
N/A	Operating Hours	Monthly	N/A	NSPS IIII
SO_2	Fuel Sulfur Content	Each Shipment	N/A	GA Rule (g), NSPS IIII
Facility Wide				
VOC	Toluene Emissions	Monthly	12-Month	PSD Avoidance

6 EXEMPT EQUIPMENT

The following equipment are exempt from permitting:

- Fire pump (500 hp) (exempt per 391-3-1-.03(6)(b)(13)).
- A cooling tower at 34 gpm capacity [exempt per 391-3-1-.03(6)(e)(18)]
- Propane storage tank (exempt per 391-3-1-.03(6)(c)(4));
- Mineral oil 55-gal drum (exempt per 391-3-1-.03(6)(c)(6)).

APPENDIX A
SIP APPLICATION FORMS

State of Georgia
Department of Natural Resources
Environmental Protection Division
Air Protection Branch

Stationary Source Permitting Program
4244 International Parkway, Suite 120
Atlanta, Georgia 30354
404/363-7000
Fax: 404/363-7100

SIP AIR PERMIT APPLICATION

EPD Use Only

Date Received: _____ Application No. _____

FORM 1.00: GENERAL INFORMATION

1. Facility Information

Facility Name: Recovery Technology Solutions, LLC

AIRS No. (if known): 04-13- -

Facility Location: Street: 325 Alabama Boulevard

City: Jackson Georgia Zip: 30233 County: Butts

2. Facility Coordinates

Latitude: 33° 17' 1.2881" **NORTH** Longitude: -83° 57' 14.6382" **WEST**

UTM Coordinates: _____ **EAST** _____ **NORTH** **ZONE** _____

3. Facility Owner

Name of Owner: Recovery Technology Solutions, LLC

Owner Address Street: 7700 Equitable Drive, Suite 205

City: Eden Prairie State: MN Zip: 55344

4. Permitting Contact and Mailing Address

Contact Person: Tom Branhan Title: Chief Executive Officer

Telephone No.: 952-746-4184 Ext. _____ Fax No.: _____

Email Address: tom.branhan@recoveryts.com

Mailing Address: Same as: Facility Location: ☐ Owner Address: ☒ Other: ☐

If Other: Street Address: _____

City: _____ State: _____ Zip: _____

5. Authorized Official

Name: Tom Branhan Title: Chief Executive Officer

Address of Official Street: 7700 Equitable Drive, Suite 205

City: Eden Prairie State: MN Zip: 55344

This application is submitted in accordance with the provisions of the Georgia Rules for Air Quality Control and, to the best of my knowledge, is complete and correct.

Signature: Tom Branhan Date: 12-20-12

6. Reason for Application: (Check all that apply)

☒ New Facility (to be constructed)

☐ Existing Facility (initial or modification application)

☐ Permit to Construct

☐ Permit to Operate

☐ Change of Location

☐ Permit to Modify Existing Equipment: Affected Permit No.: _____

☐ Revision of Data Submitted in an Earlier Application

Application No.: _____

Date of Original Submittal: _____

7. Permitting Exemption Activities (for permitted facilities only):

Have any exempt modifications based on emission level per Georgia Rule 391-3-1-.03(6)(i)(3) been performed at the facility that have not been previously incorporated in a permit?

☒ **No** ☐ **Yes, please fill out the SIP Exemption Attachment** (See Instructions for the attachment download)

8. Has assistance been provided to you for any part of this application?

☐ **No** ☐ **Yes, SBAP** ☒ **Yes, a consultant has been employed or will be employed.**

If yes, please provide the following information:

Name of Consulting Company: Environmental Planning Specialists, Inc.

Name of Contact: Tri Medlock

Telephone No.: 404-315-9113 Fax No.: 404-315-8509

Email Address: tmedlock@envplanning.com

Mailing Address: Street: 1050 Crown Pointe Parkway, Suite 550

City: Atlanta State: GA Zip: 30338

Describe the Consultant's Involvement:

Application preparation

9. Submitted Application Forms: Select only the necessary forms for the facility application that will be submitted.

No. of Forms	Form
1	2.00 Emission Unit List
1	2.01 Boilers and Fuel Burning Equipment
1	2.02 Storage Tank Physical Data
0	2.03 Printing Operations
0	2.04 Surface Coating Operations
0	2.05 Waste Incinerators (solid/liquid waste destruction)
1	2.06 Manufacturing and Operational Data
1	3.00 Air Pollution Control Devices (APCD)
0	3.01 Scrubbers
0	3.02 Baghouses & Other Filter Collectors
0	3.03 Electrostatic Precipitators
1	4.00 Emissions Data
1	5.00 Monitoring Information
0	6.00 Fugitive Emission Sources
1	7.00 Air Modeling Information

10. Construction or Modification Date

Estimated Start Date: 4Q 2014

11. If confidential information is being submitted in this application, were the guidelines followed in the "Procedures for Requesting that Submitted Information be treated as Confidential"?

☐ No ☐ Yes

12. New Facility Emissions Summary

Criteria Pollutant	New Facility	
	Potential (tpy)	Actual (tpy)
Carbon monoxide (CO)	9.5	9.5
Nitrogen oxides (NOx)	15.8	15.8
Particulate Matter (PM)	91.6	3.6
PM <10 microns (PM10)	92.1	7.3
PM <2.5 microns (PM2.5)	92.1	7.3
Sulfur dioxide (SO_2)	0.3	0.3
Volatile Organic Compounds (VOC)	287.4	75.5
Total Hazardous Air Pollutants (HAPs)	286.4	74.5
Toluene (highest individual HAP)	286.4	74.3
See Appendix B for detail calculations		

13. Existing Facility Emissions Summary

Criteria Pollutant	Current Facility		After Modification	
	Potential (tpy)	Actual (tpy)	Potential (tpy)	Actual (tpy)
Carbon monoxide (CO)				
Nitrogen oxides (NOx)				
Particulate Matter (PM)				
PM <10 microns (PM10)				
PM <2.5 microns (PM2.5)				
Sulfur dioxide (SO_2)				
Volatile Organic Compounds (VOC)				
Total Hazardous Air Pollutants (HAPs)				
Individual HAPs Listed Below:				

14. 4-Digit Facility Identification Code:

SIC Code:	3999	SIC Description:	Manufacturing Industries, Not Elsewhere Classified
NAICS Code:	339999	NAICS Description:	All Other Miscellaneous Manufacturing

15. Description of general production process and operation for which a permit is being requested. If necessary, attach additional sheets to give an adequate description. Include layout drawings, as necessary, to describe each process. References should be made to source codes used in the application.

Recovery Technology Solutions, LLC (RTS) proposes to construct and operate an oil-based roofing material recycling facility in Jackson, Butts County, Georgia. The facility is proposed to be permitted as a Minor source with respect to Prevention of Significant Deterioration (PSD) pollutants, and a Major source of hazardous air pollutants (HAPs). The primary HAP to be emitted from the facility is toluene. This application submittal provides a description of the project equipment, air pollution control devices, air emissions, applicable regulations, and compliance demonstration methods. Additionally, since the proposed facility is a new major source of HAPs and there is no applicable promulgated MACT, a Case-by-Case MACT (for the facility's extraction and separation process sources) is provided in Appendix D.

16. Additional information provided in attachments as listed below:

Attachment A - Figures
Attachment B - Emissions Calculations
Attachment C - Toxic Impact Assessment
Attachment D - Case-by-Case MACT Analysis
Attachment E - Emissions References
Attachment F -

17. Additional Information: Unless previously submitted, include the following two items:

☒ Plot plan/map of facility location or date of previous submittal:

☒ Flow Diagram or date of previous submittal:

Facility Name: Recovery Technology Solutions, LLC **Date of Application:** December 2012

FORM 2.00 – EMISSION UNIT LIST

Emission Unit ID	Name	Manufacturer and Model Number	Description
GP01	Oil Extraction, Separation, and Solvent Recovery Process Equipment	Various	Includes extractors, desolventizer, oil distillation system (evaporator, stripper), Thin Film Evaporator (TFE), Vent condensers, and mineral oil scrubber (MOS) system.
DR01	Dryer	Roskamp, HDHC Series	Ground roofing material dryer
RC01	Rotochopper	Rotochopper	Roofing material rotochopper (electric powered, 40 tph capacity)
SC01	Solid Screening Equipment	Rotex, Apex Series	Solid screening equipment (includes a fabric filter)
ST01	Toluene Storage Tank	To be determined	Toluene storage tank (20,000 gallons)
ST03	Asphalt Oil Storage Tanks	To be determined	Asphalt oil storage tanks (4 totals at 40,000 gallons each)
ST04	Solvent Work Tank	To be determined	Solvent work tank (2,100 gallons)
B001	Boiler 1	To be determined	20.1 MMBtu/hr natural gas boiler (with propane as backup)
H001	Process Heater 1	To be determined	4 MMBtu/hr natural gas process heater used to heat asphalt oil storage tank (with propane as backup)
FP1	Fire Pump 1	To be determined	500 HP fire pump (diesel) (Exempt per GA Rule 391-3-1-.03(6)(b)(13)).
CT1	Cooling Tower	To be determined	34 gpm capacity cooling tower (Exempt per GA Rule 391-3-1-.03(6)(e)(18))
PS1	Propane Storage Tank	To be determined	Propane storage tank (Exempt per GA Rule 391-3-1-.03(6)(c)(4))

Facility Name: Recovery Technology Solutions, LLC **Date of Application:** December 2012

FORM 2.01 – BOILERS AND FUEL BURNING EQUIPMENT

Emission Unit ID	Type of Burner	Type of Draft[1]	Design Capacity of Unit (MMBtu/hr Input)	Percent Excess Air	Dates		Date & Description of Last Modification
					Construction	Installation	
B001	Boiler 1	N/A	20.1	TBD	2013	2014	NA
H001	Process Heater 1	N/A	4.0	TBD	2013	2014	NA

[1] This column does not have to be completed for natural gas only fired equipment.

Facility Name: Recovery Technology Solutions, LLC **Date of Application:** December 2012

FUEL DATA

Emission Unit ID	Fuel Type	Potential Annual Consumption				Hourly Consumption		Heat Content		Percent Sulfur		Percent Ash in Solid Fuel	
		Total Quantity		Percent Use by Season									
		Amount	Units	Ozone Season May 1 - Sept 30	Non-ozone Season Oct 1 - Apr 30	Max.	Avg.	Min.	Avg.	Max.	Avg.	Max.	Avg.
B001	Natural Gas (main fuel)	172.5	MMscf	40	60	19,693 scf/hr	19,693 scf/hr	1,020 Btu/scf	1,020 Btu/scf	0.2%	0.2%	N/A	N/A
	Propane (backup fuel)	1,923	Mgal	40	60	219.5 gal/hr	219.5 gal/hr	91.5 MMBtu/ Mgal	91.5 MMBtu/ Mgal	0.18%	0.18%	N/A	N/A
H001	Natural Gas (main fuel)	34.6	MMscf	40	60	3,953 scf/hr	3,953 scf/hr	1,020 Btu/scf	1,020 Btu/scf	0.2%	0.2%	N/A	N/A
	Propane (backup fuel)	386	Mgal	40	60	44.1 gal/hr	44.1 gal/hr	91.5 MMBtu/ Mgal	91.5 MMBtu/ Mgal	0.18%	0.18%	N/A	N/A
NOTES: Potential Annual Consumption and Hourly Consumption are based on the emission unit operating 8,760 hr /yr at max capacity. Propane heat content and percent sulfur data based on AP-42 Section 1.5 (7/08).													

Fuel Supplier Information

Fuel Type	Name of Supplier	Phone Number	Supplier Location			
			Address	City	State	Zip
Natural Gas	To be determined					
Propane	To be determined					

Facility Name: Recovery Technology Solutions, LLC **Date of Application:** December 2012

FORM 2.02 – ORGANIC COMPOUND STORAGE TANK

Emission Unit ID	Emission Unit Name	Capacity (gal)	Material Stored	Maximum True Vapor Pressure (psi @ ºF)	Storage Temp. (ºF)	Filling Method	Construction/ Modification Date	Roof Type	Seal Type
ST01	Toluene Storage Tank	20,000	Toluene	0.55 psi at 68F	Ambient	Submerged fill pipes	2Q 2014	FR	TBD
ST03	Asphalt Oil Storage Tanks (4 total tanks)	40,000 (each)	Asphalt Oil	negligible	350F	Submerged fill pipes	2Q 2014	FR	TBD
ST04	Solvent Work Tank	2,100	Recovered Toluene	0.55 psi at 68F	Ambient	Submerged fill pipes	2Q 2014	FR	TBD

Facility Name: Recovery Technology Solutions, LLC **Date of Application:** Dec 2012

FORM 2.06 – MANUFACTURING AND OPERATIONAL DATA

Normal Operating Schedule: 24 hours/day 7 days/week 52 weeks/yr

Additional Data Attached? ☒ - No ☐ - Yes, please include the attachment in list on Form 1.00, Item 16.

Seasonal and/or Peak Operating Periods: None

Dates of Annually Occurring Shutdowns: None

PRODUCTION INPUT FACTORS

Emission Unit ID	Emission Unit Name	Const. Date	Input Raw Material(s)	Annual Input	Hourly Process Input Rate		
					Design	Normal	Maximum
GP01	Shingle Oil Extraction, Separation, and Solvent Recovery Process Equipment	2nd Q 2014	Oil-based Roofing Material	91,250 tpy	250 ton/day	250 ton/day	250 ton/day

PRODUCTS OF MANUFACTURING

Emission Unit ID	Description of Product	Production Schedule		Hourly Production Rate (Give units: e.g. lb/hr, ton/hr)			
		Tons/yr	Hr/yr	Design	Normal	Maximum	Units
GP01	Asphalt Oil*	22,813	8,760	2.6	2.6	2.6	Ton/hr
	Solids (mineral granules, sand [calcium carbonates], and fiberglass	64,438	8,760	7.8	7.8	7.8	Ton/hr
NOTES: *Based on average asphalt oil content in roofing material of 25% (by weight)							

Facility Name: Recovery Technology Solutions, LLC **Date of Application:** December 2012

Form 3.00 – AIR POLLUTION CONTROL DEVICES - PART A: GENERAL EQUIPMENT INFORMATION

APCD Unit ID	Emission Unit ID	APCD Type (Baghouse, ESP, Scrubber etc)	Date Installed	Make & Model Number (Attach Mfg. Specifications & Literature)	Unit Modified from Mfg Specifications?	Gas Temp. °F		Inlet Gas Flow Rate (acfm)
						Inlet	Outlet	
CYC1	DR01	Cyclone	2014	(To be determined)	No	100	100	20,000

Facility Name: Recovery Technology Solutions, LLC **Date of Application:** December 2012

Form 3.00 – AIR POLLUTION CONTROL DEVICES – PART B: EMISSION INFORMATION

APCD Unit ID	Pollutants Controlled	Percent Control Efficiency		Inlet Stream To APCD		Exit Stream From APCD		Pressure Drop Across Unit (Inches of water)
		Design	Actual	lb/hr	Method of Determination	lb/hr	Method of Determination	
CYC1	PM (filterable)	84.5%	84.5%	20.8	Engineering estimate	3.2	Engineering estimate	2-5
	PM10 (filterable)	69.0%	69.0%	20.8	Engineering estimate	6.5	Engineering estimate	2-5
	PM2.5 (filterable)	69.0%	69.0%	20.8	Engineering estimate	6.5	Engineering estimate	2-5

Facility Name: Recovery Technology Solutions, LLC **Date of Application:** December 2012

FORM 4.00 – EMISSION INFORMATION

Emission Unit ID	Air Pollution Control Device ID	Stack ID	Pollutant Emitted	Emission Rates				
				Hourly Actual Emissions (lb/hr)	Hourly Potential Emissions (lb/hr)	Actual Annual Emission (tpy)	Potential Annual Emission (tpy)	Method of Determination
See attached Emissions Calculations in Appendix B								

Facility Name: Recovery Technology Solutions, LLC **Date of Application:** Dec 2012

FORM 5.00 MONITORING INFORMATION

Emission Unit ID/ APCD ID	Emission Unit/APCD Name	Monitored Parameter		Monitoring Frequency
		Parameter	Units	
GP01	Extraction, Separation, and Solvent Recovery Process Equipment	LDAR (visual inspection and instrument monitoring)	N/A	TBD
		Solvent (Toluene) Loss Rate	Gal/month	Monthly
		Toluene Emissions	Tons	Monthly
FP1	Fire Pump 1	Operating Hours	Hrs	Monthly
		Fuel Sulfur Content	%S	With each shipment

Comments:
Please Appendix D (Case-by-Case MACT) for more information on monitoring.

Facility Name: Recovery Technology Solutions, LLC **Date of Application:** December 2012

FORM 7.00 – AIR MODELING INFORMATION: Stack Data

Stack ID	Emission Unit ID(s)	Stack Information			Dimensions of largest Structure Near Stack		Exit Gas Conditions at Maximum Emission Rate			
		Height Above Grade (ft)	Inside Diameter (ft)	Exhaust Direction	Height (ft)	Longest Side (ft)	Velocity (ft/sec)	Temperature (°F)	Flow Rate (acfm)	
									Average	Maximum
S001	GP01	55.7	0.5	Vertical	N/A	N/A	1.69	67.73	20	20
Assume fugitive emissions are emitted through Stack S001. This is a conservative assumption because fugitive emissions from process equipment housed inside the building are emitted through the building vent stack (Stack S002) which has a higher flowrate (i.e.: 24,500 cfm).										

NOTE: If emissions are not vented through a stack, describe point of discharge below and, if necessary, include an attachment. List the attachment in Form 1.00 *General Information*, Item 16.

Facility Name: Recovery Technology Solutions, LLC **Date of Application:** December 2012

FORM 7.00 AIR MODELING INFORMATION: Chemicals Data

Chemical	Potential Emission Rate (lb/hr)	Toxicity (mg/m3)	Reference	MSDS Attached
Toluene	65.34	5 1130.55	IRIS RfC OSHA PEL (C)	☐
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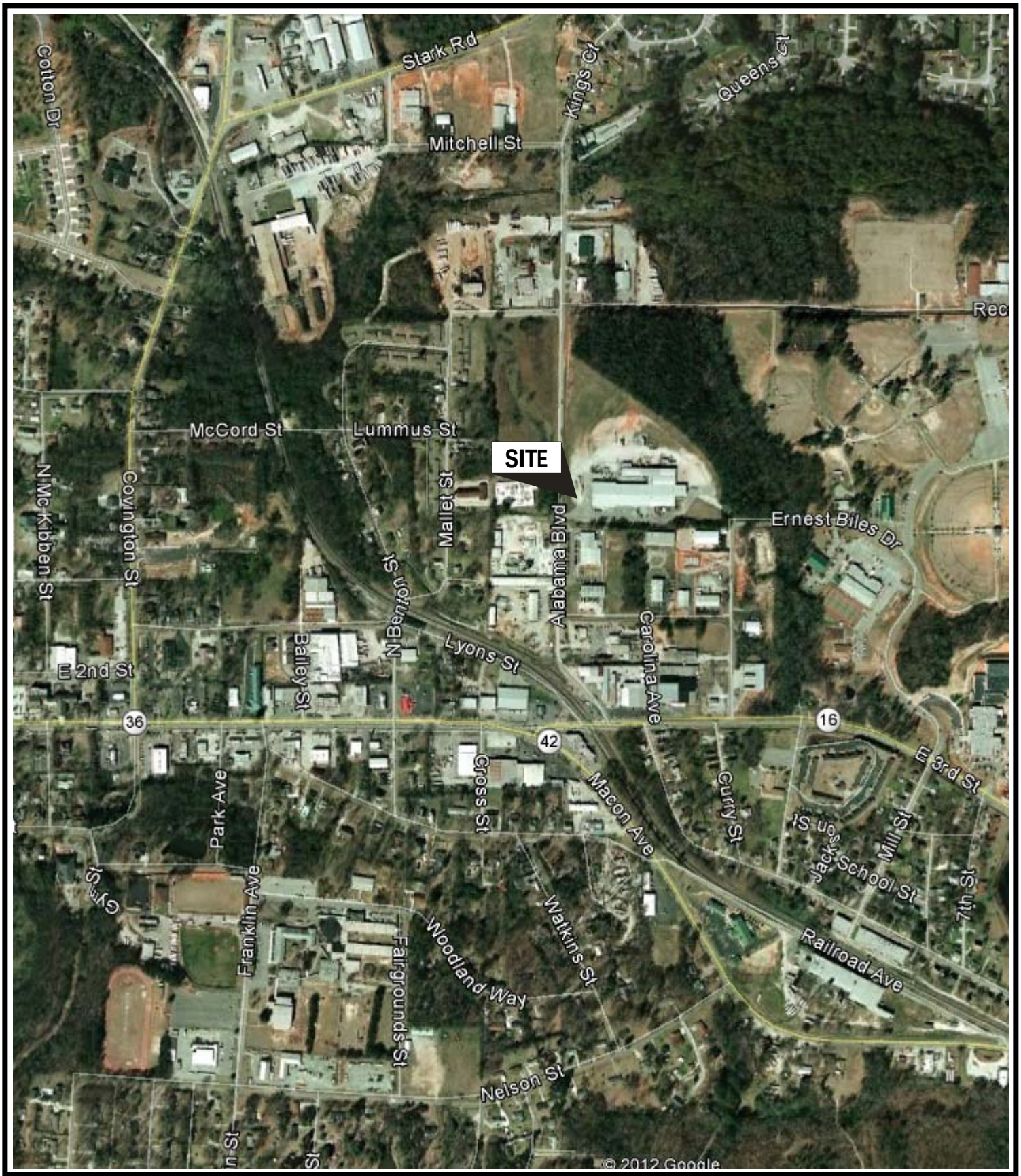
ATTACHMENT A
FIGURES



EPS
1050 Crown Pointe Pkwy
Suite: 550
Atlanta, GA 30338
404.315.9113

N

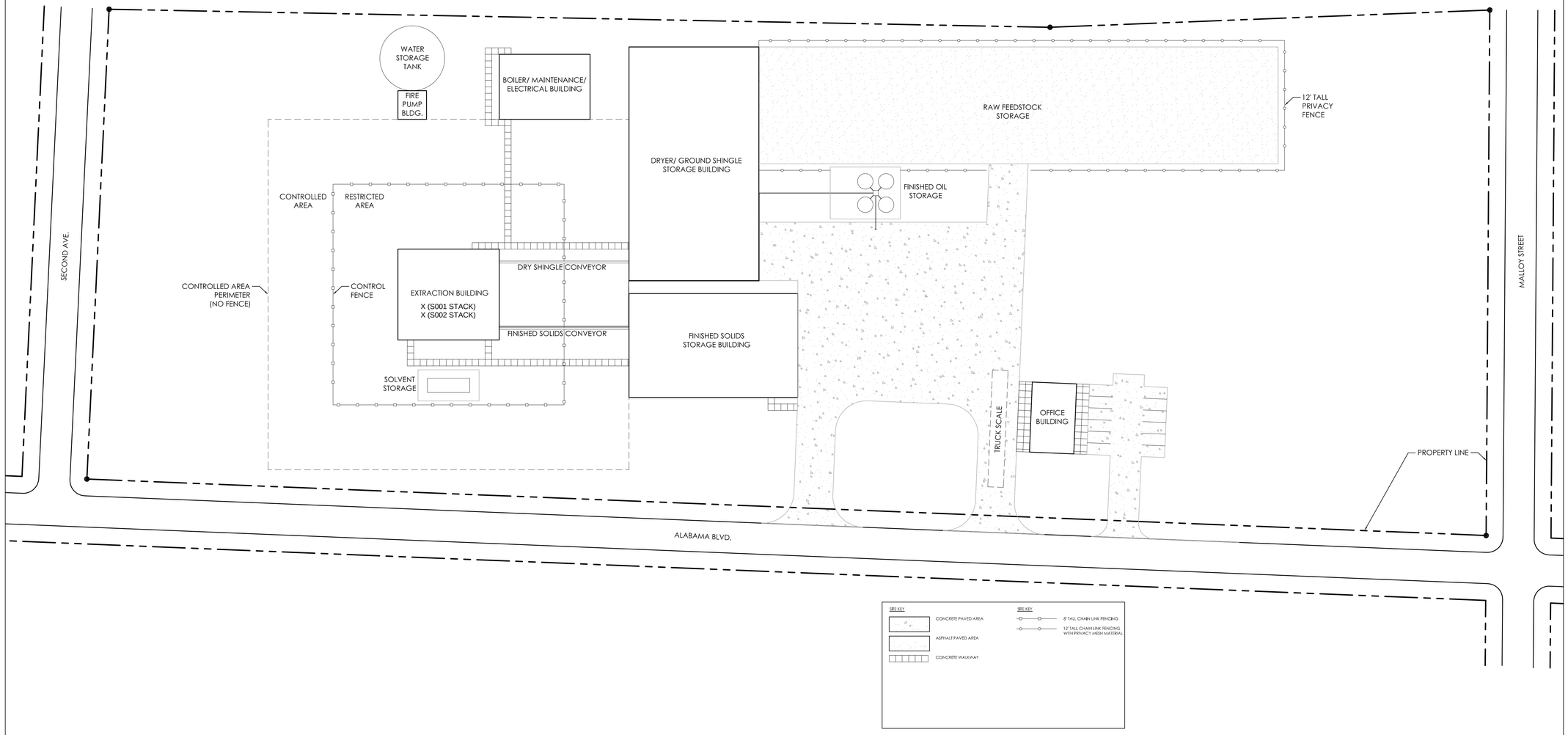
SIP AIR PERMIT APPLICATION

Recovery Technology Solutions
325 Alabama Boulevard
Jackson, Georgia

SITE LOCATION MAP

FIGURE

1



1 SITE PLAN
Scale: 1" = 40'-0"

NORTH

RECOVERY TECHNOLOGY SOLUTIONS,LLC

GEORGIA

REVISIONS:

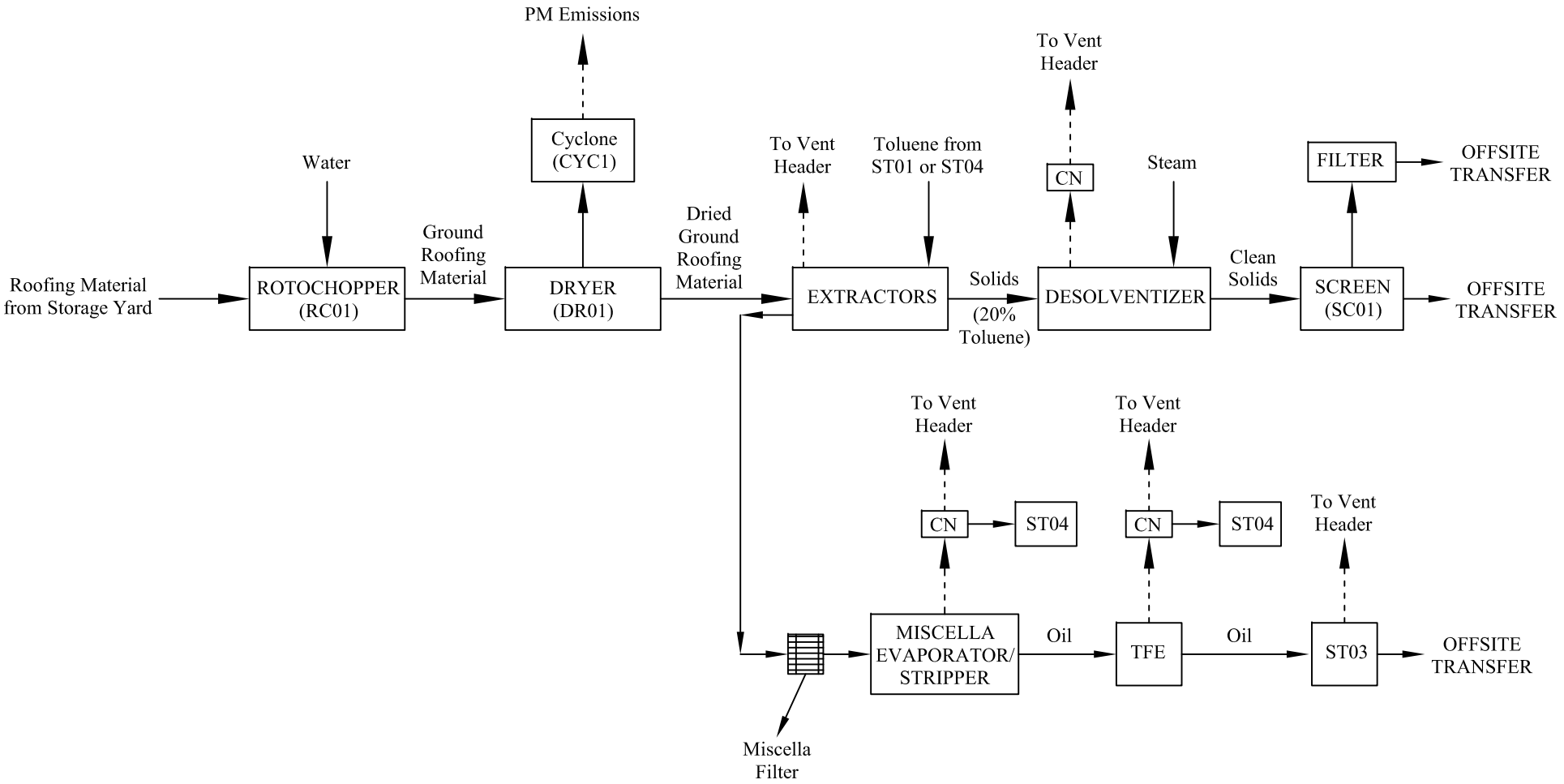
No	DATE	REMARKS

NELSON ENGINEERING CONSTRUCTION
COPYRIGHT
2610 Dakota Ave.
South Sioux City, NE 68776
TEL: (402) 494-6927
FAX: (402) 494-6068

FIGURE 2
FACILITY SITE PLAN

NELSON JOB NUMBER: 2087

SIP AIR PERMIT APPLICATION



LEGEND

ST01: Toluene Storage Tank

ST03: Asphalt Oil Storage Tank

ST04: Solvent Work Tank

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DATE: November 2012

Recovery Technology Solutions, LLC
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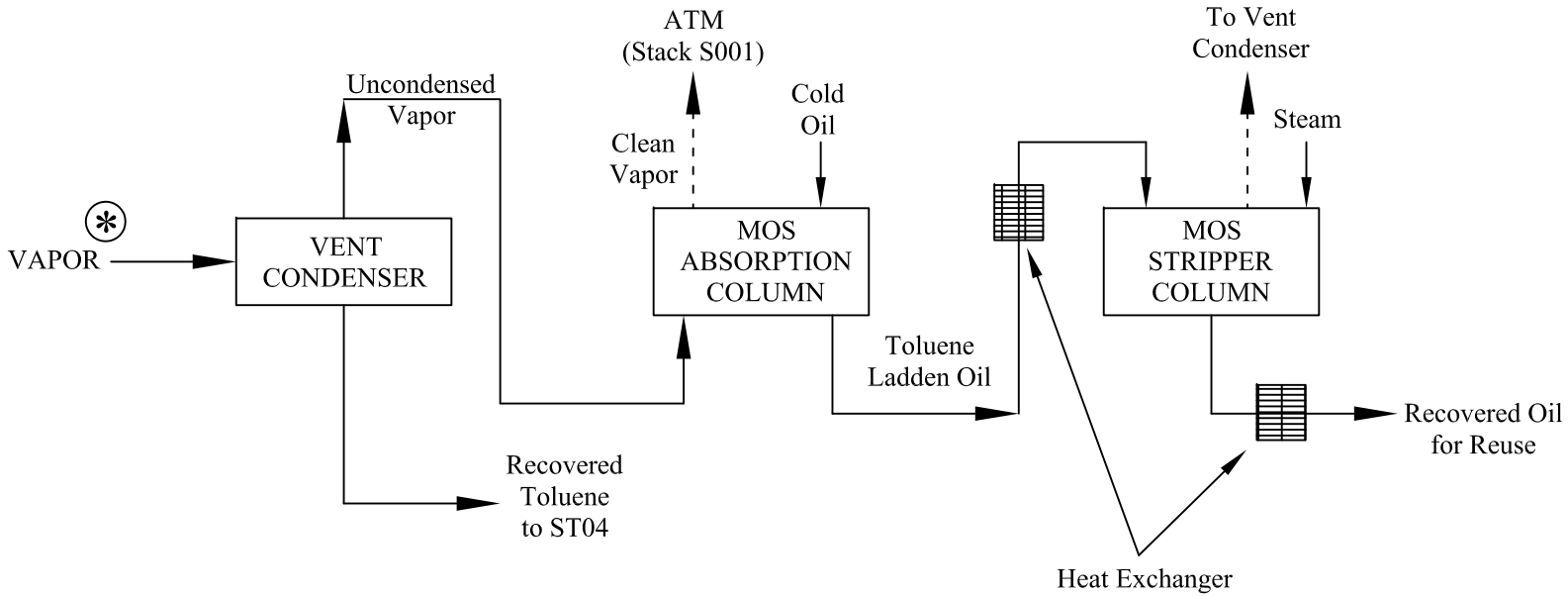
Process Flow Diagram
Extraction/Separation Process

FIGURE
3



⊛ Consists of Vapor Stream from:

- Extractors
-Desolventizer
-Miscella Evaporator/Stripper Condenser
-TFE Condenser
-Asphalt Oil Storage Tank ST03
-Toluene Storage Tank ST01
-MOS Stripper Column

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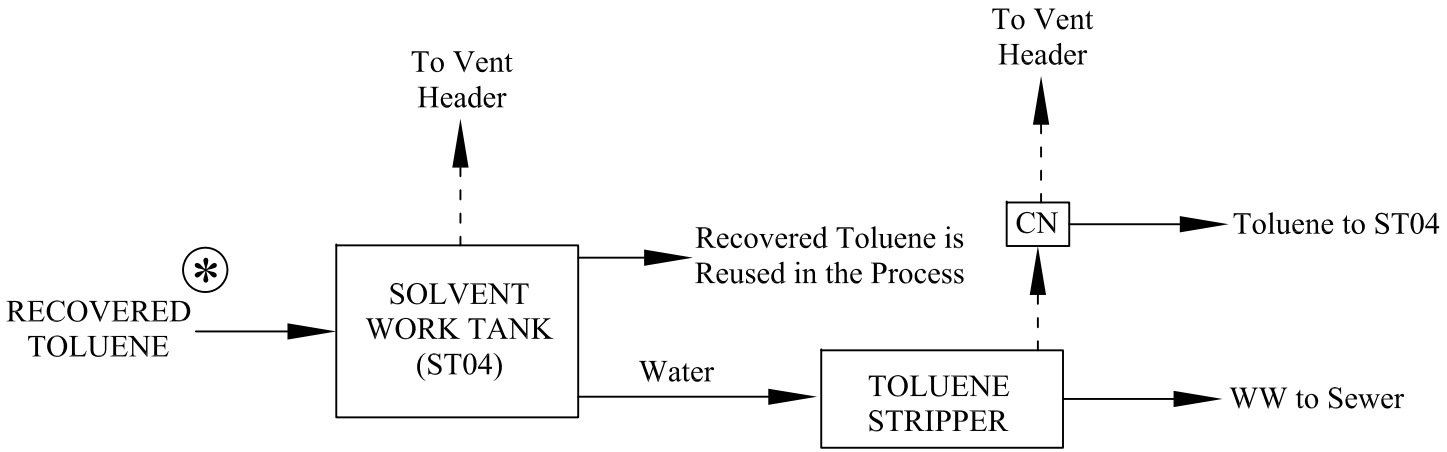
Recovery Technology Solutions, LLC
SIP Air Permit Application

Process Flow Diagram
Vent Header
(Solvent Recovery System)

FIGURE
4



(*) From:

-Vent Condenser
-Miscella Evaporator/Stripper Condenser
-TFE Condenser
-Toluene Stripper

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Process Flow Diagram
Solvent Work Tank (ST04)

FIGURE
5