

## TECHNICAL SUPPORT DOCUMENT

For

### DRAFT/PROPOSED AIR EMISSION PERMIT NO. 03700368-001

This technical support document (TSD) is intended for all parties interested in the draft/proposed permit and to meet the requirements that have been set forth by the federal and state regulations (40 CFR § 70.7(a)(5) and Minn. R. 7007.0850, subp. 1). The purpose of this document is to provide the legal and factual justification for each applicable requirement or policy decision considered in the preliminary determination to issue the draft/proposed permit.

#### 1. General Information

##### 1.1 Applicant and Stationary Source Location:

Table 1. Applicant and Source Address

Applicant/Address	Stationary Source/Address (SIC Code: 2952)
Recovery Technology Solutions 7700 Equitable Drive, Suite 205 Eden Prairie, MN 55344	Recovery Technology Solutions 284th St E Randolph, MN 55065 Dakota County
Contact: Andrew Czech Phone: (612)294-2312	

##### 1.2 Description of the Proposed Facility

Recovery Technology Solutions (RTS) proposes to construct a shingle recycling facility for the extraction of asphalt cement from ground roofing shingles. At the facility, shingles will be reduced into their component parts of asphalt cement, sand, rock and fiber material. These recovered components will be sold to off-site customers.

The proposed shingle processing facility will be a first of its kind in the country. A solvent extraction process has never been used to extract asphalt from shingles in the past. The design basis for this technology is based on the oilseed extraction process technology. Therefore, the permitting approach for this process is based on information from typical oilseed solvent extraction plants as a starting point.

Emissions from the facility include particulate matter (PM), particulate matter less than ten microns in diameter (PM<sub>10</sub>), particulate matter less than 2.5 microns in diameter (PM<sub>2.5</sub>), nitrogen oxides (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>), carbon monoxide (CO), volatile organic compounds (VOCs), toluene (a Hazardous

Air Pollutant [HAP]), other HAPs, and greenhouse gas (GHG) emissions expressed as carbon dioxide equivalents (CO<sub>2</sub>e).

Toluene, which is a VOC and a HAP, will be used as the solvent for recovering the asphalt. Good solvent recovery practices and the use of a mineral oil system will control emissions of toluene. Particulate emissions from the facility will be reduced by applying a cyclone and a fabric filter.

### 1.3 Facility Emissions:

**Table 2. Total Facility Potential to Emit Summary\***

	PM tpy	PM <sub>10</sub> tpy	PM <sub>2.5</sub> tpy	SO <sub>2</sub> tpy	NO <sub>x</sub> tpy	CO tpy	CO <sub>2</sub> e tpy	VOC tpy	Single HAP tpy	All HAPs tpy
Total Facility Limited Potential Emissions	78.0	41.8	32.2	0.06	15.0	8.7	14,400	225	224	225

\*The facility is yet to be constructed, so no emissions have been reported to the MN emission inventory.

**Table 3. Facility Classification**

Classification	Major/Affected Source	Synthetic Minor/Area	Minor/Area
PSD		X	
Part 70 Permit Program	X		
Part 63 NESHAP	X		

## 2. Regulatory and/or Statutory Basis

### New Source Review

After construction, Recovery Technology Solutions will be a synthetic minor source under the New Source Review regulations. The combination of restrictions on the mass of shingles processed and the toluene use per mass of shingles limits the annual emissions of VOCs below 250 tons per year, the major source threshold for this type of facility under the Prevention of Significant Deterioration (PSD) regulation. With the restriction on shingle throughput, emissions of other PSD pollutants are also limited below the PSD major source threshold.

### Part 70 Permit Program

The facility will be a major source under the Part 70 permit program. Emissions of VOCs exceed 100 tons per year and emissions of a single HAP exceed 10 tons per year.

### New Source Performance Standards (NSPS)

Boiler 1 (EU 004) will be subject to the Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units (40 CFR Part 60 Subpart Dc).

### National Emission Standards for Hazardous Air Pollutants (NESHAP)

The proposed facility will be a major source of HAPs. Two promulgated Part 63 NESHAPs will apply. In addition, a case-by-case MACT analysis is required.

Boiler 1 (EU 004) and the process heater for the hot oil system (EU 005) will be subject to the NESHAP for Industrial, Commercial and Institutional Boilers and Process Heaters at Major Sources (40 CFR Part 63 Subpart DDDDD). The toluene storage tank (TK 001) will be subject to the NESHAP for Organic Liquids Distribution (40 CFR Part 63 Subpart EEEE) which references the NESHAP for Closed Vent Systems, Control Devices, Recovery Devices and Routing to a Fuel Gas System or a Process (40 CFR Part 63 Subpart SS). Subpart EEEE will not apply to either the miscella tank (TK 002) or the asphalt tanks (TK 003 – TK 006). Subpart EEEE will not apply to TK 002 (the miscella tank) because the concentration of toluene will be about 0.1 percent by weight, which is below the 5 percent applicability threshold. Tanks TK 003 – TK 006 contain asphalt, which is not included under Subpart EEEE.

The emissions of toluene from the asphalt extraction process make the process subject to a case-by-case determination of Maximum Achievable Control Technology (40 CFR Part 63 Subpart B).

### Compliance Assurance Monitoring (CAM)

The emission units at the proposed facility will not be subject to CAM requirements. CAM does not apply to EU 001, EU 003, EU 004, and EU 005 because the emissions from each of these units is below the Part 70 major source threshold. The tanks (TK 001 – TK 006) are vented through EU 002 (the Mineral Oil System). The controls for EU 002 (Mineral Oil System scrubber) and EU 003 (Screening Process fabric filter) have been determined to be inherent parts of the process. The Mineral Oil System recovers toluene for reuse, while the Screen Process recovers solid materials for sale.

### Environmental Review & AERA

By limiting annual emissions of VOCs and other pollutants below 250 tpy, the facility is not subject to environmental review (i.e. an Environmental Assessment Worksheet (EAW)) and is not required to perform an Air Emissions Risk Analysis (AERA).

## Minnesota State Rules

Portions of the facility are subject to the following Minnesota Standards of Performance:

- Minn. R. 7011.0515 Standards of Performance for New Indirect Heating Equipment – EU 004 and EU 005
- Minn. R. 7011.0700-7011.0735 Industrial Process Equipment Rule – EU 001, EU 002, and EU 003
- Minn. R. 7011.1500-7011.1520 Standards of Performance for Liquid Petroleum and Volatile Organic Compounds (VOCs) Storage Vessels – TK 001 – TK 006.

**Table 4. Regulatory Overview of Facility**

<b>Level*</b>	<b>Applicable Regulations</b>	<b>Comments</b>
GP 001	Title I limit to avoid major source status under PSD at 40 CFR § 52.21	Limit set on VOC (toluene) losses to avoid major source classification under 40 CFR § 52.21.
	40 CFR pt. 63, subp. B (case-by-case MACT)	The applicant proposed the construction of a new major source of HAPs. No regulation issued pursuant to section 112(d), section 112(h), or section 112(j) applies to this facility; thus, a 112(g) determination is required.  The case-by-case MACT for GP 001 incorporates a solvent loss limit. The case-by-case MACT also incorporates a leak detection and repair program.
EU 004	40 CFR pt. 60, subp. Dc	EU 004 is a new affected facility under the Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. Determination of applicable limits from rule: <ul style="list-style-type: none"><li>• The unit will be constructed in 2013;</li><li>• The heat input capacity is 20.1 MMBtu/hr; and</li><li>• The only fuels burned are natural gas and propane.</li></ul>
	40 CFR pt. 63, subp. DDDDD	National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters. Determination of applicable limits from rule: <ul style="list-style-type: none"><li>• The facility is a major source of HAP emissions;</li><li>• EU 004 will be constructed in 2013;</li><li>• The heat input capacity is 20.1 MMBtu/hr;</li><li>• The only fuels burned are natural gas and propane; and</li><li>• No electricity will be produced by EU 004.</li></ul>

EU 005	40 CFR pt. 60, subp. Dc	<p>Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. Determination of applicable limits from rule:</p> <ul style="list-style-type: none"> <li>• The facility is a major source of HAP emissions;</li> <li>• EU 005 will be constructed in 2013;</li> <li>• The heat input capacity is 4.0 MMBtu/hr;</li> <li>• The only fuels burned are natural gas and propane; and</li> <li>• No electricity will be produced by EU 005.</li> </ul>
TK 001	40 CFR pt. 63, subp. EEEE (40 CFR pt. 63, subp. SS)	<p>TK 001 is a new affected source under the National Emission Standards for Hazardous Air Pollutants: Organic Liquids Distribution (Non-Gasoline). Determination of applicable limits from rule:</p> <ul style="list-style-type: none"> <li>• Organic liquids (i.e., toluene) are stored and transferred into and within the RTS plant site;</li> <li>• TK 001 will be constructed in 2013;</li> <li>• TK 001 is a tank storing a non-crude oil liquid that contains 5 percent or more of toluene.</li> <li>• Toluene's vapor pressure at operating conditions (about 0.42 psia at 68 F) exceeds 0.1 psia, the threshold for Subpart EEEE; and</li> <li>• The capacity of TK 001 is 12,000 gallons.</li> </ul> <p>Subpart EEEE references 40 CFR pt. 63, subp. SS (National Emission Standards for Closed Vent Systems, Control Devices, Recovery Devices, and Routing to a Fuel Gas System or Process)</p>
FS 001	40 CFR pt. 63, subp. B (case-by-case MACT)	<p>The applicant proposed the construction of a new major source of HAPs. No regulation issued pursuant to section 112(d), section 112(h), or section 112(j) applies to this facility; thus, a 112(g) determination is required.</p> <p>The case-by-case MACT for FS 001 incorporates a Leak Detection and Repair (LDAR) program.</p>

\*Where the requirement appears in the permit (e.g., EU, SV, GP, etc.).

### **3. Technical Information**

#### **3.1 Calculations of Potential to Emit**

Attachment 1 to this TSD contains Form GI-07, which summarizes the PTE of the Facility. It also contains detailed spreadsheets and supporting information prepared by the Permittee and reviewed by the MPCA.

##### *EU 001*

Emissions from EU 001 were based on AP-42 factors and data from the cyclone vendor.

##### *EU 002*

Emissions from EU 002 are included in the calculations for GP 001.

##### *EU 003*

Emissions and control efficiencies for EU 003 were based on factors from AP-42. The control equipment (a fabric filter) for EU 003 is considered inherent, as it recovers material sold by the Permittee. Much of the material collected by the fabric filter is larger than the particle sizes regulated by the MPCA and EPA.

##### *EU 004*

Criteria and HAP emissions from EU 004 were based on AP-42 factors. Greenhouse gas emissions were based on emission factors from 40 CFR pt. 98, subp. C.

##### *EU 005*

Criteria and HAP emissions from EU 005 were based on AP-42 factors. Greenhouse gas emissions were based on emission factors from 40 CFR pt. 98, subp. C.

##### *GP 001*

Toluene (a VOC and a HAP) emissions were based on data collected from a pilot scale operation, engineering judgment, and factors from similar extraction operations.

#### **3.2 Dispersion Modeling**

Dispersion modeling is not required for this facility.

#### **3.3 Periodic Monitoring**

In accordance with the Clean Air Act, it is the responsibility of the owner or operator of a facility to have sufficient knowledge of the facility to certify that the facility is in compliance with all applicable requirements.

In evaluating the monitoring included in the permit, the MPCA considered the following:

- The likelihood of the facility violating the applicable requirements;
- Whether add-on controls are necessary to meet the emission limits;

- The variability of emissions over time;
- The type of monitoring, process, maintenance, or control equipment data already available for the emission unit;
- The technical and economic feasibility of possible periodic monitoring methods; and
- The kind of monitoring found on similar units elsewhere.

Table 4 summarizes the periodic monitoring requirements for those emission units for which the monitoring required by the applicable requirement is nonexistent or inadequate.

**Table 5. Periodic Monitoring**

Level*	Requirement (basis)	Additional Monitoring	Discussion
GP 001	VOCs ≤ 224 tons/year <i>Title I Condition: To avoid classification as a major (PSD) source under 40 CFR Section 52.21 &amp; Minn. R. 7007.3000</i>	Daily tracking and recordkeeping of: <ul style="list-style-type: none"> <li>• toluene deliveries to the facility;</li> <li>• the mass of toluene in tanks; and</li> <li>• any other solvent use at the facility .</li> </ul> Monthly tracking and recordkeeping of solvent consumption on a monthly and on a 12-month rolling basis using daily tracking records	<p>The main source of VOC emissions at the facility is expected to be solvent losses, particularly losses of toluene used in processing. The shingles consumed in the process are expected to have no significant volatile content.</p> <p>The determination of solvent consumed will be based on its usage. The solvent used in the facility will be brought in by rail or truck and held in the toluene storage tank (TK 001). From there, solvent will flow to the process; it may be stored in the solvent working tank. Solvent consumption shall be tracked from shipments, from metering to the process, and from liquid levels in the tanks.</p> <p>A twelve-month rolling sum was selected due to the variability of operations anticipated in a new facility.</p>

Level*	Requirement (basis)	Additional Monitoring	Discussion
	<p>Compliance ratio <math>\leq 1.0</math></p> <p><i>40 CFR § 63.43(b) &amp; Minn. R 7007.3010</i></p>	None	<p>The case-by-case MACT standard developed for this source follows the requirements of the National Emission Standards for Hazardous Air Pollutants: Solvent Extraction for Vegetable Oil Production (40 CFR 63 Subpart GGGG) with alterations since shingles are the feedstock. The case-by-case MACT also incorporates leak detection and repair (LDAR) elements from the National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry (40 CFR Part 63 Subpart H). The LDAR elements associated with FS 001, a member of GP 001.</p> <p>Since the requirements of Subpart GGGG are appropriate for vegetable oil production facilities and the requirements of Subpart H are appropriate for the synthetic organic chemical manufacturing industry, the monitoring methods developed for the case-by-case MACT is sufficient for this asphalt-from-shingles production facility.</p> <p>Since the facility's derivation of a solvent loss factor of 0.9 pounds per ton of shingles processed includes solvent lost to the water, to solids, and to asphalt, the facility is not credited for non-air losses in its calculations.</p>
	<p>PM <math>\leq 0.30</math> gr/dscf</p> <p>Opacity <math>\leq 20</math> percent</p> <p><i>Minn. R. 7011.0715, subps. 1(A) and 1(B)</i></p>	None	<p>The operations included in GP 001 are solvent- and asphalt-based. Even if a potential exists for emissions of minute amounts of condensable particulate matter, it is anticipated that the particulate and opacity standards would be met consistently.</p>

Level*	Requirement (basis)	Additional Monitoring	Discussion
EU 001	$PM \leq 0.30$ gr/dscf Opacity $\leq 20$ percent <i>Minn. R.</i> <i>7011.0715,</i> <i>subps. 1(A) and</i> <i>1(B)</i>	Requirement to operate cyclone when operating EU 001;	EU 001 is a dryer controlled by a cyclone. Proper operation of the cyclone is needed to meet the standards. Parametric monitoring is needed to ensure proper operation.
	$PM$ control efficiency $\geq 80.6$ percent $PM_{10}$ control efficiency $\geq 61.2$ percent $PM_{2.5}$ control efficiency $\geq 61.2$ percent Pressure drop $\geq 2$ inches of water column and $\leq 8$ inches of water column <i>Minn. R.</i> <i>7007.0800,</i> <i>subp. 2</i>	Daily parameter (pressure drop) monitoring and recordkeeping	The cyclone (CE 001) is needed to restrict emissions below state particulate limits. Daily tracking is needed to ensure continuous compliance.



Level*	Requirement (basis)	Additional Monitoring	Discussion
TK 002	Equip the storage vessel with a permanent submerged fill pipe  <i>Minn. R. 7011.1505, subp. 3.B</i>	None	This is a design criterion, so no ongoing compliance method is needed.  The capacity of TK 002 is 17,000 gallons. At a temperature of 68 F, the vapor pressure of toluene is about 22 mmHg.
TK 003	Equip the storage vessel with a permanent submerged fill pipe  <i>Minn. R. 7011.1505, subp. 3.B</i>	None	This is a design criterion, so no ongoing compliance method is needed.  The capacity of TK 003 is 40,000 gallons. At a temperature of 350 F, the vapor pressure of asphalt is about 22 mmHg.
TK 004	Equip the storage vessel with a permanent submerged fill pipe  <i>Minn. R. 7011.1505, subp. 3.B</i>	None	This is a design criterion, so no ongoing compliance method is needed.  The capacity of TK 004 is 40,000 gallons. At a temperature of 350 F, the vapor pressure of asphalt is about 22 mmHg.

Level*	Requirement (basis)	Additional Monitoring	Discussion
TK 005	Equip the storage vessel with a permanent submerged fill pipe  <i>Minn. R. 7011.1505, subp. 3.B</i>	None	This is a design criterion, so no ongoing compliance method is needed.  The capacity of TK 005 is 40,000 gallons. At a temperature of 350 F, the vapor pressure of asphalt is about 22 mmHg.
TK 006	Equip the storage vessel with a permanent submerged fill pipe  <i>Minn. R. 7011.1505, subp. 3.B</i>	None	This is a design criterion, so no ongoing compliance method is needed.  The capacity of TK 006 is 40,000 gallons. At a temperature of 350 F, the vapor pressure of asphalt is about 22 mmHg.
FS 001	Work practices  <i>40 CFR § 63.43(b) &amp; Minn. R 7007.3010</i>	None	The case-by-case MACT standard developed for fugitive volatile HAP emissions follows the requirements of the National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry (40 CFR 63 Subpart H).  Since the requirements of Subpart H are appropriate for the synthetic organic chemical manufacturing industry, the monitoring methods developed for the case-by-case MACT is sufficient for fugitive emissions from this asphalt-from-shingles production facility.

\*Where the requirement appears in the permit (e.g., EU, SV, GP, etc.).

### 3.4 Insignificant Activities

Recovery Technology Solutions has several operations which are classified as insignificant activities under the MPCA's permitting rules. These are listed in Appendix B to the permit.

The permit is required to include periodic monitoring for all emissions units, including insignificant activities, per EPA guidance. The insignificant activities at this Facility are only subject to general applicable requirements. Using the criteria outlined earlier in this TSD, the following table documents the justification why no additional periodic monitoring is necessary for the current insignificant activities. See Attachment B of this TSD for PTE information for the insignificant activities.

**Table 6. Insignificant Activities**

<b>Insignificant Activity</b>	<b>General Applicable Emission limit</b>	<b>Discussion</b>
Fuel use: space heaters fueled by, kerosene, natural gas, or propane, less than 420,000 Btu/hr	$PM \leq 0.40 \text{ lb/MMBtu}$ $Opacity \leq 20\%$ with exceptions <i>(Minn. R. 7011.0515)</i>	<p>The two natural gas-fired space heaters (office building and boiler building) are each rated at 200,000 Btu/hr, so they each qualify as an insignificant activity under Minn. R. 7007.1300 subp. 3(A).</p> <p>Based on the use of natural gas and EPA published emissions factors, it is highly unlikely that it could violate the applicable requirement. In addition, these types of units are typically operated and vented inside a building, so testing for PM or opacity is not feasible.</p>
Individual units with potential emissions less than 2000 lb/year of certain pollutants	$PM \leq 0.30 \text{ gr/dscf}$ , variable depending on airflow $Opacity \leq 20\%$ <i>Minn. R. 7011.0715</i>	<p>Uncontrolled annual emissions from the following operations are well below the 2000 lb/year threshold of Minn. R. 7007.1300, subp. 3(I):</p> <ul style="list-style-type: none"><li>A. Cooling tower</li><li>B. Back dust storage silo/conveyor</li><li>C. Back dust storage silo loadout</li><li>D. Solids loadout</li></ul>

Insignificant Activity	General Applicable Emission limit	Discussion
Fugitive Emissions from paved roads and parking lots	Requirement to take reasonable measures to prevent PM from becoming airborne (Minn. R. 7011.0150)	All surfaces will be paved. The draft/proposed permit contains a general requirement that this standard must be met.

### 3.5 Synthetic Minor Limit on VOC Emissions

The PSD major source threshold for this facility is 250 tons per year. EPA requires a five to ten percent compliance margin below this level to account for variability in the compliance methods. The MPCA has chosen a margin of ten percent for several reasons:

- There are no other similarly-sized facilities in operation from which to draw operational and emission data;
- There is only limited data available from the pilot-scale facility; and
- The tracking methods used are not as precise as those available for other process types.

The permit limits the facility to a total of 225 tons of volatile organic compound (VOC) emissions per year. The potential to emit VOC emissions from the combustion sources (EU 004 and EU 005) and the insignificant activities at the facility is roughly one ton per year. GP 001 is allotted the remainder of the total.

The asphalt shingles used in the process will contain no significant volatile material. During shingle manufacturing, the asphalt is “blown” to improve weathering characteristics; this removes VOCs. In addition, the shingles would have been exposed to the atmosphere for extended periods, allowing any remaining volatile compounds to evaporate. For that reason, it is anticipated that the VOC emissions will be from the solvent (toluene).

#### *Emission calculation*

A mass balance will be used to track solvent consumption. The basic equation for a mass balance is:

$$\text{Accumulation} = \text{Input} - \text{Output} + \text{Generation} - \text{Consumption} \quad (1)$$

In this process, the following assumptions are made:

- Over long enough periods of time, there is no accumulation
- No solvent is generated in the process (i.e., the solvent is not a product of the process)
- No solvent is consumed in the process (i.e., the solvent is not a reactant in the process)

In this situation, equation (1) can be simplified:

$$0 = \text{Input} - \text{Output} + 0 - 0; \text{ or } \text{Input} = \text{Output} \quad (2)$$

If it is assumed that fugitive emissions losses constitute the vast majority of the output, the solvent brought in will equal the losses through fugitive emissions. Thus, the fugitive VOC emissions will be determined by measuring solvent arriving on-site.

The input can be calculated from solvent deliveries. The solvent used in the facility will be brought in by rail or truck and held in the toluene storage tank (TK 001). From there, solvent will flow to the process; it may be stored in the solvent working tank. There may be temporary accumulation of solvent within tanks. To account for this, solvent consumption will also be tracked by metering solvent to the process and by checking liquid levels in the tanks.

The MPCA considered different averaging times for the limit, but settled on a 12-month rolling sum due to the lack of operational data for this type of facility and the similar type of limit imposed for the vegetable oil extraction industry.

### **3.6 Case-by-Case MACT**

The planned facility will be a major source of Hazardous Air Pollutant (HAP) emissions, but no National Emission Standard for Hazardous Air Pollutant (Part 63 NESHAP) exists for the type of facility planned. Section 112(g) of the Clean Air Act, as codified in 40 CFR Part 63 Subpart B requires the crafting of a case-by-case MACT standard (CBC MACT) in this situation.

#### *Solvent Loss*

The applicant proposed a CBC MACT that generally follows the requirements of 40 CFR Part 63 Subpart GGGG (the National Emission Standards for Hazardous Air Pollutants: Solvent Extraction for Vegetable Oil Production). The proposal included a solvent loss factor of 0.9 gallons per ton of shingles processed. The applicant also proposed the use of a Leak Detection and Repair (LDAR) program, since fugitive emissions are anticipated to constitute a major portion of the HAP emissions from the facility.

The MPCA agrees with the selection of 40 CFR Part 63 Subpart GGGG as a template for the requirements for this facility; the permit requirements for the new facility are modeled on that regulation. The derivation of the solvent loss factor provided in the permit application (0.9 gallons per ton of shingles processed) looks reasonable, although there is no similar facility from which operational data can be examined to confirm this value.<sup>1</sup>

This portion of the case-by-case MACT requires quantification of HAP losses during the extraction process. The calculation of the HAP solvent loss factor differs from the VOC loss calculation in that certain periods of operation (i.e., initial operation, non-operating periods) are exempted from inclusion in the determination of the compliance ratio. The compliance ratio applies only to normal operation;

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<sup>1</sup> Note that the facility's derivation of the solvent loss factor of 0.9 gallons of solvent per ton of shingles processed includes not only losses to the air (both directly and through fugitive sources) but also to the water discharged from the facility and to solids and asphalt taken off-site. For this reason, the facility should not be credited for solvent lost to water or to solids.

periods of “malfunction” are also considered normal operation. In contrast, the VOC calculation must address all periods of operation.

The solvent loss factor is based on the ratio of solvent loss to shingles processed. At RTS, the shingles will be weighed on a truck scale as they are brought into the facility. Determinations of shingle inventories will be made. The quantity of extraction solvent received will be quantified as shipments are received, and the solvent inventory will be measured at the beginning and end of each normal operating period. The facility must develop the specifics of quantifying shingle and solvent consumption by creating its own Plan for Demonstrating Compliance, including descriptions of how to measure and track:

- a) The solvent inventory;
- b) The volume of solvent delivered;
- c) The volume of solvent recovered;
- d) Any adjustments made to the solvent inventory;
- e) The shingle inventory;
- f) The mass of shingles delivered; and
- g) Any adjustments made to the shingles inventory.

The Plan for Demonstrating Compliance will also describe the derivation of inputs to the calculations required by the permit. The Plan will be detailed enough for an inspector to replicate the methods the facility is using to collect data. For example, the Plan should describe the procedures the facility will follow to measure the liquid levels in the tanks.

The ratio of volume of solvent consumption to mass of shingles processed for normal periods will be determined from the deliveries and the quantification of the inventories. The ratio is then divided by the solvent loss factor of 0.9 gallons per ton of shingles process. To remain in compliance, the resulting value must not exceed 1.0.

The MPCA attempted to incorporate the elements of Subpart GGGG into the permit so that the language pertains directly to the proposed process. The language was revised to make it complete without referring to Subpart GGGG. The permit language is enforceable; however, if the permit language is confusing or incomplete, referring to Subpart GGGG may provide some guidance.

#### *Leak Detection and Repair*

As noted above, the applicant proposed a LDAR program as part of the CBC MACT. However, no specific program was identified. Since this type of facility is new and no operational data is available for this type of process, it is necessary to incorporate specific LDAR requirements to ensure good control of fugitive emissions. The MPCA selected 40 CFR Part 63 Subpart H (the National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks) as the template for the LDAR requirements.

Although the LDAR requirements are based on Subpart H, the MPCA made several assumptions in drafting the permit language based on the configuration of the facility:

- The facility is new, so no references to existing equipment in Subpart H are retained. The MPCA omitted Phase I of Subpart H (which addressed existing equipment) from the permit; Phase II of Subpart H became Phase I in the permit; Phase III became Phase II.
- During solvent delivery, the facility will use Stage 1 vapor recovery; during filling of TK 001, the vapor space of TK 001 will be connected to the vapor space of the delivery truck or rail car.
- There are no sampling connection systems.
- There are no control devices being used to handle or destroy HAPs.
- There are fewer than 250 valves. No quality improvement program is needed for valves.
- The portions of the process that operate in a batch or semi-batch mode are in use most of the time. The frequency of monitoring remains the same as it would for a continuous process.
- The MPCA did not include language allowing for alternative means of emission limitation. Although this is an option for the applicant, it requires EPA's approval. It would also require a major permit amendment to change to such an option under Minnesota's permitting rules.
- The MPCA did not include language for surge control vessels and bottoms receivers.

The MPCA attempted to incorporate the elements of Subpart H into the permit so that the language pertains directly to the proposed process. The MPCA revised the language to make it complete without frequent references to Subpart H. The permit language is enforceable; however, if the permit language is confusing or incomplete, referring to Subpart H may provide some guidance.

### **3.7 Permit Organization**

In general, the permit meets the MPCA Delta Guidance for ordering and grouping of requirements.

There are case-by-case requirements at both GP 001 and FS 001. GP 001 refers to the asphalt extraction process, which is similar to a vegetable oil extraction process. The group includes EU 002 (the mineral oil system) and its associated stack SV 002, FS 001 (the fugitive toluene losses), TK 001 (toluene tank), TK 002 (miscella tank), and TK 003 – TK 006 (asphalt tanks). FS 001 contains all equipment from which toluene or other VOCs leaks. It is a subset of GP 001.

### **3.8 Comments Received**

The MPCA plans to issue this draft/proposed permit under the provisions of Minn. R. 7007.0750, subs. 7 and 8. This rule allows the MPCA to issue permits in two stages. The requirements issued in the first stage – the Stage 1 conditions – are the portions of the draft/proposed permit that relate to the construction activities authorized by the draft/proposed permit.

Examples of Stage 1 conditions include emissions limits, restrictions on hours of operation and the recordkeeping associated with that restriction, and requirements to demonstrate initial compliance. In this draft/proposed permit, many Stage 1 conditions are identified as Title I Conditions for case-by-case MACT or Title I Conditions to avoid classification as a major modification. During the public comment

period and prior to final permit issuance, the Stage 1 conditions are denoted in the permit by “[Stage 1].” These designations will be removed in Stage 2 (final) permit issuance.

Public Notice Period: March 21, 2013 – April 25, 2013

EPA 45-day Review Period: March 21, 2013 – May 6, 2013

The remainder of this section will be completed after the reference review periods.

#### **4. Permit Fee Assessment**

This permit action is the construction of a new facility subject to Part 70. Attachment 3 to this TSD contains the MPCA’s assessment of Application and Additional Points used to determine the permit application fee for this permit action as required by Minn. R. 7002.0019. The fee for a new Part 70 permit was paid at the time of application. The permit action includes an NSPS review (40 CFR Part 60 Subpart Dc); two NESHAP reviews (40 CFR Part 63 Subpart EEEE (incorporating 40 CFR Part 63 Subpart SS) and 40 CFR Part 63 Subpart DDDDD), a case-by-case MACT review; a limit to stay below the PSD major source threshold; a limit to stay below the EAW threshold; and a limit to stay below the AERA threshold. Additional points apply to each of these reviews.

#### **5. Conclusion**

Based on the information provided by Recovery Technology Solutions, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 03700368-001 and this TSD, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Staff Members on Permit Team:     Richard Cordes (permit writer/engineer)  
   Brent Rohne (enforcement)  
   Jeff Hedman (peer reviewer)

AQ File No. 4542; DQ #4073

Attachments:    1. PTE Summary and Calculation Spreadsheets  
                          2. Facility Description and CD-01 Forms  
                          3. Points Calculator

# Attachment 1

## PTE Summary and Emissions Increase Calculation Spreadsheets

## FACILITY DESCRIPTION: Potential-to-emit (by item)

Show: Active and Pending Records

AQD Facility ID: 03700368

Facility Name: Recovery Technology Solutions

Item	Pollutant	Added By (Action)	Retired By (Action)	Hourly Potential (lbs per hr)	Unrestricted Potential (tons per yr)	Limited Potential (tons per yr)	Actual Emissions (tons per yr)
<b>EU 001</b>							
	PM < 2.5 micron	PER 001		1.67E+01	7.30E+01	2.83E+01	2.83E+01
	PM < 10 micron	PER 001		1.67E+01	7.30E+01	2.83E+01	2.83E+01
	Total Particulate Matter	PER 001		1.67E+01	7.30E+01	1.42E+01	1.42E+01
<b>EU 003</b>							
	PM < 2.5 micron	PER 001		6.00E-02	2.50E-01	2.16E-02	2.16E-02
	PM < 10 micron	PER 001		6.00E-02	2.50E-01	2.16E-02	2.16E-02
	Total Particulate Matter	PER 001		1.70E-01	7.30E-01	6.42E-02	6.42E-02
<b>EU 004</b>							
	Benzene	PER 001		4.14E-05	1.81E-04	1.81E-04	1.81E-04
	Arsenic compounds	PER 001		3.94E-06	1.73E-05	1.73E-05	1.73E-05
	Beryllium	PER 001		2.36E-07	1.04E-06	1.04E-06	1.04E-06
	Carbon Dioxide Equivalent	PER 001		2.73E+03	1.20E+04	1.20E+04	1.20E+04
	Cadmium compounds	PER 001		2.17E-05	9.49E-05	9.49E-05	9.49E-05
	Methane	PER 001		1.30E-01	5.80E-01	5.80E-01	5.80E-01
	Carbon Monoxide	PER 001		1.65E+00	7.21E+00	7.21E+00	7.21E+00
	Carbon Dioxide	PER 001		2.72E+03	1.19E+04	1.19E+04	1.19E+04
	Cobalt compounds	PER 001		1.65E-06	7.25E-06	7.25E-06	7.25E-06
	Chromium compounds	PER 001		2.76E-05	1.21E-04	1.21E-04	1.21E-04
	1,4-Dichlorobenzene	PER 001		2.36E-05	1.04E-04	1.04E-04	1.04E-04
	Formaldehyde	PER 001		1.48E-03	6.47E-03	6.47E-03	6.47E-03
	Hexane	PER 001		3.54E-02	1.55E-01	1.55E-01	1.55E-01
	Naphthalene	PER 001		1.20E-05	5.26E-05	5.26E-05	5.26E-05
	Mercury	PER 001		5.12E-06	2.24E-05	2.24E-05	2.24E-05
	Toluene	PER 001		6.70E-05	2.93E-04	2.93E-04	2.93E-04
	Manganese compounds	PER 001		7.48E-06	3.28E-05	3.28E-05	3.28E-05
	Nitrous Oxide	PER 001		3.00E-01	1.20E-01	1.20E-01	1.20E-01
	Nickel compounds	PER 001		4.14E-05	1.81E-04	1.81E-04	1.81E-04
	Nitrogen Oxides	PER 001		2.85E+00	1.25E+01	1.25E+01	1.25E+01
	PM < 2.5 micron	PER 001		1.54E-01	6.73E-01	6.73E-01	6.73E-01
	Lead	PER 001		9.85E-06	4.30E-05	4.30E-05	4.30E-05
	PM < 10 micron	PER 001		1.54E-01	6.73E-01	6.73E-01	6.73E-01
	Polycyclic organic matter	PER 001		1.37E-05	6.02E-05	6.02E-05	6.02E-05
	Total Particulate Matter	PER 001		1.54E-01	6.73E-01	6.73E-01	6.73E-01
	Selenium compounds	PER 001		4.73E-07	2.07E-06	2.07E-06	2.07E-06
	Sulfur Dioxide	PER 001		1.20E-02	5.20E-02	5.20E-02	5.20E-02
	Volatile Organic Compounds	PER 001		1.76E-01	7.70E-01	7.70E-01	7.70E-01
<b>EU 005</b>							
	Benzene	PER 001		8.30E-06	3.64E-05	3.64E-05	3.64E-05
	Arsenic compounds	PER 001		7.91E-07	3.46E-06	3.46E-06	3.46E-06
	Beryllium	PER 001		4.74E-08	2.08E-07	2.08E-07	2.08E-07
	Carbon Dioxide Equivalent	PER 001		5.49E+02	2.40E+03	2.40E+03	2.40E+03
	Cadmium compounds	PER 001		4.35E-06	1.90E-05	1.90E-05	1.90E-05
	Methane	PER 001		3.00E-02	1.20E-01	1.20E-01	1.20E-01
	Carbon Monoxide	PER 001		3.32E-01	1.45E+00	1.45E+00	1.45E+00
	Carbon Dioxide	PER 001		5.46E+02	2.39E+03	2.39E+03	2.39E+03
	Cobalt compounds	PER 001		3.32E-07	1.45E-06	1.45E-06	1.45E-06

## FACILITY DESCRIPTION: Potential-to-emit (by item)

Show: Active and Pending Records

AQD Facility ID: 03700368

Facility Name: Recovery Technology Solutions

Item	Pollutant	Added By (Action)	Retired By (Action)	Hourly Potential (lbs per hr)	Unrestricted Potential (tons per yr)	Limited Potential (tons per yr)	Actual Emissions (tons per yr)
<b>EU 005</b>							
	Chromium compounds	PER 001		5.53E-06	2.42E-05	2.42E-05	2.42E-05
	1,4-Dichlorobenzene	PER 001		4.74E-06	2.08E-05	2.08E-05	2.08E-05
	Formaldehyde	PER 001		2.96E-04	1.30E-03	1.30E-03	1.30E-03
	Hexane	PER 001		7.12E-03	3.12E-02	3.12E-02	3.12E-02
	Naphthalene	PER 001		2.41E-06	1.06E-05	1.06E-05	1.06E-05
	Mercury	PER 001		1.03E-06	4.50E-06	4.50E-06	4.50E-06
	Toluene	PER 001		1.34E-05	5.89E-05	5.89E-05	5.89E-05
	Manganese compounds	PER 001		1.50E-06	6.58E-06	6.58E-06	6.58E-06
	Nitrous Oxide	PER 001		1.00E-02	2.00E-02	2.00E-02	2.00E-02
	Nickel compounds	PER 001		8.30E-06	3.64E-05	3.64E-05	3.64E-05
	Nitrogen Oxides	PER 001		5.73E-01	2.51E+00	2.51E+00	2.51E+00
	PM < 2.5 micron	PER 001		3.08E-02	1.35E-01	1.35E-01	1.35E-01
	Lead	PER 001		1.98E-06	8.66E-06	8.66E-06	8.66E-06
	PM < 10 micron	PER 001		3.08E-02	1.35E-01	1.35E-01	1.35E-01
	Polycyclic organic matter	PER 001		2.76E-06	1.21E-05	1.21E-05	1.21E-05
	Total Particulate Matter	PER 001		3.08E-02	1.35E-01	1.35E-01	1.35E-01
	Selenium compounds	PER 001		9.49E-08	4.16E-07	4.16E-07	4.16E-07
	Sulfur Dioxide	PER 001		2.40E-03	1.04E-02	1.04E-02	1.04E-02
	Volatile Organic Compounds	PER 001		3.53E-02	1.54E-01	1.54E-01	1.54E-01
<b>FS 002</b>							
	PM < 2.5 micron	PER 001		7.10E-01	3.09E+00	3.09E+00	3.09E+00
	PM < 10 micron	PER 001		2.88E+00	1.26E+01	1.26E+01	1.26E+01
	Total Particulate Matter	PER 001		1.44E+01	6.30E+01	6.30E+01	6.30E+01
<b>GP 001</b>							
	Toluene	PER 001		5.43E+01	2.38E+02	2.24E+02	2.24E+02
	Volatile Organic Compounds	PER 001		5.43E+01	2.38E+02	2.24E+02	2.24E+02

## FACILITY DESCRIPTION: Potential-to-emit (by pollutant)

Show: Active and Pending Records  
 AQD Facility ID: 03700368  
 Facility Name: Recovery Technology Solutions

Pollutant	Item	Added By (Action)	Retired By (Action)	Hourly Potential (lbs per hr)	Unrestricted Potential (tons per yr)	Limited Potential (tons per yr)	Actual Emissions (tons per yr)
<b>Benzene</b>							
	EU 004	PER 001		4.140E-05	1.810E-04	1.810E-04	1.810E-04
	EU 005	PER 001		8.300E-06	3.640E-05	3.640E-05	3.640E-05
Totals					2.174E-04	2.174E-04	2.174E-04
<b>Arsenic compounds</b>							
	EU 004	PER 001		3.940E-06	1.730E-05	1.730E-05	1.730E-05
	EU 005	PER 001		7.910E-07	3.460E-06	3.460E-06	3.460E-06
Totals					2.076E-05	2.076E-05	2.076E-05
<b>Beryllium</b>							
	EU 004	PER 001		2.360E-07	1.040E-06	1.040E-06	1.040E-06
	EU 005	PER 001		4.740E-08	2.080E-07	2.080E-07	2.080E-07
Totals					1.248E-06	1.248E-06	1.248E-06
<b>Carbon Dioxide Equivalent</b>							
	EU 004	PER 001		2.733E+03	1.197E+04	1.197E+04	1.197E+04
	EU 005	PER 001		5.485E+02	2.403E+03	2.403E+03	2.403E+03
Totals					1.437E+04	1.437E+04	1.437E+04
<b>Cadmium compounds</b>							
	EU 004	PER 001		2.170E-05	9.490E-05	9.490E-05	9.490E-05
	EU 005	PER 001		4.350E-06	1.900E-05	1.900E-05	1.900E-05
Totals					1.139E-04	1.139E-04	1.139E-04
<b>Methane</b>							
	EU 004	PER 001		1.300E-01	5.800E-01	5.800E-01	5.800E-01
	EU 005	PER 001		3.000E-02	1.200E-01	1.200E-01	1.200E-01
Totals					7.000E-01	7.000E-01	7.000E-01
<b>Carbon Monoxide</b>							
	EU 004	PER 001		1.650E+00	7.210E+00	7.210E+00	7.210E+00
	EU 005	PER 001		3.320E-01	1.450E+00	1.450E+00	1.450E+00
Totals					8.660E+00	8.660E+00	8.660E+00
<b>Carbon Dioxide</b>							
	EU 004	PER 001		2.722E+03	1.192E+04	1.192E+04	1.192E+04
	EU 005	PER 001		5.460E+02	2.393E+03	2.393E+03	2.393E+03
Totals					1.431E+04	1.431E+04	1.431E+04
<b>Cobalt compounds</b>							
	EU 004	PER 001		1.650E-06	7.250E-06	7.250E-06	7.250E-06
	EU 005	PER 001		3.320E-07	1.450E-06	1.450E-06	1.450E-06
Totals					8.700E-06	8.700E-06	8.700E-06

## FACILITY DESCRIPTION: Potential-to-emit (by pollutant)

Show: Active and Pending Records  
AQD Facility ID: 03700368  
Facility Name: Recovery Technology Solutions

Pollutant	Item	Added By (Action)	Retired By (Action)	Hourly Potential (lbs per hr)	Unrestricted Potential (tons per yr)	Limited Potential (tons per yr)	Actual Emissions (tons per yr)
<b>Chromium compounds</b>							
	EU 004	PER 001		2.760E-05	1.210E-04	1.210E-04	1.210E-04
	EU 005	PER 001		5.530E-06	2.420E-05	2.420E-05	2.420E-05
Totals					1.452E-04	1.452E-04	1.452E-04
<b>1,4-Dichlorobenzene</b>							
	EU 004	PER 001		2.360E-05	1.040E-04	1.040E-04	1.040E-04
	EU 005	PER 001		4.740E-06	2.080E-05	2.080E-05	2.080E-05
Totals					1.248E-04	1.248E-04	1.248E-04
<b>Formaldehyde</b>							
	EU 004	PER 001		1.480E-03	6.470E-03	6.470E-03	6.470E-03
	EU 005	PER 001		2.960E-04	1.300E-03	1.300E-03	1.300E-03
Totals					7.770E-03	7.770E-03	7.770E-03
<b>Hexane</b>							
	EU 004	PER 001		3.540E-02	1.550E-01	1.550E-01	1.550E-01
	EU 005	PER 001		7.120E-03	3.120E-02	3.120E-02	3.120E-02
Totals					1.862E-01	1.862E-01	1.862E-01
<b>Naphthalene</b>							
	EU 004	PER 001		1.200E-05	5.260E-05	5.260E-05	5.260E-05
	EU 005	PER 001		2.410E-06	1.060E-05	1.060E-05	1.060E-05
Totals					6.320E-05	6.320E-05	6.320E-05
<b>Mercury</b>							
	EU 004	PER 001		5.120E-06	2.240E-05	2.240E-05	2.240E-05
	EU 005	PER 001		1.030E-06	4.500E-06	4.500E-06	4.500E-06
Totals					2.690E-05	2.690E-05	2.690E-05
<b>Toluene</b>							
	EU 004	PER 001		6.700E-05	2.930E-04	2.930E-04	2.930E-04
	EU 005	PER 001		1.340E-05	5.890E-05	5.890E-05	5.890E-05
	GP 001	PER 001		5.430E+01	2.378E+02	2.240E+02	2.240E+02
Totals					2.378E+02	2.240E+02	2.240E+02
<b>Manganese compounds</b>							
	EU 004	PER 001		7.480E-06	3.280E-05	3.280E-05	3.280E-05
	EU 005	PER 001		1.500E-06	6.580E-06	6.580E-06	6.580E-06
Totals					3.938E-05	3.938E-05	3.938E-05
<b>Nitrous Oxide</b>							
	EU 004	PER 001		3.000E-01	1.200E-01	1.200E-01	1.200E-01
	EU 005	PER 001		1.000E-02	2.000E-02	2.000E-02	2.000E-02
Totals					1.400E-01	1.400E-01	1.400E-01

## FACILITY DESCRIPTION: Potential-to-emit (by pollutant)

Show: Active and Pending Records  
 AQD Facility ID: 03700368  
 Facility Name: Recovery Technology Solutions

Pollutant	Item	Added By (Action)	Retired By (Action)	Hourly Potential (lbs per hr)	Unrestricted Potential (tons per yr)	Limited Potential (tons per yr)	Actual Emissions (tons per yr)
<b>Nickel compounds</b>							
	EU 004	PER 001		4.140E-05	1.810E-04	1.810E-04	1.810E-04
	EU 005	PER 001		8.300E-06	3.640E-05	3.640E-05	3.640E-05
Totals					2.174E-04	2.174E-04	2.174E-04
<b>Nitrogen Oxides</b>							
	EU 004	PER 001		2.850E+00	1.250E+01	1.250E+01	1.250E+01
	EU 005	PER 001		5.730E-01	2.510E+00	2.510E+00	2.510E+00
Totals					1.501E+01	1.501E+01	1.501E+01
<b>PM &lt; 2.5 micron</b>							
	EU 001	PER 001		1.667E+01	7.300E+01	2.832E+01	2.832E+01
	EU 003	PER 001		6.000E-02	2.500E-01	2.160E-02	2.160E-02
	EU 004	PER 001		1.540E-01	6.730E-01	6.730E-01	6.730E-01
	EU 005	PER 001		3.080E-02	1.350E-01	1.350E-01	1.350E-01
	FS 002	PER 001		7.100E-01	3.090E+00	3.090E+00	3.090E+00
Totals					7.715E+01	3.224E+01	3.224E+01
<b>Lead</b>							
	EU 004	PER 001		9.850E-06	4.300E-05	4.300E-05	4.300E-05
	EU 005	PER 001		1.980E-06	8.660E-06	8.660E-06	8.660E-06
Totals					5.166E-05	5.166E-05	5.166E-05
<b>PM &lt; 10 micron</b>							
	EU 001	PER 001		1.667E+01	7.300E+01	2.832E+01	2.832E+01
	EU 003	PER 001		6.000E-02	2.500E-01	2.160E-02	2.160E-02
	EU 004	PER 001		1.540E-01	6.730E-01	6.730E-01	6.730E-01
	EU 005	PER 001		3.080E-02	1.350E-01	1.350E-01	1.350E-01
	FS 002	PER 001		2.880E+00	1.260E+01	1.260E+01	1.260E+01
Totals					8.666E+01	4.175E+01	4.175E+01
<b>Polycyclic organic matter</b>							
	EU 004	PER 001		1.370E-05	6.020E-05	6.020E-05	6.020E-05
	EU 005	PER 001		2.760E-06	1.210E-05	1.210E-05	1.210E-05
Totals					7.230E-05	7.230E-05	7.230E-05
<b>Total Particulate Matter</b>							
	EU 001	PER 001		1.667E+01	7.300E+01	1.416E+01	1.416E+01
	EU 003	PER 001		1.700E-01	7.300E-01	6.420E-02	6.420E-02
	EU 004	PER 001		1.540E-01	6.730E-01	6.730E-01	6.730E-01
	EU 005	PER 001		3.080E-02	1.350E-01	1.350E-01	1.350E-01
	FS 002	PER 001		1.438E+01	6.300E+01	6.300E+01	6.300E+01
Totals					1.375E+02	7.803E+01	7.803E+01

## FACILITY DESCRIPTION: Potential-to-emit (by pollutant)

Show: Active and Pending Records  
 AQD Facility ID: 03700368  
 Facility Name: Recovery Technology Solutions

Pollutant	Item	Added By (Action)	Retired By (Action)	Hourly Potential (lbs per hr)	Unrestricted Potential (tons per yr)	Limited Potential (tons per yr)	Actual Emissions (tons per yr)
<b>Selenium compounds</b>							
	EU 004	PER 001		4.730E-07	2.070E-06	2.070E-06	2.070E-06
	EU 005	PER 001		9.490E-08	4.160E-07	4.160E-07	4.160E-07
Totals					2.486E-06	2.486E-06	2.486E-06
<b>Sulfur Dioxide</b>							
	EU 004	PER 001		1.200E-02	5.200E-02	5.200E-02	5.200E-02
	EU 005	PER 001		2.400E-03	1.040E-02	1.040E-02	1.040E-02
Totals					6.240E-02	6.240E-02	6.240E-02
<b>Volatile Organic Compounds</b>							
	EU 004	PER 001		1.760E-01	7.700E-01	7.700E-01	7.700E-01
	EU 005	PER 001		3.530E-02	1.540E-01	1.540E-01	1.540E-01
	GP 001	PER 001		5.430E+01	2.378E+02	2.240E+02	2.240E+02
Totals					2.387E+02	2.249E+02	2.249E+02



**Minnesota Pollution  
Control Agency**

520 Lafayette Road North  
St. Paul, MN 55155-4194

Alternate Format

GI-07

Facility Emissions Summary

Air Quality Permit Program

Doc Type: Permit Application

1a) AQ Facility ID No.: 03700368

1b) AQ File No.: 4542

2) Facility Name: Recovery Technology Solutions (RTS)

3a)	3b)	3c) CAS#:	--			CAS#:	--			CAS#:	--		
Emission Source Type	Emission Source ID No.	3d) Pollutant Name:	PM			Pollutant Name:	PM <sub>10</sub>			Pollutant Name:	PM <sub>2.5</sub>		
		3e) Potential			3f) Actual	Potential			Actual	Potential			Actual
		Lbs per Hr	Unrestricted tpy	Limited tpy	Tons per yr	Lbs per Hr	Unrestricted tpy	Limited tpy	Tons per yr	Lbs per Hr	Unrestricted tpy	Limited tpy	Tons per yr
EU	001	3.23	73.00	14.16	NA	6.47	73.00	28.32	NA	6.47	73.00	28.32	NA
EU	003	0.01	0.73	0.06	NA	0.00	0.25	0.02	NA	0.00	0.25	0.02	NA
EU	004	0.15	0.67	0.67	NA	0.15	0.67	0.67	NA	0.15	0.67	0.67	NA
EU	005	0.03	0.14	0.14	NA	0.03	0.14	0.14	NA	0.03	0.14	0.14	NA

4)	Potential			Actual	Potential			Actual	Potential			Actual
Total	<del>Unrestricted</del>	<del>Limited</del>	<del>Yr</del>	<del>NA</del>	<del>Unrestricted</del>	<del>Limited</del>	<del>Yr</del>	<del>NA</del>	<del>Unrestricted</del>	<del>Limited</del>	<del>Yr</del>	<del>NA</del>
Facility	74.54	15.03	N/A		74.06	29.15	N/A		74.06	29.15	N/A	

- 5) ☒ Application is being submitted on a compact disc (CD), and the editable calculation spreadsheet(s) are included on the CD  
☐ Application is being submitted on paper only, so editable calculation ☐ will be e-mailed to the MPCA upon request or ☐ are included on an enclosed CD.



**Minnesota Pollution  
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Facility Emissions Summary

Air Quality Permit Program

Doc Type: Permit Application

1a) AQ Facility ID No.: 03700368

1b) AQ File No.: 4542

2) Facility Name: Recovery Technology Solutions (RTS)

3a)	3b)	3c) CAS#:	--			3c) CAS#:	--			3c) CAS#:	--		
Emission Source Type	Emission Source ID No.	3d) Pollutant Name	SO <sub>2</sub>			3d) Pollutant Name	CO			3d) Pollutant Name	NOx		
		3e) Potential			3f) Actual	Potential			Actual	Potential			Actual
		Lbs per Hr	Unrestricted tpy	Limited tpy	Tons per yr	Lbs per Hr	Unrestricted tpy	Limited tpy	Tons per yr	Lbs per Hr	Unrestricted tpy	Limited tpy	Tons per yr
EU	004	0.01	0.05	0.05	NA	1.65	7.21	7.21	NA	2.85	12.50	12.50	NA
EU	005	0.00	0.01	0.01	NA	0.33	1.45	1.45	NA	0.57	2.51	2.51	NA

4)	Potential			Actual	Potential			Actual	Potential			Actual
Total	<del>X</del>	Unrestricted	Limited	Yr	<del>X</del>	Unrestricted	Limited	Yr	<del>X</del>	Unrestricted	Limited	Yr
Facility	<del>X</del>	6.2E-02	6.2E-02	N/A	<del>X</del>	8.67	8.67	N/A	<del>X</del>	15.01	15.01	N/A

3a)	3b)	3c) CAS#:	--			3c) CAS#:	--			3c) CAS#:	--		
Emission Source Type	Emission Source ID No.	3d) Pollutant Name:	VOC			3d) Pollutant Name:	Lead			3d) Pollutant Name:	GHG - CO <sub>2</sub> e		
		3e) Potential			3f) Actual	Potential			Actual	Potential			Actual
		Lbs per Hr	Unrestricted tpy	Limited tpy	Tons per yr	Lbs per Hr	Unrestricted tpy	Limited tpy	Tons per yr	Lbs per Hr	Unrestricted tpy	Limited tpy	Tons per yr
EU	004	0.18	0.77	0.77	NA	9.8E-06	4.3E-05	4.3E-05	NA	2,350	10,294	10,294	NA
EU	005	0.04	0.15	0.15	NA	2.0E-06	8.7E-06	8.7E-06	NA	472	2,066	2,066	NA
GP	001	54.28	237.8	224.1									

4)	Potential			Actual	Potential			Actual	Potential			Actual
Total	<del>X</del>	Unrestricted	Limited	Yr	<del>X</del>	Unrestricted	Limited	Yr	<del>X</del>	Unrestricted	Limited	Yr
Facility	<del>X</del>	238.7	225.0	N/A	<del>X</del>	5.2E-05	5.2E-05	N/A	<del>X</del>	12,360	12,360	N/A



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**Facility Emissions Summary**

Air Quality Permit Program

Doc Type: Permit Application

1a) AQ Facility ID No.: 03700368

1b) AQ File No.: 4542

2) Facility Name: Recovery Technology Solutions (RTS)

3a)	3b)	3c) CAS#:	--				3c) CAS#:	--				3c) CAS#:	--			
Emission Source Type	Emission Source ID No.	3d) Pollutant Name:	CO <sub>2</sub> (GHG Mass)				3d) Pollutant Name:	CH <sub>4</sub> (GHG Mass)				3d) Pollutant Name:	N <sub>2</sub> O (GHG mass)			
		3e) Potential				3f) Actual	Potential				Actual	Potential				Actual
		Lbs per Hr	Unrestricted tpy	Limited tpy	Tons per yr		Lbs per Hr	Unrestricted tpy	Limited tpy	Tons per yr		Lbs per Hr	Unrestricted tpy	Limited tpy	Tons per yr	
EU	004	2,348	10,284	10,284	NA		0.04	0.19	0.19	NA		4.43E-03	1.94E-02	1.94E-02	NA	
EU	005	471	2,064	2,064	NA		0.01	0.04	0.04	NA		8.89E-04	3.89E-03	3.89E-03	NA	

4)	Potential				Actual	Potential				Actual	Potential				Actual
Total Facility	<del>Unrestricted</del>	<del>Limited</del>	<del>Unrestricted</del>	<del>Limited</del>	Yr	<del>Unrestricted</del>	<del>Limited</del>	<del>Unrestricted</del>	<del>Limited</del>	Yr	<del>Unrestricted</del>	<del>Limited</del>	<del>Unrestricted</del>	<del>Limited</del>	Yr
	12,348	12,348			N/A	0.23	0.23			N/A	2.33E-02	2.33E-02			N/A

3a)	3b)	3c) CAS#:	110-54-3				3c) CAS#:	50-00-0				3c) CAS#:	7440-38-2			
Emission Source Type	Emission Source ID No.	3d) Pollutant Name:	n-Hexane				3d) Pollutant Name:	Formaldehyde				3d) Pollutant Name:	Arsenic			
		3e) Potential				3f) Actual	Potential				Actual	Potential				Actual
		Lbs per Hr	Unrestricted tpy	Limited tpy	Tons per yr		Lbs per Hr	Unrestricted tpy	Limited tpy	Tons per yr		Lbs per Hr	Unrestricted tpy	Limited tpy	Tons per yr	
EU	004	0.04	0.16	0.16	NA		1.5E-03	6.5E-03	6.5E-03	NA		3.9E-06	1.7E-05	1.7E-05	NA	
EU	005	0.01	0.03	0.03	NA		3.0E-04	1.3E-03	1.3E-03	NA		7.9E-07	3.5E-06	3.5E-06	NA	

4)	Potential				Actual	Potential				Actual	Potential				Actual
Total Facility	<del>Unrestricted</del>	<del>Limited</del>	<del>Unrestricted</del>	<del>Limited</del>	Yr	<del>Unrestricted</del>	<del>Limited</del>	<del>Unrestricted</del>	<del>Limited</del>	Yr	<del>Unrestricted</del>	<del>Limited</del>	<del>Unrestricted</del>	<del>Limited</del>	Yr
	0.19	0.19			N/A	7.77E-03	7.77E-03			N/A	2.07E-05	2.07E-05			N/A



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Air Quality Permit Program

Doc Type: Permit Application

1a) AQ Facility ID No.: 03700368

1b) AQ File No.: 4542

2) Facility Name: Recovery Technology Solutions (RTS)

3a)	3b)	3c) CAS#:	71-43-2			3c) CAS#:	7440-41-7			3c) CAS#:	7440-43-9		
Emission Source Type	Emission Source ID No.	3d) Pollutant Name:	Benzene			3d) Pollutant Name:	Beryllium			3d) Pollutant Name:	Cadmium		
		3e) Potential			3f) Actual	Potential			Actual	Potential			Actual
		Lbs per Hr	Unrestricted tpy	Limited tpy	Tons per yr	Lbs per Hr	Unrestricted tpy	Limited tpy	Tons per yr	Lbs per Hr	Unrestricted tpy	Limited tpy	Tons per yr
EU	004	4.1E-05	1.8E-04	1.8E-04	NA	2.4E-07	1.0E-06	1.0E-06	NA	2.2E-05	9.5E-05	9.5E-05	NA
EU	005	8.3E-06	3.6E-05	3.6E-05	NA	4.74E-08	2.08E-07	2.08E-07	NA	4.3E-06	1.9E-05	1.9E-05	NA

4)	Potential			Actual	Potential			Actual	Potential			Actual
Total	<del>X</del>	Unrestricted	Limited	Yr	<del>X</del>	Unrestricted	Limited	Yr	<del>X</del>	Unrestricted	Limited	Yr
Facility	<del>X</del>	2.2E-04	2.2E-04	N/A	<del>X</del>	1.2E-06	1.2E-06	N/A	<del>X</del>	1.1E-04	1.1E-04	N/A

3a)	3b)	3c) CAS#:	7440-47-3			3c) CAS#:	7440-48-4			3c) CAS#:	25321-22-6		
Emission Source Type	Emission Source ID No.	3d) Pollutant Name:	Chromium			3d) Pollutant Name:	Cobalt			3d) Pollutant Name:	Dichlorobenzene		
		3e) Potential			3f) Actual	Potential			Actual	Potential			Actual
		Lbs per Hr	Unrestricted tpy	Limited tpy	Tons per yr	Lbs per Hr	Unrestricted tpy	Limited tpy	Tons per yr	Lbs per Hr	Unrestricted tpy	Limited tpy	Tons per yr
EU	004	2.8E-05	1.2E-04	1.2E-04	NA	1.7E-06	7.2E-06	7.2E-06	NA	2.4E-05	1.0E-04	1.0E-04	NA
EU	005	5.5E-06	2.4E-05	2.4E-05	NA	3.3E-07	1.5E-06	1.5E-06	NA	4.7E-06	2.1E-05	2.1E-05	NA

4)	Potential			Actual	Potential			Actual	Potential			Actual
Total	<del>X</del>	Unrestricted	Limited	Yr	<del>X</del>	Unrestricted	Limited	Yr	<del>X</del>	Unrestricted	Limited	Yr
Facility	<del>X</del>	1.4E-04	1.4E-04	N/A	<del>X</del>	8.7E-06	8.7E-06	N/A	<del>X</del>	1.2E-04	1.2E-04	N/A



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**Facility Emissions Summary**

Air Quality Permit Program

Doc Type: Permit Application

1a) AQ Facility ID No.: 03700368

1b) AQ File No.: 4542

2) Facility Name: Recovery Technology Solutions (RTS)

3a)	3b)	3c) CAS#:	7439-96-5			3c) CAS#:	7439-97-6			3c) CAS#:	91-20-3		
Emission Source Type	Emission Source ID No.	3d) Pollutant Name:	Manganese			3d) Pollutant Name:	Mercury			3d) Pollutant Name:	Naphthalene		
		3e) Potential			3f) Actual	Potential			Actual	Potential			Actual
		Lbs per Hr	Unrestricted tpy	Limited tpy	Tons per yr	Lbs per Hr	Unrestricted tpy	Limited tpy	Tons per yr	Lbs per Hr	Unrestricted tpy	Limited tpy	Tons per yr
EU	004	7.5E-06	3.3E-05	3.3E-05	NA	5.1E-06	2.2E-05	2.2E-05	NA	1.2E-05	5.3E-05	5.3E-05	NA
EU	005	1.5E-06	6.6E-06	6.6E-06	NA	1.0E-06	4.5E-06	4.5E-06	NA	2.4E-06	1.1E-05	1.1E-05	NA

4)	Potential			Actual	Potential			Actual	Potential			Actual
Total Facility	<del>Unrestricted</del>	<del>Limited</del>	<del>Yr</del>	<del>Yr</del>	<del>Unrestricted</del>	<del>Limited</del>	<del>Yr</del>	<del>Yr</del>	<del>Unrestricted</del>	<del>Limited</del>	<del>Yr</del>	<del>Yr</del>
	3.9E-05	3.9E-05	N/A	N/A	2.7E-05	2.7E-05	N/A	N/A	6.3E-05	6.3E-05	N/A	N/A

3a)	3b)	3c) CAS#:	7440-02-0			3c) CAS#:	N/A			3c) CAS#:	7782-49-2		
Emission Source Type	Emission Source ID No.	3d) Pollutant Name:	Nickel			3d) Pollutant Name:	POM (PAHs)			3d) Pollutant Name:	Selenium		
		3e) Potential			3f) Actual	Potential			Actual	Potential			Actual
		Lbs per Hr	Unrestricted tpy	Limited tpy	Tons per yr	Lbs per Hr	Unrestricted tpy	Limited tpy	Tons per yr	Lbs per Hr	Unrestricted tpy	Limited tpy	Tons per yr
EU	004	4.1E-05	1.8E-04	1.8E-04	NA	1.4E-05	6.0E-05	6.0E-05	NA	4.7E-07	2.1E-06	2.1E-06	NA
EU	005	8.3E-06	3.6E-05	3.6E-05	NA	2.8E-06	1.2E-05	1.2E-05	NA	9.5E-08	4.2E-07	4.2E-07	NA

4)	Potential			Actual	Potential			Actual	Potential			Actual
Total Facility	<del>Unrestricted</del>	<del>Limited</del>	<del>Yr</del>	<del>Yr</del>	<del>Unrestricted</del>	<del>Limited</del>	<del>Yr</del>	<del>Yr</del>	<del>Unrestricted</del>	<del>Limited</del>	<del>Yr</del>	<del>Yr</del>
	2.2E-04	2.2E-04	N/A	N/A	7.2E-05	7.2E-05	N/A	N/A	2.5E-06	2.5E-06	N/A	N/A



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Facility Emissions Summary

Air Quality Permit Program

Doc Type: Permit Application

1a) AQ Facility ID No.: 03700368

1b) AQ File No.: 4542

2) Facility Name: Recovery Technology Solutions (RTS)

3a)	3b)	3c) CAS#: 108-88-3				3c) CAS#: N/A			
Emission Source Type	Emission Source ID No.	3d) Pollutant Name: Toluene				3d) Pollutant Name: Total HAPs			
		3e) Potential			3f) Actual	Potential			Actual
		Lbs per Hr	Unrestricted tpy	Limited tpy	Tons per yr	Lbs per Hr	Unrestricted tpy	Limited tpy	Tons per yr
EU	004	6.7E-05	2.9E-04	2.9E-04	NA	3.7E-02	1.6E-01	1.6E-01	NA
EU	005	1.3E-05	5.9E-05	5.9E-05	NA	7.5E-03	3.3E-02	3.3E-02	NA
GP	001	54.3	237.8	224.1	NA	54.3	237.8	224.1	NA

4)	Potential			Actual	Potential			Actual
Total	<del>Unrestricted</del>	<del>Limited</del>	<del>Yr</del>	Yr	<del>Unrestricted</del>	<del>Limited</del>	<del>Yr</del>	Yr
Facility	<del>237.8</del>	<del>224.1</del>	<del>N/A</del>	N/A	<del>238.0</del>	<del>224.3</del>	<del>N/A</del>	N/A

## Recovery Technology Solutions (RTS)

Randolph, MN

AQ Facility ID: 03700368

Particulate Emissions from Dryer

<b>Emission Unit:</b>	EU 001	Dryer
<b>Stack/Vent Designation:</b>	SV 001	
<b>Control Equipment:</b>	CE 001	Cyclone
<b>Maximum Dryer Throughput:</b>	200	tons per day (tpd)
<b>Average Hourly Throughput:</b>	8	tons per hour (tph)
<b>Annual Throughput:</b>	73,000	tons per year (tpy)
<b>Hours of Operation:</b>	8,760	hours per year

Calculations - Fuel :		Steam					
Pollutant	Emission Factor <sup>1</sup> (lb/ton)	Emission Rate (lbs/hr)	Maximum Uncontrolled Emissions (tons/yr)	Pollution Control Efficiency (%)	Controlled Emission Rate (lbs/hr) <sup>2</sup>	Maximum Controlled Emissions (tons/yr)	Limited Controlled Emissions (tons/yr)
PM - Filterable	2.00	16.67	73.00	80.6%	3.23	14.16	14.16
PM <sub>10</sub> - Filterable	2.00	16.67	73.00	61.2%	6.47	28.32	28.32
PM <sub>2.5</sub> - Filterable	2.00	16.67	73.00	61.2%	6.47	28.32	28.32

<sup>1</sup> Uncontrolled emission factors for PM were conservatively assumed to be equal to those of a sand and gravel dryer (SCC 3-05-027-20). Emission factors from AP-42 section 11.19.1 Table 11.19.1-1 for Industrial Sand and Gravel Processing. PM was assumed to equal PM<sub>10</sub> and PM<sub>2.5</sub>.

<sup>2</sup> Dryer emissions will be controlled by a cyclone. Pollution control efficiency was estimated using grain loading limits provided by the cyclone vendor. The limits for PM and PM<sub>10</sub> were given as 0.020 and 0.040 gr/dscf respectively, and PM<sub>2.5</sub> was assumed equal to PM<sub>10</sub>.

Pollutant	Efficiency of the cyclone (gr/dscf)	Airflow (acfm)	Airflow (dcfm)	Controlled Emission Rate (lb/hr)
PM - Filterable	0.020	20,000	18,857	3.23
PM <sub>10</sub> - Filterable	0.040	20,000	18,857	6.47
PM <sub>2.5</sub> - Filterable	0.040	20,000	18,857	6.47

Conversion = 7,000 gr/lb PM/PM<sub>10</sub>

Air Flow = acfm F scfm dscfm

20,000 100 18,857 18,857

Worst case assume dscfm = scfm

# Recovery Technology Solutions (RTS)

Randolph, MN

AQ Facility ID: 03700368

Particulate Emissions from Screening Fabric Filter

Emission Unit:	EU 003	Screen Fabric Filter	(Fabric Filter is considered process equipment)
Stack/Vent Designation:	SV 003		
Control Equipment:	NA		
Screen Throughput:	160	tons per day (tpd)	(Based on a maximum of 80% solid material in the shingles processed)
Average Hourly Throughput:	7	tons per hour (tph)	
Annual Throughput:	58,400	tons per year (tpy)	
Hours of Operation:	8,760	hours per year	

Calculations - Fuel :		Steam					
Pollutant	Uncontrolled Emission Factor <sup>1</sup> (lb/ton)	Emission Rate (lbs/hr)	Maximum Uncontrolled Emissions (tons/yr)	Pollution Control Efficiency (%) <sup>2</sup>	Controlled Emission Rate (lbs/hr)	Maximum Controlled Emissions (tons/yr)	Limited Controlled Emissions (tons/yr)
PM - Filterable	0.0250	0.17	0.73	91.20%	1.47E-02	6.42E-02	6.42E-02
PM <sub>10</sub> - Filterable	0.0087	0.06	0.25	91.49%	4.93E-03	2.16E-02	2.16E-02
PM <sub>2.5</sub> - Filterable	0.0087	0.06	0.25	91.49%	4.93E-03	2.16E-02	2.16E-02

<sup>1</sup> Emission factors for PM were obtained from AP-42, Section 11.19.2 for Crushed Stone Processing and Pulverized Mineral Processing, Table 11.19.2-2. The product sent through the screener will consist of sand and aggregate, limestone or fly ash, felt or fiberglass, and deleterious building material.

<sup>2</sup> Screening emissions will be reduced by operating a fabric filter. The fabric filter is considered process equipment. The estimate pollution control efficiency was calculated based on the controlled emission factors given in AP-42 Section 11.19.2 Table 11.19.2-2:

	Uncontrolled Emission Factor (lb/ton)	Controlled Emission Factor (lb/ton)	Pollution Control Efficiency (%)
PM - Filterable	0.0250	0.0022	91.20%
PM <sub>10</sub> - Filterable	0.0087	0.00074	91.49%
PM <sub>2.5</sub> - Filterable	0.0087	0.00005	91.49%

Note - PM<sub>2.5</sub> set equal to PM<sub>10</sub>

# Recovery Technology Solutions (RTS)

Randolph, MN

AQ Facility ID: 03700368

Emissions from Boiler

Emission Unit:	EU 004	Boiler 1
Stack/Vent Designation:	SV 004	
Control Equipment:	NA	
Maximum Rated Boiler Capacity :	600.0	Hp
	20.1	MMBtu/hr <sup>1</sup>
Maximum Design Capacity :	20,700	lbs/hr steam <sup>1</sup>

<sup>1</sup> American Society of Mechanical Engineers:

BHp = 29.87 MMBtu/hr  
BHp = 34.5 lbs/hr steam

Fuel Type	% Sulfur (gr/100scf)	% Ash	Heat Value	Units	Maximum Fuel Consumption Rate	Units	Maximum Fuel Consumption Rate	Units
Natural Gas	0.2	Negligible	1,020	Btu/scf	19,693	cf/hr	172.5	MMscf/yr
Propane	0.18	Negligible	91.5	MMBtu/10 <sup>3</sup> gal	219.5	gal/hr	1,923	10 <sup>3</sup> gal/yr

Natural gas: Heat value AP-42 Section 1.4 Table 1.4-1 (July 1998)

Sulfur AP-42 Section 1.4 Table 1.4-2 (July 1998)

Propane: Heat value AP-42 Section 1.5 Table 1.5-1 (July 2008)

Sulfur AP-42 Section 1.5 Table 1.5-1 (July 2008)

Expected Operational Schedule	172.5	NG MMscf/yr (Natural Gas)	No Limit	100.0% Capacity Factor
	1,923	P 10 <sup>3</sup> gal/yr (Propane)	No Limit	100.0% Capacity Factor

Calculations - Primary Fuel : Natural Gas								
Pollutant	Emission Factor <sup>1</sup> (lb/10 <sup>6</sup> scf)	Emission Factor (lb/MMBtu)	Uncontrolled Emission Rate (lbs/hr)	Maximum Uncontrolled Emissions (tons/yr)	Pollution Control Efficiency (%)	Controlled Emission Rate (lbs/hr)	Maximum Controlled Emissions (tons/yr)	Limited Controlled Emissions (tons/yr)
PM - Total	7.60	7.5E-03	0.15	0.66	0.0%	0.15	0.66	0.66
PM <sub>10</sub> - Total	7.60	7.5E-03	0.15	0.66	0.0%	0.15	0.66	0.66
PM <sub>2.5</sub> - Total	7.60	7.5E-03	0.15	0.66	0.0%	0.15	0.66	0.66
NO <sub>x</sub> <sup>2</sup>	--	1.3E-01	2.63	11.53	0.0%	2.63	11.53	11.53
SO <sub>2</sub>	0.60	5.9E-04	0.01	0.05	0.0%	0.01	0.05	0.05
CO <sup>2</sup>	--	3.7E-02	0.74	3.26	0.0%	0.74	3.26	3.26
VOC	5.50	5.4E-03	0.11	0.47	0.0%	0.11	0.47	0.47
Lead	5.00E-04	4.9E-07	9.85E-06	4.3E-05	0.0%	9.8E-06	4.3E-05	4.3E-05

<sup>1</sup> Emission factors from AP-42 Section 1.4 "Natural Gas Combustion", Tables 1.4-1 and 2 (July 1998). PM<sub>2.5</sub> is conservatively assumed to equal PM<sub>10</sub>.

<sup>2</sup> Emission factors were supplied by vendor.

# Recovery Technology Solutions (RTS)

Randolph, MN

AQ Facility ID: 03700368

Emissions from Boiler

Emission Unit: EU 004 Boiler 1

Calculations - Backup Fuel : <b>Propane</b>								
Pollutant	Uncontrolled Emission Factor (lb/10 <sup>3</sup> gal) <sup>1</sup>	Emission Factor (lb/MMBtu)	Uncontrolled Emission Rate (lbs/hr)	Maximum Uncontrolled Emissions (tons/yr)	Pollution Control Efficiency (%)	Controlled Emission Rate (lbs/hr)	Maximum Controlled Emissions (tons/yr)	Limited Controlled Emissions (tons/yr)
PM - Total	0.7	7.65E-03	0.15	0.67	0.0%	0.15	0.67	0.67
PM <sub>10</sub> - Total	0.7	7.65E-03	0.15	0.67	0.0%	0.15	0.67	0.67
PM <sub>2.5</sub> - Total	0.7	7.65E-03	0.15	0.67	0.0%	0.15	0.67	0.67
NO <sub>x</sub>	13	1.42E-01	2.85	12.50	0.0%	2.85	12.50	12.50
SO <sub>2</sub>	0.018	1.97E-04	0.00	0.02	0.0%	0.00	0.02	0.02
CO	7.5	8.20E-02	1.65	7.21	0.0%	1.65	7.21	7.21
VOC	0.8	8.74E-03	0.18	0.77	0.0%	0.18	0.77	0.77
Lead	---	---	---	---	---	---	---	---

<sup>1</sup> Emission factors from AP-42 Section 1.5 Table 1.5-1 (July 2008) Industrial Boilers. PM<sub>2.5</sub> is conservatively assumed to equal PM<sub>10</sub>.

SO<sub>2</sub> EF = 0.1\* Sulfur (gr/100ft<sup>3</sup>)

VOC EF = TOC EF - CH<sub>4</sub> EF = 1.0 - 0.2 = 0.8

Worse-Case Potential-to-Emit Summary:				
Pollutant	Uncontrolled Emission Rate (lb/hr)	Maximum Uncontrolled Emissions (ton/yr)	Limited Controlled Emissions (tons/yr)	Worst Case Fuel
PM	0.15	0.7	0.7	Propane
PM <sub>10</sub>	0.15	0.7	0.7	Propane
PM <sub>2.5</sub>	0.15	0.7	0.7	Propane
NO <sub>x</sub>	2.85	12.5	12.5	Propane
SO <sub>2</sub>	0.01	0.1	0.1	Natural Gas
CO	1.65	7.2	7.2	Propane
VOC	0.18	0.8	0.8	Propane
Lead	9.85E-06	4.31E-05	4.31E-05	Natural Gas

# Recovery Technology Solutions (RTS)

Randolph, MN

AQ Facility ID: 03700368

HAP Emissions from Boiler

Emission Unit: EU 004 Boiler 1  
 Stack/Vent Designation: SV 004  
 Control Equipment: NA  
 Maximum Rated Boiler Capacity: 20.1 MMBtu/hr

Fuel Type	% Sulfur	% Ash	Heat Value	Units	Maximum Fuel Consumption Rate	Units	Limited Fuel Consumption Rate	Units
Natural Gas	0.2	Negligible	1,020	Btu/scf	172.5	10 <sup>6</sup> scf/yr	172.5	10 <sup>6</sup> scf/yr
Propane	0.18	Negligible	91.5	MMBtu/10 <sup>3</sup> gal	1,923	10 <sup>3</sup> gal/yr	1,923	10 <sup>3</sup> gal/yr

Natural gas: Heat value AP-42 Section 1.4 Table 1.4-1 (July 1998)

Propane: Heat value AP-42 Section 1.5 Table 1.5-1 (July 2008)

Sulfur AP-42 Section 1.4 Table 1.4-2 (July 1998)

Sulfur AP-42 Section 1.5 Table 1.5-1 (July 2008)

Note: There are no HAP emission factors available in AP-42 Section 1.5 for Propane (backup fuel).

Calculations Summary - Primary Fuel : Natural Gas							
HAP Name [CAS]	Uncontrolled Emission Factor <sup>1</sup> (lbs/10 <sup>6</sup> scf)	Uncontrolled Emission Rate (lbs/hr)	Maximum Uncontrolled Emissions (tons/yr)	Pollution Control Efficiency (%)	Controlled Emission Factor (lbs/10 <sup>6</sup> scf)	Maximum Controlled Emissions (tons/yr)	Limited Controlled Emissions (tons/yr)
Arsenic [7440-38-2]	2.00E-04	3.94E-06	1.73E-05	0.00%	NA	1.73E-05	1.73E-05
Benzene [71-43-2]	2.10E-03	4.14E-05	1.81E-04	0.00%	NA	1.81E-04	1.81E-04
Beryllium [7440-41-7]	1.20E-05	2.36E-07	1.04E-06	0.00%	NA	1.04E-06	1.04E-06
Cadmium [7440-43-9]	1.10E-03	2.17E-05	9.49E-05	0.00%	NA	9.49E-05	9.49E-05
Chromium [7440-47-3]	1.40E-03	2.76E-05	1.21E-04	0.00%	NA	1.21E-04	1.21E-04
Cobalt [7440-48-4]	8.40E-05	1.65E-06	7.25E-06	0.00%	NA	7.25E-06	7.25E-06
Dichlorobenzene [25321-22-6]	1.20E-03	2.36E-05	1.04E-04	0.00%	NA	1.04E-04	1.04E-04
Formaldehyde [50-00-0]	7.50E-02	1.48E-03	6.47E-03	0.00%	NA	6.47E-03	6.47E-03
Hexane [110-54-3]	1.80E+00	3.54E-02	1.55E-01	0.00%	NA	1.55E-01	1.55E-01
Manganese [7439-96-5]	3.80E-04	7.48E-06	3.28E-05	0.00%	NA	3.28E-05	3.28E-05
Mercury [7439-97-6]	2.60E-04	5.12E-06	2.24E-05	0.00%	NA	2.24E-05	2.24E-05
Naphthalene [91-20-3]	6.10E-04	1.20E-05	5.26E-05	0.00%	NA	5.26E-05	5.26E-05
Nickel [7440-02-0]	2.10E-03	4.14E-05	1.81E-04	0.00%	NA	1.81E-04	1.81E-04
POM <sup>2</sup>	6.98E-04	1.37E-05	6.02E-05	0.00%	NA	6.02E-05	6.02E-05
Selenium [7782-49-2]	2.40E-05	4.73E-07	2.07E-06	0.00%	NA	2.07E-06	2.07E-06
Toluene [108-88-3]	3.40E-03	6.70E-05	2.93E-04	0.00%	NA	2.93E-04	2.93E-04
<b>Totals</b>		<b>3.72E-02</b>	<b>1.63E-01</b>			<b>1.63E-01</b>	<b>1.63E-01</b>

<sup>1</sup> Emission factors from AP-42 Section 1.4 (07/98)

<sup>2</sup> Total POM emission factor is equal to the sum of the individual POM compounds and includes Naphthalene. Naphthalene is not double counted in the total HAPs.

# Recovery Technology Solutions (RTS)

Randolph, MN

AQ Facility ID: 03700368

GHG Emissions from Boiler

Emission Unit:	EU 004	Boiler 1
Stack/Vent Designation:	SV 004	
Control Equipment:	NA	
Maximum Rated Boiler Capacity:	20.1	MMBtu/hr

Note - GHG Emission Factors from 40 CFR Part 98 Subpart C (GHG Mandatory Reporting Rule, Combustion); converted from kg/MMBtu to lb/MMBtu based on 2.2046 lb/kg.

GWP Conversion factors from Table A-1 to Subpart A of Part 98—Global Warming Potentials.

Primary Fuel:		Natural Gas												
GHG Pollutant	GWP	Emission Factor	Uncontrolled Emission Rate			Pollution Control Efficiency	Controlled Emission Rate			Limited and Controlled Emission Rate			Actual Controlled Emission Rate	
		(lb/MMBtu)	(lb/hr)	(tpy)	CO <sub>2</sub> e (tpy)	(%)	(lb/hr)	(tpy)	CO <sub>2</sub> e (tpy)	(lb/hr)	(tpy)	CO <sub>2</sub> e (tpy)	(tpy)	CO <sub>2</sub> e (tpy)
CO <sub>2</sub>	1	116.89	2,348	10,284	10,284	0.0%	2,348	10,284	10,284	2,348	10,284	10,284	NA	NA
CH <sub>4</sub>	21	2.20E-03	0.04	0.19	4.1	0.0%	0.04	0.19	4.1	0.04	0.19	4.1	NA	NA
N <sub>2</sub> O	310	2.20E-04	0.00	0.02	6.0	0.0%	0.00	0.02	6.0	0.00	0.02	6.0	NA	NA
HFCs		N/A	--	--	--	--	--	--	--	--	--	--	--	--
PFCs		N/A	--	--	--	--	--	--	--	--	--	--	--	--
SF <sub>6</sub>	23,900	N/A	--	--	--	--	--	--	--	--	--	--	--	--
Total GHG (CO <sub>2</sub> e)					10,294				10,294			10,294		NA

Primary Fuel:		Propane												
GHG Pollutant	GWP	Emission Factor	Uncontrolled Emission Rate			Pollution Control Efficiency	Controlled Emission Rate			Limited and Controlled Emission Rate			Actual Controlled Emission Rate	
		(lb/MMBtu)	(lb/hr)	(tpy)	CO <sub>2</sub> e (tpy)	(%)	(lb/hr)	(tpy)	CO <sub>2</sub> e (tpy)	(lb/hr)	(tpy)	CO <sub>2</sub> e (tpy)	(tpy)	CO <sub>2</sub> e (tpy)
CO <sub>2</sub>	1	135.49	2,722	11,921	11,921	0.0%	2,722	11,921	11,921	2,722	11,921	11,921	NA	NA
CH <sub>4</sub>	21	6.61E-03	0.13	0.58	12.2	0.0%	0.13	0.58	12.2	0.13	0.58	12.2	NA	NA
N <sub>2</sub> O	310	1.32E-03	0.03	0.12	36.1	0.0%	0.03	0.12	36.1	0.03	0.12	36.1	NA	NA
HFCs		N/A	--	--	--	--	--	--	--	--	--	--	--	--
PFCs		N/A	--	--	--	--	--	--	--	--	--	--	--	--
SF <sub>6</sub>	23,900	N/A	--	--	--	--	--	--	--	--	--	--	--	--
Total GHG (CO <sub>2</sub> e)					11,969				11,969			11,969		NA

Worst-Case Potential-to-Emit Summary									
GHG Pollutant	Max Uncontrolled Emissions			Max Controlled Emissions			Limited and Controlled Emissions		
	Mass Basis	Mass Basis	CO <sub>2</sub> e	Mass Basis	Mass Basis	CO <sub>2</sub> e	Mass Basis	Mass Basis	CO <sub>2</sub> e
	(lb/hr)	(tpy)	(tpy)	(lb/hr)	(tpy)	(tpy)	(lb/hr)	(tpy)	(tpy)
CO <sub>2</sub>	2,722	11,921	11,921	2,722	11,921	11,921	2,722	11,921	11,921
CH <sub>4</sub>	0.13	0.58	12.22	0.13	0.58	12.22	0.13	0.58	12.22
N <sub>2</sub> O	0.03	0.12	36.08	0.03	0.12	36.08	0.03	0.12	36.08
HFCs	0	0	0	0	0	0	0	0	0
PFCs	0	0	0	0	0	0	0	0	0
SF <sub>6</sub>	0	0	0	0	0	0	0	0	0
Total GHG		11,922	11,969		11,922	11,969		11,922	11,969

# Recovery Technology Solutions (RTS)

Randolph, MN

AQ Facility ID: 03700368

Emissions from Process Heater for Hot Oil System (HOS)

Emission Unit: EU 005 Process Heater for HOS  
 Stack/Vent Designation: SV 005  
 Control Equipment: NA  
 Maximum Rated Boiler Capacity: 120.4 Hp  
 4.0 MMBtu/hr  
 Maximum Design Capacity : 4,155 lbs/hr steam<sup>1</sup>

<sup>1</sup> American Society of Mechanical Engineers:

BHp = 29.87 MMBtu/hr  
 BHp = 34.5 lbs/hr steam

Fuel Type	% Sulfur (gr/100scf)	% Ash	Heat Value	Units	Maximum Fuel Consumption Rate	Units	Maximum Fuel Consumption Rate	Units
Natural Gas	0.2	Negligible	1,020	Btu/scf	3,953	cf/hr	34.6	MMscf/yr
Propane	0.18	Negligible	91.5	MMBtu/10 <sup>3</sup> gal	44.1	gal/hr	386	10 <sup>3</sup> gal/yr

Natural gas: Heat value AP-42 Section 1.4 Table 1.4-1 (July 1998)

Sulfur AP-42 Section 1.4 Table 1.4-2 (July 1998)

Propane: Heat value AP-42 Section 1.5 Table 1.5-1 (July 2008)

Sulfur AP-42 Section 1.5 Table 1.5-1 (July 2008)

Expected Limited Operational Schedule

34.6	NG MMscf/yr (Natural Gas)	No Limit	100.0% Capacity Factor
386	P 10 <sup>3</sup> gal/yr (Propane)	No Limit	100.0% Capacity Factor

Calculations - Primary Fuel : Natural Gas								
Pollutant	Emission Factor <sup>1</sup> (lb/10 <sup>6</sup> scf)	Emission Factor (lb/MMBtu)	Uncontrolled Emission Rate (lbs/hr)	Maximum Uncontrolled Emissions (tons/yr)	Pollution Control Efficiency (%)	Controlled Emission Rate (lbs/hr)	Maximum Controlled Emissions (tons/yr)	Limited Controlled Emissions (tons/yr)
PM	7.60	7.5E-03	0.030	0.13	0.0%	0.030	0.13	0.13
PM <sub>10</sub>	7.60	7.5E-03	0.030	0.13	0.0%	0.030	0.13	0.13
PM <sub>2.5</sub>	7.60	7.5E-03	0.030	0.13	0.0%	0.030	0.13	0.13
NO <sub>x</sub>	100	9.8E-02	0.395	1.73	0.0%	0.395	1.73	1.73
SO <sub>2</sub>	0.60	5.9E-04	2.372E-03	1.0E-02	0.0%	2.4E-03	1.0E-02	1.0E-02
CO	84	8.2E-02	0.332	1.45	0.0%	0.332	1.45	1.45
VOC	5.50	5.4E-03	0.022	0.10	0.0%	0.022	0.10	0.10
Lead	0.0005	4.9E-07	2.0E-06	8.7E-06	0.0%	2.0E-06	8.7E-06	8.7E-06

<sup>1</sup> Emission factors from AP-42 Section 1.4 "Natural Gas Combustion", Tables 1.4-1 and 2 (July 1998). PM<sub>2.5</sub> is conservatively assumed to equal PM<sub>10</sub>.

<sup>2</sup> Emission factors were supplied by vendor.

# Recovery Technology Solutions (RTS)

Randolph, MN

AQ Facility ID: 03700368

Emissions from Process Heater for Hot Oil System (HOS)

Emission Unit: EU 005 Process Heater for HOS

Calculations - Backup Fuel : Propane								
Pollutant	Uncontrolled Emission Factor (lb/10 <sup>3</sup> gal) <sup>1</sup>	Emission Factor <sup>1</sup> (lb/MMBtu)	Uncontrolled Emission Rate (lbs/hr)	Maximum Uncontrolled Emissions (tons/yr)	Pollution Control Efficiency (%)	Controlled Emission Rate (lbs/hr)	Maximum Controlled Emissions (tons/yr)	Limited Controlled Emissions (tons/yr)
PM	0.7	0.0077	0.03	0.1	0.0%	0.03	0.1	0.14
PM <sub>10</sub>	0.7	0.0077	0.03	0.1	0.0%	0.03	0.1	0.14
PM <sub>2.5</sub>	0.7	0.0077	0.03	0.1	0.0%	0.03	0.1	0.14
NO <sub>x</sub>	13	0.1421	0.57	2.5	0.0%	0.57	2.5	2.5
SO <sub>2</sub>	0.018	1.97E-04	7.93E-04	3.5E-03	0.0%	7.93E-04	3.47E-03	3.47E-03
CO	7.5	0.0820	0.33	1.4	0.0%	0.33	1.4	1.4
VOC	0.8	0.0087	0.04	0.15	0.0%	0.04	0.2	0.2
Lead	---	---	---	---	---	---	---	---
H <sub>2</sub> SO <sub>4</sub>	---	---	---	---	---	---	---	---
Fluorides	---	---	---	---	---	---	---	---

<sup>1</sup> Emission factors from AP-42 Section 1.5 Table 1.5-1 (July 2008) Industrial Boilers. PM<sub>2.5</sub> is conservatively assumed to equal PM<sub>10</sub>.

SO<sub>2</sub> EF = 0.1\* Sulfur (gr/100ft<sup>3</sup>)

VOC EF = TOC EF - CH<sub>4</sub> EF = 1.0 - 0.2 = 0.8

Worse-Case Potential-to-Emit Summary:				
Pollutant	Uncontrolled Emission Rate (lb/hr)	Maximum Uncontrolled Emissions (ton/yr)	Limited Controlled Emissions (tons/yr)	Worst Case Fuel
PM	0.03	0.14	0.14	Propane
PM <sub>10</sub>	0.03	0.14	0.14	Propane
PM <sub>2.5</sub>	0.03	0.14	0.14	Propane
NO <sub>x</sub>	0.57	2.51	2.51	Propane
SO <sub>2</sub>	0.00	0.01	0.01	Natural Gas
CO	0.33	1.45	1.45	Natural Gas
VOC	0.04	0.15	0.15	Propane
Lead	1.98E-06	8.66E-06	8.66E-06	Natural Gas
H <sub>2</sub> SO <sub>4</sub>	---	---	---	--
Fluorides	---	---	---	--

# Recovery Technology Solutions (RTS)

Randolph, MN

AQ Facility ID: 03700368

HAP Emissions from Process Heater for Hot Oil System (HOS)

Emission Unit: EU 005 Process Heater for HOS  
 Stack/Vent Designation: SV 005  
 Control Equipment: NA  
 Maximum Rated Boiler Capacity: 4.0 MMBtu/hr

Fuel Type	% Sulfur	% Ash	Heat Value	Units	Maximum Fuel Consumption Rate	Units	Limited Fuel Consumption Rate	Units
Natural Gas	0.2	Negligible	1,020	Btu/scf	34.6	10 <sup>6</sup> scf/yr	34.6	10 <sup>6</sup> scf/yr
Propane	0.18	Negligible	91.5	MMBtu/10 <sup>3</sup> gal	386.0	10 <sup>3</sup> gal/yr	386.0	10 <sup>3</sup> gal/yr

Natural gas: Heat value AP-42 Section 1.4 Table 1.4-1 (July 1998)

Propane: Heat value AP-42 Section 1.5 Table 1.5-1 (July 2008)

Sulfur AP-42 Section 1.4 Table 1.4-2 (July 1998)

Sulfur AP-42 Section 1.5 Table 1.5-1 (July 2008)

Note: There are no HAP emission factors available in AP-42 Section 1.5 for Propane (backup fuel).

Calculations Summary - Primary Fuel : Natural Gas							
HAP Name [CAS]	Uncontrolled Emission Factor <sup>1</sup> (lbs/10 <sup>6</sup> scf)	Uncontrolled Emission Rate (lbs/hr)	Maximum Uncontrolled Emissions (tons/yr)	Pollution Control Efficiency (%)	Controlled Emission Factor (lbs/10 <sup>6</sup> scf)	Maximum Controlled Emissions (tons/yr)	Limited Controlled Emissions (tons/yr)
Arsenic [7440-38-2]	2.00E-04	7.91E-07	3.46E-06	0.00%	NA	3.46E-06	3.46E-06
Benzene [71-43-2]	2.10E-03	8.30E-06	3.64E-05	0.00%	NA	3.64E-05	3.64E-05
Beryllium [7440-41-7]	1.20E-05	4.74E-08	2.08E-07	0.00%	NA	2.08E-07	2.08E-07
Cadmium [7440-43-9]	1.10E-03	4.35E-06	1.90E-05	0.00%	NA	1.90E-05	1.90E-05
Chromium [7440-47-3]	1.40E-03	5.53E-06	2.42E-05	0.00%	NA	2.42E-05	2.42E-05
Cobalt [7440-48-4]	8.40E-05	3.32E-07	1.45E-06	0.00%	NA	1.45E-06	1.45E-06
Dichlorobenzene [25321-22-6]	1.20E-03	4.74E-06	2.08E-05	0.00%	NA	2.08E-05	2.08E-05
Formaldehyde [50-00-0]	7.50E-02	2.96E-04	1.30E-03	0.00%	NA	1.30E-03	1.30E-03
Hexane [110-54-3]	1.80E+00	7.12E-03	3.12E-02	0.00%	NA	3.12E-02	3.12E-02
Manganese [7439-96-5]	3.80E-04	1.50E-06	6.58E-06	0.00%	NA	6.58E-06	6.58E-06
Mercury [7439-97-6]	2.60E-04	1.03E-06	4.50E-06	0.00%	NA	4.50E-06	4.50E-06
Naphthalene [91-20-3]	6.10E-04	2.41E-06	1.06E-05	0.00%	NA	1.06E-05	1.06E-05
Nickel [7440-02-0]	2.10E-03	8.30E-06	3.64E-05	0.00%	NA	3.64E-05	3.64E-05
POM <sup>2</sup>	6.98E-04	2.76E-06	1.21E-05	0.00%	NA	1.21E-05	1.21E-05
Selenium [7782-49-2]	2.40E-05	9.49E-08	4.16E-07	0.00%	NA	4.16E-07	4.16E-07
Toluene [108-88-3]	3.40E-03	1.34E-05	5.89E-05	0.00%	NA	5.89E-05	5.89E-05
<b>Totals</b>		<b>7.46E-03</b>	<b>3.27E-02</b>			<b>3.27E-02</b>	<b>3.27E-02</b>

<sup>1</sup> Emission factors from AP-42 Section 1.4 (07/98)

<sup>2</sup> Total POM emission factor is equal to the sum of the individual POM compounds and includes Naphthalene. Naphthalene is not double counted in the total HAPs.

# Recovery Technology Solutions (RTS)

Randolph, MN

AQ Facility ID: 03700368

GHG Emissions from Process Heater for Hot Oil System (HOS)

Emission Unit: EU 005 Process Heater for HOS  
 Stack/Vent Designation: SV 005  
 Control Equipment: NA  
 Maximum Rated Boiler Capacity: 4.0 MMBtu/hr

Note - GHG Emission Factors from 40 CFR Part 98 Subpart C (GHG Mandatory Reporting Rule, Combustion); converted from kg/MMBtu to lb/MMBtu based on 2.2046 lb/kg.  
 GWP Conversion factors from Table A-1 to Subpart A of Part 98—Global Warming Potentials.

Primary Fuel: Natural Gas														
GHG Pollutant	GWP	Emission Factor	Uncontrolled Emission Rate				Pollution Control Efficiency	Controlled Emission Rate			Limited and Controlled Emission Rate			Actual Controlled Emission Rate
		(lb/MMBtu)	(lb/hr)	(tpy)	CO <sub>2</sub> e (tpy)	(%)	(lb/hr)	(tpy)	CO <sub>2</sub> e (tpy)	(lb/hr)	(tpy)	CO <sub>2</sub> e (tpy)	(tpy)	CO <sub>2</sub> e (tpy)
CO <sub>2</sub>	1	116.89	471	2,064	2,064	0.0%	471	2,064	2,064	471	2,064	2,064	NA	NA
CH <sub>4</sub>	21	2.20E-03	0.01	0.04	0.8	0.0%	0.01	0.04	0.8	0.01	0.04	0.8	NA	NA
N <sub>2</sub> O	310	2.20E-04	0.00	0.00	1.2	0.0%	0.00	0.00	1.2	0.00	0.00	1.2	NA	NA
HFCs		N/A	--	--	--	--	--	--	--	--	--	--	--	--
PFCs		N/A	--	--	--	--	--	--	--	--	--	--	--	--
SF <sub>6</sub>	23,900	N/A	--	--	--	--	--	--	--	--	--	--	--	--
Total GHG (CO <sub>2</sub> e)					2,066				2,066			2,066		NA

Primary Fuel: Propane														
GHG Pollutant	GWP	Emission Factor	Uncontrolled Emission Rate				Pollution Control Efficiency	Controlled Emission Rate			Limited and Controlled Emission Rate			Actual Controlled Emission Rate
		(lb/MMBtu)	(lb/hr)	(tpy)	CO <sub>2</sub> e (tpy)	(%)	(lb/hr)	(tpy)	CO <sub>2</sub> e (tpy)	(lb/hr)	(tpy)	CO <sub>2</sub> e (tpy)	(tpy)	CO <sub>2</sub> e (tpy)
CO <sub>2</sub>	1	135.49	546	2,393	2,393	0.0%	546	2,393	2,393	546	2,393	2,393	NA	NA
CH <sub>4</sub>	21	6.61E-03	0.03	0.12	2.5	0.0%	0.03	0.12	2.5	0.03	0.12	2.5	NA	NA
N <sub>2</sub> O	310	1.32E-03	0.01	0.02	7.2	0.0%	0.01	0.02	7.2	0.01	0.02	7.2	NA	NA
HFCs		N/A	--	--	--	--	--	--	--	--	--	--	--	--
PFCs		N/A	--	--	--	--	--	--	--	--	--	--	--	--
SF <sub>6</sub>	23,900	N/A	--	--	--	--	--	--	--	--	--	--	--	--
Total GHG (CO <sub>2</sub> e)					2,403				2,403			2,403		NA

Worst-Case Potential-to-Emit Summary									
GHG Pollutant	Max Uncontrolled Emissions			Max Controlled Emissions			Limited and Controlled Emissions		
	Mass Basis	Mass Basis	CO <sub>2</sub> e	Mass Basis	Mass Basis	CO <sub>2</sub> e	Mass Basis	Mass Basis	CO <sub>2</sub> e
	(lb/hr)	(tpy)	(tpy)	(lb/hr)	(tpy)	(tpy)	(lb/hr)	(tpy)	(tpy)
CO <sub>2</sub>	546	2,393	2,393	546	2,393	2,393	546	2,393	2,393
CH <sub>4</sub>	0.03	0.12	2.45	0.03	0.12	2.45	0.03	0.12	2.45
N <sub>2</sub> O	0.01	0.02	7.24	0.01	0.02	7.24	0.01	0.02	7.24
HFCs	0	0	0	0	0	0	0	0	0
PFCs	0	0	0	0	0	0	0	0	0
SF <sub>6</sub>	0	0	0	0	0	0	0	0	0
Total GHG		2,393	2,403	2,393		2,403	2,393		2,403

# Recovery Technology Solutions (RTS)

Randolph, MN

AQ Facility ID: 03700368

Solvent Loss Determinations for Case-By-Case MACT (GP 001)

Group 001: EU 002 /SV 002 (Mineral Oil System); FS 001 (Fugitive Losses from Extraction), TK 001 (Toluene), TK 002 (Miscella), TK 003 through TK 006 (Asphalt)

Constants:

Toluene Density	7.26 lb/gal	
Water Density	8.345 lb/gal	
Toluene Vapor Density	3.1 (vs. air)	
Specific Weight of Air	0.075 lb/ft <sup>3</sup>	
Operating Days	365 day/yr =	8760 hr/yr
Shingles Processed	200 ton/day =	73,000 ton/yr
Ground Shingle Density	80 lb/ft <sup>3</sup>	

## Summary - Total Solvent Loss

Total Solvent Loss *	Lb/Hr**	Lb/Yr	Ton/Yr	Gal/Yr	Gal/Ton Shingles
A. Steady State	25.5	223,748	111.9	30,819	0.4
B. Other System Losses	28.7	251,767	125.9	34,679	0.5
<b>Total</b>	<b>54.3</b>	<b>475,515</b>	<b>237.8</b>	<b>65,498</b>	<b>0.9</b>

\* See detailed calculations below.

\*\* Lb/hr for other system losses backcalculated based on lb/yr / 8760 hr/yr.

## A. Summary of Steady State Operation Losses

Steady State Operation Losses	Lb/Hr *	Lb/Yr	Ton/Yr	Gal/Yr	Gal/Ton Shingles**
1. Air	3.4	29,681	14.8	4,088	0.1
2. Water	0.08	661	0.3	91	0.001
3. Solids	6.7	58,400	29.2	8,044	0.1
4. Asphalt	5.8	51,100	25.6	7,039	0.1
5. Fugitives	9.6	83,906	42.0	11,557	0.2
<b>Total</b>	<b>25.5</b>	<b>223,748</b>	<b>111.9</b>	<b>30,819</b>	<b>0.4</b>

\* Based on vendor technical expertise in the system/process design, as documented in the calculations below.

\*\* Example calculation:

25.5 lb/hr steady state toluene loss \* 8,760 hr/yr / 7.26 lb/gal density / 200 ton/day shingles processed \* 365 day/yr = 0.4 gal/ton shingles.

### A.1 AIR:

Air discharge through the final vent scrubber (Mineral Oil System)

Ground Shingle Process rate = 3.5 ft<sup>3</sup>/min

Based on 200 ton/day shingles processed \* 2000 lb/ton / 80 lb/ft<sup>3</sup> density ground shingles / 1440 min/day

Air Entrained in Ground Material = 6.3 ft<sup>3</sup>/min

Based on 3.5 ft<sup>3</sup>/min ground shingle process rate \* 0.6 void space \* 2.0 air break safety factor \* 1.5 feed stream interruption safety factor

Void space (air) = 0.6 (60%)

Air Break Safety Factor = 2.0 Note that 2.0 is commonly used for oilseed extraction design

Feed Stream Interruption Safety Factor = 1.5

Air Drawn Into System at Other Points = 14.0 ft<sup>3</sup>/min

Based on 8 ft<sup>3</sup>/min air drawn into system through desolventizer discharge + 6 ft<sup>3</sup>/min air drawn into system through the high vacuum system

Desolventizer discharge = 8.0 ft<sup>3</sup>/min

High Vacuum System = 6.0 ft<sup>3</sup>/min

Air Released from the Solvent and Asphalt = 1.0 ft<sup>3</sup>/min

Total possible air entering extraction plant:

6.3 ft<sup>3</sup>/min + 14.0 ft<sup>3</sup>/min + 1.0 ft<sup>3</sup>/min = **21.3** ft<sup>3</sup>/min

Assume maximum toluene concentration in the discharge air stream of the Lower Explosion Limit (LEL):

% LEL = 0.9 (90%)

LEL of toluene = 0.0127 % by volume

Mass ratio in air = 0.04

**Toluene Lost Through Air: 3.4 lb/hr**

Based on 21.3 ft<sup>3</sup>/min air in feed material \* 60 min/hr \* 0.075 lb/ft<sup>3</sup> (air density) \* 0.04 mass ratio of toluene in air \* 0.9 (LEL)

## Recovery Technology Solutions (RTS)

Randolph, MN

AQ Facility ID: 03700368

Solvent Loss Determinations for Case-By-Case MACT (GP 001)

### A.2. WATER:

Sparge Steam = 2,020 lb/hr

Based on the following breakdown:

Desolventizer Sparge Steam =	500	lb/hr
Mineral Oil System Sparge Steam =	120	lb/hr
Water/Solvent Distillation Stripper Sparge Steam =	500	lb/hr
Vacuum Steam Ejector =	600	lb/hr
Thin Film Evaporator Purge =	300	lb/hr

Moisture in Feed Material = 1,000 lb/hr

Maximum % moisture in feed material = 6%

Based on 200 ton/day shingles processed \* 2000 lb/ton / 24 hr/day \* 0.06 moisture in feed material

Total possible water entering extraction plant:

2,020 lb/hr + 1,000 lb/hr = 3,020 lb/hr

Maximum toluene concentration in the discharge water stream: 25 parts per million (ppm)

**Toluene Lost Through Water: 0.08 lb/hr**

Based on 3,020 lb/hr water \* 25 parts toluene in water / 1,000,000 parts

### A.3. SOLIDS:

Solids in Ground Shingles Process Rate = 13,333 lb/hr

Based on 200 ton/day shingles processed \* 2000 lb/ton / 24 hr/day \* 0.80 solids in ground shingles

Solids (Aggregate, sand, fines) content = 80%

Maximum toluene concentration in the discharge solids: 500 ppm

**Toluene Lost Through Solids 6.7 lb/hr**

Based on 13,333 lb/hr solids \* 500 parts toluene in solids / 1,000,000 parts

### A.4. ASPHALT:

Asphalt in Ground Shingles Process Rate = 4,667 lb/hr

Based on 200 ton/day shingles processed \* 2000 lb/ton / 24 hr/day \* 0.28 asphalt content in ground shingles

Asphalt content = 28%

Maximum toluene concentration in the asphalt: 1250 ppm

**Toluene Lost Through Asphalt 5.8 lb/hr**

Based on 4,667 lb/hr asphalt \* 1,250 parts toluene in asphalt / 1,000,000 parts

### A.5. FUGITIVE:

Leaks due to process equipment, tanks, vessels, conveyors, piping, pumps, ducting, etc.

**Total Toluene Lost Through Fugitives = 9.6 lb/hr**

Based on total toluene losses from air, water, solids and asphalt of 16.0 lb/hr \* 0.60 fugitive losses

Fugitive Losses = 60% Note that 40%-50% is commonly used for oilseed extraction. For this prototype plant, small in scale compared to oilseed plants, a higher loss is expected.

Based on the following breakdown of steady state losses:

Air =	3.4	lb/hr
Water =	0.08	lb/hr
Solids =	6.7	lb/hr
Asphalt =	5.8	lb/hr
Subtotal =	16.0	lb/hr

# Recovery Technology Solutions (RTS)

Randolph, MN

AQ Facility ID: 03700368

Solvent Loss Determinations for Case-By-Case MACT (GP 001)

## B. Other System Losses

Other System Losses	Lb/Hr	Lb/Yr *	Ton/Yr	Gal/Yr	Gal/Ton Shingles
1. Process Halts		12,207	6.1	1,681	0.02
2. Stoppages		35,861	17.9	4,940	0.1
3.a. Full Purge Shutdowns		35,730	17.9	4,921	0.1
3.b. Partial Purge Shutdowns		71,460	35.7	9,843	0.1
3.c. Non-Purge Shutdowns		41,818	20.9	5,760	0.1
4. Off-Spec Materials		14,942	7.5	2,058	0.03
5. Process Equipment Cleaning		39,749	19.9	5,475	0.1
<b>Total</b>		<b>251,767</b>	<b>125.9</b>	<b>34,679</b>	<b>0.5</b>

\* Based on vendor technical expertise in the system/process design, as documented in the calculations below.

\*\* Example calculation:

251,767 lb/yr toluene loss / 7.26 lb/gal density / 200 ton/day shingles processed = 0.5 gal/ton shingles.

### B.1. LOSSES DUE TO PROCESS HALTS

Losses from Air, Water and Fugitives during process halts or momentary stops.

**Total Estimated Loss per Year = 12,207 lb/yr**

Based on 13.0 lb/hr steady state losses \* 936 hours/year

Steady State Losses:	Air =	3.4	lb/hr
	Water =	0.08	lb/hr
	Fugitives =	9.6	lb/hr
	Subtotal =	13.0	lb/hr
Estimated Frequency =	936	hr/yr	
Based on:	18	hrs/week	* 52 weeks/yr

### B.2. LOSSES DUE TO STOPPAGES

Losses due to maintenance or other emergency stoppages that halt processing & require some maintenance or other action to restart operations.

**Total Estimated Loss per Year = 35,861 lb/yr**

Based on [25.5 lb/hr steady state losses + 12.8 lb/hr additional loss rate] \* 936 hours/year

Steady State Losses:	25.5	lb/hr
Additional Loss Rate:	50%	of steady state
Additional Loss Rate:	12.8	lb/hr
Total Loss Rate:	38.3	lb/hr
Estimated Frequency =	936	hr/yr
Based on:	18	hrs/week * 52 weeks/yr

### B.3. LOSSES DUE TO SHUTDOWNS

Losses due to planned/unplanned shutdowns for maintenance and cleaning, equipment failure, major utility failure, or other operational reasons.

Total Estimated In-Process Solvent 16,000 gal = 116,160 lbs

#### B.3.a. Full Purge Shutdowns

Full purge shutdowns for maintenance or other process shutdowns require full purging of equipment for safety reasons.

**Total Estimated Loss per Year = 35,730 lb/yr**

Based on [2,325 lb/event in vapor space + 3,630 lb/event residual] \* 6 events/year, as follows:

Vapor space in equipment and tanks:	10,000	ft <sup>3</sup> =	2,325	lb/event
Based on 10,000 ft <sup>3</sup> (estimated vapor space toluene) * 0.075 lb/ft <sup>3</sup> (specific wt of air) * 3.1 (vapor density of toluene) = 2,325 lb/event				
Residual in piping, equipment & tank bottoms:	500	gal =	3,630	lb/event
Based on 500 gal (estimated residual liquid solvent) / 7.26 lb/gal (density of toluene) = 3,630 lb/event				
Subtotal =	5,955	lb/event =	820	gal/event =
Estimated Frequency =	6	full purge events / year		
Approximate % of In-Process Solvent:	5.13%	per event		

#### B.3.b. Partial-Purge Shutdowns

Partial purge shutdowns for maintenance or other process shutdowns only require purging of a specific piece of equipment.

**Total Estimated Loss per Year = 71,460 lb/yr**

Based on 116,160 lbs In-Process Solvent \* 0.026 solvent loss \* 24 events/year, as follows:

Estimated Solvent loss:	2.56%	estimated as half the purging loss of a full system purge
Estimated Frequency =	24	partial purge events / year

#### B.3.c. Non-Purge Shutdowns

Non-Purge shutdowns require equipment to be emptied of material, processes shutdown, heat/steam turned off.

**Total Estimated Loss per Year = 41,818 lb/yr**

Based on 116,160 lbs In-Process Solvent \* 0.01 solvent loss \* 36 events/year, as follows:

Estimated Solvent loss:	1.0%	of in-process solvent
Estimated Frequency =	36	non-purge events / year

## Recovery Technology Solutions (RTS)

Randolph, MN

AQ Facility ID: 03700368

Solvent Loss Determinations for Case-By-Case MACT (GP 001)

### B.4. LOSSES DUE TO OFF-SPEC RAW MATERIALS

Quality and composition of incoming shingles will vary and have effect on steady-state operations.

Total Estimated Loss per Year = **14,942** lb/yr

*Based on 8.0 lb/hr additional loss rate \* 1,872 hours/year*

Steady State Losses:	16.0	lb/hr (air, water, solids, asphalt)
Additional Loss Rate:	50%	of steady state Losses
Additional Loss Rate:	8.0	lb/hr
Estimated Frequency =	1872	hr/yr
<i>Based on:</i>	36	<i>hrs/week * 52 weeks/yr</i>

### B.5. PROCESS EQUIPMENT CLEANING

Cleaning of process equipment and associated process area must be done using toluene solvent.

Total Estimated Loss per Year = **39,749** gal/yr

*Based on 15 gal/day \* 365 day/yr \* 7.26 lb/gal density*

Usage: 15 gal/day

## Recovery Technology Solutions (RTS)

Randolph, MN  
AQ Facility ID: 03700368  
Paved Roads Emissions

### Paved Haul Road

Emissions from paved roads are not included in the facility-wide potential to emit.

$$E_{\text{ext}} = [k (sL)^{1.31} \cdot (W)^{1.12}] (1-(P/4N))$$

AP-42, Section 13.2.1, Equation 2, Jan 2011.

where:

$E_{\text{ext}}$  = Annual or other long-term average emission factor (in the same unit as k)

k = Particle size multiplier (lb/VMT), AP-42, Table 13.2.1-1, k = 0.00054  $PM_{2.5}$ , k = 0.0022  $PM_{10}$ , k = 0.011 PM.

<sup>1</sup> sL = Road surface silt loading (g/m<sup>2</sup>)

100 g/m<sup>2</sup>

W = Mean vehicle weight (ton) (estimated)

P = Number of wet days in a year (Figure 13.2.1-2)

110 days/yr

N = Number of days in period

365 days/yr

Traffic Type	Round-Trip Distance (ft)	Number of Trips/Year	Total Miles Per Year	Mean Veh. Weight <sup>2</sup> (Tons)	Wt Avg. Veh. Weight (Tons)	Vehicle Emission Factor (lb/VMT)			Uncontrolled Emissions (tons/yr)		
						$PM_{2.5}$	$PM_{10}$	PM	$PM_{2.5}$	$PM_{10}$	PM
<b>RTS Paved Roads</b>											
Haul Truck - Unloading	450	3,702.0	315.5	30.0	0.88						
Inbound to Storage	440	37,020.0	3,085.0	16.0	4.59						
Storage to Waste Piles (Front end loaders)	610	520.0	60.1	16.0	0.09						
Storage to Rotochopper (Front end loaders)	700	37,020.0	4,908.0	16.0	7.30						
Ground Shingle Pile to Dryer (Front end loaders)	120	36,500.0	829.5	16.0	1.23						
Solid Product Storage Piles to Truck Loadout (Front end loaders)	200	29,200.0	1,106.1	16.0	1.65						
Haul Truck - Loadout	450	2,920.0	248.9	30.0	0.69						
Waste Loadout	450	52.0	4.4	30.0	0.01						
Employee Traffic	180	5,840.0	199.1	2.0	0.04						
<b>RTS Paved Roads</b>			<b>10,756.5</b>		<b>16.5</b>	<b>0.58</b>	<b>2.34</b>	<b>11.71</b>	<b>3.09</b>	<b>12.60</b>	<b>63.00</b>
									<b>3.09</b>	<b>12.60</b>	<b>63.00</b>
									<b>0.71</b>	<b>2.88</b>	<b>14.38</b>

Notes:

<sup>1</sup> The silt content from "MPCA Air Dispersion Modeling Guidance for Minnesota Title V Modeling Requirements and Federal Prevention of Significant Deterioration (PSD) Requirements," Version 2.2, October 20, 2004.

<sup>2</sup> The estimated mean vehicle weight is based on the average weight of the vehicle traffic (empty, loaded) on this segment of paved road.

Haul Truck - Unloading	Value	Source
Potential product handled by truck	74,040 tons/yr	Maximum inbound product is dryer capacity + waste
Vehicle distance per round-trip	450 ft	Longest round trip route based on facility site layout
Empty vehicle weight	20 ton	Estimate
Weight transported per truck	20 ton	Based on 40,000 lbs/truck (Facility Estimate)
Calculated trips	3,702 trip/yr	Based on weight transported per truck

Inbound to Storage (Front end loaders)	Value	Source
Potential asphalt shingles handled	74,040 ton/yr	Based on facility estimate
Vehicle distance per round-trip	440 ft	Longest round trip route based on facility site layout
Empty vehicle weight	15 ton	Estimate front end loader weight
Weight transported per truck	2 ton	Based on facility estimated bucket size
Calculated trips	37,020 trip/yr	Based on weight transported per truck

## Recovery Technology Solutions (RTS)

Randolph, MN

AQ Facility ID: 03700368

Paved Roads Emissions

### Paved Haul Road

Emissions from paved roads are not included in the facility-wide potential to emit.

Storage to Waste Piles (Front end loaders)	Value	Source
Potential waste handled	1,040 ton/yr	Based on facility estimate of one waste roll-off per week (i.e. one truck of 20 tons)
Vehicle distance per round-trip	610 ft	Longest round trip route based on facility site layout
Empty vehicle weight	15 ton	Estimate front end loader weight
Weight transported per truck	2 ton	Based on facility estimated bucket size
Calculated trips	520 trip/yr	Based on weight transported per truck

Storage to Rotochopper (Front end loader)	Value	Source
Maximum estimated shingle handling	74,040 tons	Based on conservative facility estimate
Vehicle distance per round-trip	700 ft	Longest round trip route based on facility site layout
Empty vehicle weight	15 tons	Estimate
Weight transported per front end loader	2 tons	Based on facility estimated bucket size
Calculated trips	37,020 trip/yr	Based on weight transported per front end loader.

Ground Shingle Pile to Dryer (Front end loaders)	Value	Source
Potential ground shingles handled	73,000 ton/yr	Based on facility dryer capacity
Vehicle distance per round-trip	120 ft	Longest round trip route based on facility site layout
Empty vehicle weight	15 ton	Estimate
Weight transported per truck	2 ton	Based on facility estimated bucket size
Calculated trips	36,500 trip/yr	Based on weight transported per truck

Solid Product Storage Piles to Truck Loadout (Front end loaders)	Value	Source
Potential product handled	58,400 tons/yr	Based on facility estimate
Vehicle distance per round-trip	200 ft	Longest round trip route based on facility site layout
Empty vehicle weight	15 ton	Estimate
Weight transported per truck	2.0 ton	Based on facility estimated bucket size
Calculated trips	29,200 trip/yr	Based on weight transported per truck

Haul Truck - Loadout	Value	Source
Potential product handled	58,400 tons/yr	Based on maximum inbound product
Vehicle distance per round-trip	450 ft	Longest round trip route based on facility site layout
Empty vehicle weight	20 ton	Estimate
Weight transported per truck	20 ton	Based on 40,000 lbs/truck (Facility Estimate)
Calculated trips	2,920 trip/yr	Based on weight transported per truck

Waste Loadout	Value	Source
Potential waste handled	1,040 tons/yr	Based on facility estimate of one waste roll-off per week (i.e. one truck of 20 tons)
Vehicle distance per round-trip	450 ft	Longest round trip route based on facility site layout
Empty vehicle weight	20 ton	Estimate
Weight transported per truck	20 ton	Based on 40,000 lbs/truck (Facility Estimate)
Calculated trips	52 trip/yr	Based on weight transported per truck

Employee Traffic	Value	Source
Number of employees	16 employees	Based on facility estimate of 4 shifts of 4 employees per day
Vehicle distance per round-trip	180 ft	Longest round trip route based on facility site layout
Vehicle weight	2 ton	Estimate
Employee trips	16 trips/day	Based on number of employees
Employee trips	5,840 trip/yr	Based on maximum employees

**Recovery Technology Solutions (RTS)**  
**Randolph, MN**  
**AQ Facility ID: 03700368**  
**Solids (Sand, Rock and Fiber) Product Loadout**

Sand and rock will be transferred from indoor storage piles to truck/rail car via front-end loaders. Fugitive dust from the front end loaders are represented in FS 002 (Paved Roads). Emission calculations below represent particulate emissions generated from the drop operation between the loader bucket and truck/rail car. Fiber will be bailed from the indoor storage pile. Emissions are not expected from the bailing; however, as a conservative estimate the quantities of fiber are included in the calculations below.

*Qualifies as an Insignificant Activity under MN Rule 7007.1300 Subpart 3(I)*

AP-42 Section 13.2.4 "Aggregate Handling and Storage Piles" Equation (1) (November 2006).

$$E = k(0.0032) \frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}} \text{ (pound [lb]/ton)}$$

Particule Size Multiplier (k)		
PM	PM10	PM2.5
0.74	0.35	0.053

where:

E = emission factor  
k = particle size multiplier (dimensionless)  
U = mean wind speed, meters per second (m/s) (miles per hour [mph])  
M = material moisture content (%)

M = 6.00 %  
U = 15 mph

Total Solids Capacity	58,400	tons/year	(Based on facility design estimate)
Back Dust Capacity (% of total solids capacity)	5%		(Based on facility design estimate)
Sand, Rock and Fiber Product Capacity	55,480	tons/year	(Based on total solids minus back dust quantity)

	EF (lb/ton)	Emission Rate	
		(tpy)	(lb/hr)
PM	2.12E-03	5.89E-02	1.34E-02
PM <sub>10</sub>	1.00E-03	2.78E-02	6.36E-03
PM <sub>2.5</sub>	1.52E-04	4.22E-03	9.62E-04

# Recovery Technology Solutions (RTS)

Randolph, MN

AQ Facility ID: 03700368

Particulate Emissions from Back Dust Product Loadout

Emission Unit No: Back Dust Silo Loadout - Insignificant Activity  
 Stack/Vent Designation: NA  
 Control Equipment: NA

*Qualifies as an Insignificant Activity under MN Rule 7007.1300 Subpart 3(I)*

**Process Description:** Back dust will be loaded into trucks/rail via a telescoping spout.

## Potential Throughput

Back Dust: **20 ton/hr** Based on a 20 tons loaded to a truck in 1 hour

Total Solids Capacity **58,400** tons/year (Based on facility design estimate)  
 Back Dust Capacity (% of total solids capacity) **5%** (Based on facility design estimate)  
 Total Back Dust Capacity **2,920** tons/year

Pollutant	Uncontrolled Emission Factor <sup>2</sup> (lb/ton)	Uncontrolled Emission Rate (lbs/hr)	Maximum Uncontrolled Emissions <sup>3</sup> (tons/yr)	Pollution Control Efficiency (%)	Controlled Emission Rate (lbs/hr)	Maximum Controlled Emissions (tons/yr)	Limited Controlled Emissions (tons/yr)
PM	0.0004	8.33E-03	6.08E-04	0.0%	8.33E-03	6.08E-04	6.08E-04
PM <sub>10</sub>	0.0001	2.00E-03	1.46E-04	0.0%	2.00E-03	1.46E-04	1.46E-04
PM <sub>2.5</sub>	0.0001	2.00E-03	1.46E-04	0.0%	2.00E-03	1.46E-04	1.46E-04

<sup>2</sup> The PM<sub>10</sub> emission factor is from AP-42 Section 11.19.2 Table 11.19.2-2 (Aug 2004), for crushed stone processing operations. No emission factors were provided for PM2.5 or PM, so PM2.5 was estimated to equal PM10, and PM was scaled up using the ratio between PM and PM10 for other uncontrolled emission factors from other processes listed in Table 11.19.2-2 as described below:

	PM	PM10	Ratio
Conveyor Transfer Point	0.003	0.0011	2.727
Screening	0.025	0.0087	2.874
Fines Screening	0.3	0.072	4.167
	Maximum:		4.167

<sup>3</sup> Based on the total back dust capacity in tons/yr.

# Recovery Technology Solutions (RTS)

Randolph, MN

AQ Facility ID: 03700368

## Particulate Emissions from Cooling Tower

Emission Unit No: **Cooling Tower - Insignificant Activity**

Stack/Vent Designation: **NA**

Control Equipment: **NA**

Circulation Flow Rate (gpm) 34.375

Drift Loss 0.01%

Total Dissolved Solids <sup>1</sup> 300 mg/L = 0.0025 lb/gallon

<sup>1</sup> TDS concentration obtained from a site-specific water sample of the incoming water. The incoming water will be treated with a reverse osmosis system to remove the majority of the total dissolved solids; this will offset any solids that are picked up within the processes at the facility. Therefore, 300 mg/L is a representative and conservative TDS value for use in calculating emissions.

PM<sub>10</sub> calculated as fraction of PM emissions using emission calculation procedure in "Calculating Realistic PM<sub>10</sub> Emissions from Cooling Towers" by Reisman and Frisbie, Environmental Progress, Vol. 21, No.2.

*This unit qualifies as an Insignificant Activity under MN Rule 7007.1300 Subpart 3(I)*

Pollutant	Uncontrolled Emission Rate (lbs/hr) <sup>2</sup>	Potential Uncontrolled Emissions (tons/yr)	Limited Uncontrolled Emissions (tons/yr)	Control Efficiency (%)	Controlled Emission Rate (lbs/hr)	Potential Controlled Emissions (tons/yr)	Limited Controlled Emissions (tons/yr)
PM	5.16E-04	2.26E-03	2.26E-03	0%	5.16E-04	2.26E-03	2.26E-03
PM <sub>10</sub>	4.74E-04	2.07E-03	2.07E-03	0%	4.74E-04	2.07E-03	4.74E-04
PM <sub>2.5</sub>	8.42E-06	3.69E-05	3.69E-05	0%	8.42E-06	3.69E-05	8.42E-06

<sup>2</sup> Emission calculations are based on Joel Reisman and Gordon Frisbie paper "Calculating Realistic PM<sub>10</sub> Emissions from Cooling Towers", Environmental Progress, Vol. 21, No. 2. (July, 2002):

$$PM \text{ (lb/hr)} = Q \text{ (gal/min)} * D(\%) * TDS \text{ (lb/gal)} * 60 \text{ min/hr}$$

$$PM \text{ (ton/yr)} = PM \text{ (lb/hr)} * 8,760 \text{ (hr/yr)} / 2,000 \text{ (lb/ton)}$$

PM<sub>10</sub> fraction of PM emissions (based on information included in the table below): 91.72%

PM<sub>2.5</sub> fraction of PM emissions (based on information included in the table below): 1.63%

### Detailed calculations illustrating PM<sub>10</sub>/PM<sub>2.5</sub> % by weight.

							Interpolated Results	
EPRI Droplet Diameter (μm)	Droplet Volume (μm <sup>3</sup> )	Droplet Mass (μg)	Particle Mass (Solids) (μg)	Solid Particle Volume (μm <sup>3</sup> )	Solid Particle Diameter (μm)	EPRI % Mass Smaller (%)	Wgt% PM <sub>10</sub> in PM Emissions (%)	Wgt% PM <sub>2.5</sub> in PM Emissions (%)
10	524	5.24E-04	1.57E-07	0.07	0.515	0.000	91.716	1.630
20	4189	4.19E-03	1.26E-06	0.57	1.029	0.196		
30	14137	1.41E-02	4.24E-06	1.93	1.544	0.226		
40	33510	3.35E-02	1.01E-05	4.57	2.059	0.514		
50	65450	6.54E-02	1.96E-05	8.92	2.574	1.816		
60	113097	1.13E-01	3.39E-05	15.42	3.088	5.702		
70	179594	1.80E-01	5.39E-05	24.49	3.603	21.348		
90	381704	3.82E-01	1.15E-04	52.05	4.632	49.812		
110	696910	6.97E-01	2.09E-04	95.03	5.662	70.509		
130	1150347	1.15E+00	3.45E-04	156.87	6.691	82.023		
150	1767146	1.77E+00	5.30E-04	240.97	7.721	88.012	91.716	1.630
180	3053628	3.05E+00	9.16E-04	416.40	9.265	91.032		
210	4849048	4.85E+00	1.45E-03	661.23	10.809	92.468		
240	7238229	7.24E+00	2.17E-03	987.03	12.353	94.091		
270	10305995	1.03E+01	3.09E-03	1405.36	13.897	94.689		
300	14137167	1.41E+01	4.24E-03	1927.80	15.441	96.288		
350	22449298	2.24E+01	6.73E-03	3061.27	18.015	97.011		
400	33510322	3.35E+01	1.01E-02	4569.59	20.589	98.340		
450	47712938	4.77E+01	1.43E-02	6506.31	23.162	99.071		
500	65449847	6.54E+01	1.96E-02	8924.98	25.736	99.071		
600	113097336	1.13E+02	3.39E-02	15422.36	30.883	100.000		

TDS: 300 mg/L

Assumptions: particle density: 2.2 g/cm<sup>3</sup> water density: 1 g/cm<sup>3</sup>

Note: The approach taken in the table above is consistent with that outlined in Joel Reisman and Gordon Frisbie paper, "Calculating Realistic PM<sub>10</sub> Emissions from Cooling Towers", Environmental Progress, Vol. 21, No. 2. (July, 2002).

# Recovery Technology Solutions (RTS)

Randolph, MN

AQ Facility ID: 03700368

Industrial Process Equipment Rule: Minn. R. 7011.0715

Calculation of Allowable Emissions for Minnesota Industrial Process Equipment Rule:

	Allowable by Air Flow					Allowable by Process Weight			
Emission Unit	Airflow (acfm)	Temp. (F)	Airflow (dcfm <sup>1</sup> )	Emission Rate		Process Weight (lb/hr)	Emission Rate		Total Particulate Allowable <sup>2</sup> (gr/dscf*)
				gr/dscf	lbs/hr		lbs/hr	gr/dscf	
EU 001	20,000		20,000	0.0712	12.20	16,667	13.37	0.0780	0.0780
EU 002	2,000		2,000	0.1000	1.71	0	0.00	0.0000	0.1000
EU 003	2,000		2,000	0.1000	1.71	13,333	11.64	0.6789	0.3000

<sup>1</sup> Assumes acfm is equal to dscfm.

<sup>2</sup> Includes condensible particulate

\* Input the larger of gr/dscf from allowable air flow emission rate or gr/dscf from process weight emission rate. If the number is greater than 0.3 gr/dscf, set equal to 0.3 gr/dscf.

## **Attachment 2**

### **Facility Description and CD-01 Forms**



MINNESOTA POLLUTION CONTROL AGENCY  
AIR QUALITY  
520 LAFAYETTE ROAD  
ST. PAUL, MN 55155-4194

14 March, 2013 09:49


## FACILITY DESCRIPTION: GROUPS (GP)

Show: Active and Pending Records

Action: PER 001

AQD Facility ID: 03700368

Facility Name: Recovery Technology Solutions

	ID No.	Group Status	Added By (Action)	Retired By (Action)	Include in EI	Operator ID for Item	Group Description	Group Items
1	GP 001	Active	PER 001				Extraction (Subject to case-by-case MACT)	EU 002, FS 001, SV 002, TK 001, TK 002, TK 003, TK 004, TK 005, TK 006



## FACILITY DESCRIPTION: STACK/VENTS (SV)

Show: Active and Pending Records  
Action: PER 001  
AQD Facility ID: 03700368  
Facility Name: Recovery Technology Solutions

	ID No.	Stack/ Vent Status	Added By (Action)	Retired By (Action)	Operator ID for Item	Operators Description	Height of Opening From Ground (feet)	Inside Dimensions		Design Flow Rate at Top (ACFM)	Exit Gas Temperature at Top (°F)	Flow Rate/ Temperature Information Source	Discharge Direction
								Diameter or Length (feet)	Width (feet)				
1	SV 001	Active	PER 001			Dryer Cyclone	30	7.0		20000	100	Estimate	Up, No Cap
2	SV 002	Active	PER 001			Mineral Oil System	51	1.0		2000	100	Estimate	Up, No Cap
3	SV 003	Active	PER 001			Screener Dust Collector	30	0.33		2000	150	Estimate	Up, No Cap
4	SV 004	Active	PER 001			Boiler 1	30	2.17		7338	260	Estimate	Up, No Cap
5	SV 005	Active	PER 001			Process Heater for HOS	30	1.83		872	650	Estimate	Up, No Cap



## FACILITY DESCRIPTION: CONTROL EQUIPMENT (CE)

Show: Active and Pending Records  
Action: PER 001  
AQD Facility ID: 03700368  
Facility Name: Recovery Technology Solutions

	ID No.	Control Equip. Status	Added By (Action)	Retired By (Action)	Operator ID for Item	Control Equip. Type	Control Equipment Description	Manufacturer	Model	Pollutants Controlled	Capture Efficiency (%)	Destruction/Collection Efficiency (%)	Afterburner Combustion Parameters
1	CE 001	Active	PER 001			007	Centrifugal Collector - High Efficiency	MAC	TBD	PM2.5 PM10 PM	100 100 100	61.2 61.2 80.6	



## FACILITY DESCRIPTION: EMISSION UNIT (EU)

Show: Active and Pending Records  
Action: PER 001  
AQD Facility ID: 03700368  
Facility Name: Recovery Technology Solutions

	ID No.	Emission Unit Status	Added By (Action)	Retired By (Action)	Insignificant Activity	Operator ID for Item	Stack/Vent ID No(s).	Control Equip. ID No(s).	Operator Description	Manufacturer	Model Number	SIC	Max. Design Capacity	Maximum Design Capacity			Max Fuel Input (mil Btu)
														Materials	Units n	Units d	
1	EU 001	Active	PER 001		<input type="checkbox"/>		SV 001 (M)	CE 001	Dryer	ROSKAMP	TBD	2952	200	Shingles	Ton	Day	
2	EU 002	Active	PER 001		<input type="checkbox"/>		SV 002 (M)		Mineral Oil System	CROWN	1027 SERIES	2952	10		Gal	Min	
3	EU 003	Active	PER 001		<input type="checkbox"/>		SV 003 (M)		Screen	MAC	TBD	2952	150	Shingles	Ton	Day	
4	EU 004	Active	PER 001		<input type="checkbox"/>		SV 004 (M)		Boiler 1	Johnston Boiler Co.	PFTA 600-4	2952	20700	Steam	Lb	Hr	20.1
5	EU 005	Active	PER 001		<input type="checkbox"/>		SV 005 (M)		Process Heater for HOS	Parker	HT-4032	2952	4	Natural Gas	Mmbtu	Hr	4.0

**FACILITY DESCRIPTION: EMISSION UNIT (EU)**

	ID No.	Emission Unit Status	Added By (Action)	Commence Const. Date	Initial Startup Date	Removal Date	Firing Method	Pct. Fuel/ Space Heat	Bottleneck	Elevator Type
1	EU 001	Active	PER 001						Whole Facility	
2	EU 002	Active	PER 001							
3	EU 003	Active	PER 001							
4	EU 004	Active	PER 001					10		
5	EU 005	Active	PER 001							



## FACILITY DESCRIPTION: STORAGE TANKS (TK)

Show: Active and Pending Records  
Action: PER 001  
AQD Facility ID: 03700368  
Facility Name: Recovery Technology Solutions

	ID No.	Tank Status	Added By (Action)	Retired By (Action)	Insignif-icant Activity	Operator ID for Item	Control Equip. ID No(s).	Product Stored	Interior Height (ft.)	Interior Diameter (ft.)	Capacity (1000 gal)	Construction Type
1	TK 001	Active	PER 001		<input type="checkbox"/>			Toluene	20	10	12	Fixed Roof
2	TK 002	Active	PER 001		<input type="checkbox"/>			Miscella	20	12	17	Fixed Roof
3	TK 003	Active	PER 001		<input type="checkbox"/>			Asphalt Cement	56	11	40	Fixed Roof
4	TK 004	Active	PER 001		<input type="checkbox"/>			Asphalt Cement	56	11	40	Fixed Roof
5	TK 005	Active	PER 001		<input type="checkbox"/>			Asphalt Cement	56	11	40	Fixed Roof
6	TK 006	Active	PER 001		<input type="checkbox"/>			Asphalt Cement	56	11	40	Fixed Roof

**FACILITY DESCRIPTION: STORAGE TANKS (TK)**

	ID No.	Tank Status	Added By (Action)	Support Type (floating roof only)	Column Count	Column Diameter (ft.)	Deck Type (floating roof only)	Seal Type (floating roof only)	Year Installed	Year Removed
1	TK 001	Active	PER 001							
2	TK 002	Active	PER 001							
3	TK 003	Active	PER 001							
4	TK 004	Active	PER 001							
5	TK 005	Active	PER 001							
6	TK 006	Active	PER 001							



## FACILITY DESCRIPTION: FUGITIVE SOURCES (FS)

Show: Active and Pending Records

Action: PER 001

AQD Facility ID: 03700368

Facility Name: Recovery Technology Solutions

	ID No.	Fugitive Source Status	Added By (Action)	Retired By (Action)	Insignificant Activity	Operator ID for Item	Pollutant(s) Emitted	Control Equip. ID No(s).	Fugitive Source Description	Year Installed	Year Removed
1	FS 001	Active	PER 001		<input type="checkbox"/>		VOC		Fugitive Toluene Losses		
2	FS 002	Active	PER 001		<input type="checkbox"/>		PM		Paved Roads		
3	FS 003	Active	PER 001		<input type="checkbox"/>		PM		Unpaved Roads		



## FACILITY DESCRIPTION: BUILDINGS (BG)

Show: Active and Pending Records

Action: PER 001

AQD Facility ID: 03700368

Facility Name: Recovery Technology Solutions

	ID No.	Added By (Action)	Retired By (Action)	Operator ID for Item	Length (feet)	Width (feet)	Roof Height from Ground (feet)	Description/Comment	Building Status
1	BG 001	PER 001			100	180	24.0	Ground Shingle Storage	Active
2	BG 002	PER 001			50	70	24.0	Utility Building	Active
3	BG 003	PER 001			80	13	24.0	Storage Building	Active
4	BG 004	PER 001			70	78	45.0	Extraction Building	Active
5	BG 005	PER 001			15	24.4	24.0	Cooling Tower Building	Active
6	BG 006	PER 001			34.2	47	24.0	Office Building	Active
7	BG 007	PER 001			22	22	24.0	Fire Pump Building	Active



# COMPLIANCE PLAN **CD-01**

Facility Name: Recovery Technology Solutions

Permit Number: 03700368 - 001

**Subject Item: Total Facility**

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	SOURCE-SPECIFIC REQUIREMENTS
2.0		CD	[Stage 1] Title I Condition: 40 CFR Section 63.43(g)(4): MACT & Minn. R. 7007.3010	The authorization to construct the new facility expires 18 months after issuance of the construction authorization for Air Emission Permit No. 03700368-001. The Permittee shall keep on-site records of the dates of installation and start-up of each EU, TK, GP, and FS identified in the permit.
3.0		CD	hdr	OPERATIONAL REQUIREMENTS
4.0		CD	40 CFR pt. 50; Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7007.0100, subp. 7(A), 7(L), & 7(M); Minn. R. 7007.0800, subps. 1, 2 & 4; Minn. R. 7009.0010-7009.0080	The Permittee shall comply with National Primary and Secondary Ambient Air Quality Standards, 40 CFR pt. 50, and the Minnesota Ambient Air Quality Standards, Minn. R. 7009.0010 to 7009.0080. Compliance shall be demonstrated upon written request by the MPCA.
5.0		CD	Minn. R. 7011.0020	Circumvention: Do not install or use a device or means that conceals or dilutes emissions, which would otherwise violate a federal or state air pollution control rule, without reducing the total amount of pollutant emitted.
6.0		CD	Minn. R. 7007.0800, subp. 2; Minn. R. 7007.0800, subp. 16(J)	Air Pollution Control Equipment: Operate all pollution control equipment whenever the corresponding process equipment and emission units are operated.
7.0		CD	Minn. R. 7007.0800, subps. 14 and 16(J)	Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all air pollution control equipment. At a minimum, the O & M plan shall identify all air pollution control equipment and control practices and shall include a preventative maintenance program for the equipment and practices, a description of (the minimum but not necessarily the only) corrective actions to be taken to restore the equipment and practices to proper operation to meet applicable permit conditions, a description of the employee training program for proper operation and maintenance of the control equipment and practices, and the records kept to demonstrate plan implementation.
8.0		CD	Minn. R. 7019.1000, subp. 4	Operation Changes: In any shutdown, breakdown, or deviation the Permittee shall immediately take all practical steps to modify operations to reduce the emission of any regulated air pollutant. The Commissioner may require feasible and practical modifications in the operation to reduce emissions of air pollutants. No emissions units that have an unreasonable shutdown or breakdown frequency of process or control equipment shall be permitted to operate.
9.0		CD	Minn. R. 7011.0150	Fugitive Emissions: Do not cause or permit the handling, use, transporting, or storage of any material in a manner which may allow avoidable amounts of particulate matter to become airborne. Comply with all other requirements listed in Minn. R. 7011.0150.
10.0		CD	Minn. R. 7030.0010 - 7030.0080	Noise: The Permittee shall comply with the noise standards set forth in Minn. R. 7030.0010 to 7030.0080 at all times during the operation of any emission units. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.
11.0		CD	Minn. R. 7007.0800, subp. 9(A)	Inspections: The Permittee shall comply with the inspection procedures and requirements as found in Minn. R. 7007.0800, subp. 9(A).
12.0		CD	Minn. R. 7007.0800, subp. 16	The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16.
13.0		CD	hdr	PERFORMANCE TESTING
14.0		CD	Minn. R. ch. 7017	Performance Testing: Conduct all performance tests in accordance with Minn. R. ch. 7017 unless otherwise noted in Tables A, B, and/or C.



## COMPLIANCE PLAN **CD-01**

Facility Name: Recovery Technology Solutions

Permit Number: 03700368 - 001

15.0		CD	Minn. R. 7017.2018; Minn. R. 7017.2030, subps. 1-4, Minn. R. 7017.2035, subps. 1-2	<p>Performance Test Notifications and Submittals:</p> <p>Performance Tests are due as outlined in Table A of the permit. See Table B for additional testing requirements.</p> <p>Performance Test Notification (written): due 30 days before each Performance Test Performance Test Plan: due 30 days before each Performance Test Performance Test Pre-test Meeting: due 7 days before each Performance Test Performance Test Report: due 45 days after each Performance Test Performance Test Report - Microfiche Copy: due 105 days after each Performance Test</p> <p>The Notification, Test Plan, and Test Report may be submitted in an alternative format as allowed by Minn. R. 7017.2018.</p>
16.0		CD	Minn. R. 7017.2025, subp. 3	Limits set as a result of a performance test (conducted before or after permit issuance) apply until superseded as stated in the MPCA's Notice of Compliance letter granting preliminary approval. Preliminary approval is based on formal review of a subsequent performance test on the same unit as specified by Minn. R. 7017.2025, subp. 3. The limit is final upon issuance of a permit amendment incorporating the change.
17.0		CD	hdr	MONITORING REQUIREMENTS
18.0		CD	Minn. R. 7007.0800, subp. 4(D)	Monitoring Equipment Calibration: The Permittee shall calibrate all required monitoring equipment at least once every 12 months (any requirements applying to continuous emission monitors are listed separately in this permit).
19.0		CD	Minn. R. 7007.0800, subp. 4(D)	Operation of Monitoring Equipment: Unless otherwise noted in Tables A, B, and/or C, monitoring a process or control equipment connected to that process is not necessary during periods when the process is shutdown, or during checks of the monitoring systems, such as calibration checks and zero and span adjustments. If monitoring records are required, they should reflect any such periods of process shutdown or checks of the monitoring system.
20.0		CD	hdr	RECORDKEEPING
21.0		CD	Minn. R. 7007.0800, subp. 5(C); 40 CFR Section 60.48c(i) & Minn. R. 7011.0570; 40 CFR Section 63.10(b)(1); 40 CFR 63.7560(b)	Recordkeeping: Retain all records at the stationary source, unless otherwise specified within this permit, for a period of five (5) years from the date of monitoring, sample, measurement, or report. Records which must be retained at this location include all calibration and maintenance records, all original recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. Records must conform to the requirements listed in Minn. R. 7007.0800, subp. 5(A).
22.0		CD	Minn. R. 7007.0800, subp. 5(B)	Recordkeeping: Maintain records describing any insignificant modifications (as required by Minn. R. 7007.1250, subp. 3) or changes contravening permit terms (as required by Minn. R. 7007.1350, subp. 2), including records of the emissions resulting from those changes.
23.0		CD	Minn. R. 7007.1200, subp. 4	If the Permittee determines that no permit amendment or notification is required prior to making a change, the Permittee must retain records of all calculations required under Minn. R. 7007.1200. These records shall be kept for a period of five years from the date the change was made or until permit reissuance, whichever is longer. The records shall be kept at the stationary source for the current calendar year of operation and may be kept at the stationary source or office of the stationary source for all other years. The records may be maintained in either electronic or paper format.
24.0		CD	hdr	REPORTING/SUBMITTALS
25.0		CD	Minn. R. 7019.1000, subp. 3	<p>Shutdown Notifications: Notify the Commissioner at least 24 hours in advance of a planned shutdown of any control equipment or process equipment if the shutdown would cause any increase in the emissions of any regulated air pollutant. If the owner or operator does not have advance knowledge of the shutdown, notification shall be made to the Commissioner as soon as possible after the shutdown. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 3.</p> <p>At the time of notification, the owner or operator shall inform the Commissioner of the cause of the shutdown and the estimated duration. The owner or operator shall notify the Commissioner when the shutdown is over.</p>



## COMPLIANCE PLAN **CD-01**

Facility Name: Recovery Technology Solutions

Permit Number: 03700368 - 001

26.0		CD	Minn. R. 7019.1000, subp. 2	<p>Breakdown Notifications: Notify the Commissioner within 24 hours of a breakdown of more than one hour duration of any control equipment or process equipment if the breakdown causes any increase in the emissions of any regulated air pollutant. The 24-hour time period starts when the breakdown was discovered or reasonably should have been discovered by the owner or operator. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 2.</p> <p>At the time of notification or as soon as possible thereafter, the owner or operator shall inform the Commissioner of the cause of the breakdown and the estimated duration. The owner or operator shall notify the Commissioner when the breakdown is over.</p>
27.0		CD	Minn. R. 7019.1000, subp. 1	Notification of Deviations Endangering Human Health or the Environment: As soon as possible after discovery, notify the Commissioner or the state duty officer, either orally or by facsimile, of any deviation from permit conditions which could endanger human health or the environment.
28.0		CD	Minn. R. 7019.1000, subp. 1	<p>Notification of Deviations Endangering Human Health or the Environment Report: Within 2 working days of discovery, notify the Commissioner in writing of any deviation from permit conditions which could endanger human health or the environment. Include the following information in this written description:</p> <ol style="list-style-type: none"> <li>1. the cause of the deviation;</li> <li>2. the exact dates of the period of the deviation, if the deviation has been corrected;</li> <li>3. whether or not the deviation has been corrected;</li> <li>4. the anticipated time by which the deviation is expected to be corrected, if not yet corrected; and</li> <li>5. steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation.</li> </ol>
29.0		S/A	Minn. R. 7007.0800, subp. 6(A)(2)	Semiannual Deviations Report: due 30 days after end of each calendar half-year following Permit Issuance. The first semiannual report submitted by the Permittee shall cover the calendar half-year in which the permit is issued. The first report of each calendar year covers January 1 - June 30. The second report of each calendar year covers July 1 - December 31. If no deviations have occurred, the Permittee shall submit the report stating no deviations.
30.0		CD	Minn. R. 7007.1150 - 7007.1500	Application for Permit Amendment: If a permit amendment is needed, submit an application in accordance with the requirements of Minn. R. 7007.1150 through Minn. R. 7007.1500. Submittal dates vary, depending on the type of amendment needed.
31.0		S/A	Minn. R. 7007.0400, subp. 2	Application for Permit Reissuance: due 180 days before expiration of Existing Permit
32.0		CD	Minn. R. 7007.0400, subp. 2	Extension Requests: The Permittee may apply for an Administrative Amendment to extend a deadline in a permit by no more than 120 days, provided the proposed deadline extension meets the requirements of Minn. R. 7007.1400, subp. 1(H). Performance testing deadlines from the General Provisions of 40 CFR pt. 60 and pt. 63 are examples of deadlines for which the MPCA does not have authority to grant extensions and therefore do not meet the requirements of Minn. R. 7007.1400, subp. 1(H).
33.0		S/A	Minn. R. 7007.0800, subp. 6(C)	Compliance Certification: due 31 days after end of each calendar year following Permit Issuance (for the previous calendar year). The Permittee shall submit this on a form approved by the Commissioner, both to the Commissioner and to the US EPA regional office in Chicago. This report covers all deviations experienced during the calendar year.
34.0		CD	Minn. R. 7019.3000 - 7019.3100	Emission Inventory Report: due on or before April 1 of each calendar year following permit issuance, to be submitted on a form approved by the Commissioner.
35.0		CD	Minn. R. 7002.0005 - 7002.0095	Emission Fees: due 60 days after receipt of an MPCA bill.



# COMPLIANCE PLAN **CD-01**

Facility Name: Recovery Technology Solutions

Permit Number: 03700368 - 001

**Subject Item:** GP 001 Extraction (Subject to case-by-case MACT)

**Associated Items:** EU 002 Mineral Oil System  
FS 001 Fugitive Toluene Losses  
SV 002 Mineral Oil System  
TK 001 Toluene  
TK 002 Miscella  
TK 003 Asphalt Cement  
TK 004 Asphalt Cement  
TK 005 Asphalt Cement  
TK 006 Asphalt Cement

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	LIMITS
2.0		LIMIT	[Stage 1] Minn. R. 7011.0715, subp. 1(B)	Opacity: less than or equal to 20 percent
3.0		LIMIT	[Stage 1] Minn. R. 7011.0715, subps. 1(A)	Total Particulate Matter: less than or equal to 0.30 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.
4.0		LIMIT	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Compliance ratio for Toluene: less than or equal to 1.0
5.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	(continued)  The Compliance Ratio = (fhap * actual solvent loss)/(allowable solvent loss) where: fhap = the weighted average HAP content of solvent purchased during the previous twelve operating months (volume fraction); Actual solvent loss = quantity of actual solvent loss during previous twelve operating months (gallons); Allowable solvent loss = quantity of shingles processed during the previous twelve operating months (tons) multiplied by 0.9 (gallons/ton)  This reflects an allowable emission rate of 0.9 gallons of HAP per ton of shingles processed.
6.0		LIMIT	[Stage 1] Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000	VOC Usage: less than or equal to 224 tons/year using 12-month Rolling Sum
7.0		CD	hdr	VOC COMPLIANCE METHOD
8.0		CD	[Stage 1] Title I Condition: recordkeeping to avoid classification as a major source under 40 CFR Section 52.21(j) & Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 4 & 5	Daily recordkeeping of solvent losses.  On each day of operation, the Permittee shall record the mass of volatile organic compounds (VOCs) received by the facility, the mass of VOCs in each tank, and the mass of any other VOCs used during the day. The mass of VOCs received by the facility shall be based on records provided by the provider.
9.0		CD	[Stage 1] Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000	Monthly recordkeeping and calculation of solvent losses.  By the last day of each calendar month, the Permittee shall calculate and record the quantity of actual VOC loss (the monthly VOC emission losses) for the previous month and the 12-month rolling sum of actual VOC solvent losses for the previous 12 months.  The following equation shall be used to calculate the monthly VOC emission losses: Monthly VOC losses = (VOCs stored in tanks at the facility on the first day of the month) + (VOCs delivered to the facility during the month) - (VOCs stored in tanks on the first day of the next month).



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10.0		CD	[Stage 1] Title I Condition: To avoid classification as major source and modification under CFR Section 52.21 & Minn. R. 7007.3000 CONTINUED	Monthly recordkeeping and calculation of solvent losses. (continued)  The following equation shall be used to calculate the 12-month rolling VOC emission losses:  $12\text{-month rolling VOC losses} = (\text{VOCs stored in tanks at the facility on the first day of the 12-month period}) + (\text{VOCs delivered to the facility during the 12-month period}) - (\text{VOCs stored in tanks on the first day of 13th month})$  These calculations shall be based on throughput logs, meters, tank liquid levels and/or delivery records.
11.0		CD	hdr	MACT COMPLIANCE METHOD
12.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	The Permittee shall calculate the compliance ratio by the end of each calendar month following an operating month. - An operating month is any calendar month with at least one normal operating period (as defined by this permit). It does not include the initial startup period (as defined by this permit). - If the facility processes any quantity of shingles in a calendar month and the facility is not operating under an initial startup period, then the month must be categorized as an operating month. - The 12-month compliance ratio shall include operating months occurring prior to a source shutdown and operating months that follow after the source resumes operation, omitting the shutdown period. - If the facility shuts down and processes no shingles for an entire calendar month, then the month must be categorized as a nonoperating month. Exclude any nonoperating months from the compliance ratio determination.
13.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	(continued)  - If the facility is subject to an initial startup period, exclude from the compliance ratio determination any solvent and shingle information recorded for the initial startup period.
14.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Initial startup.  Upon startup, the Permittee shall comply with Alternative 1: Normal Operation or Alternative 2: Initial Startup Period.
15.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010; Minn. R. 7007.0800, subp. 11	Initial startup of operation.  The recordkeeping schedule begins on the initial startup date of the facility.  At initial startup, the Permittee shall comply with Alternative 1 (normal operation) or Alternative 2 (initial startup period). For up to six calendar months after the startup date of the facility, the Permittee may comply with the requirements of Alternative 2; thereafter, the Permittee shall follow the requirements of Alternative 1.  The Permittee shall keep a log noting when it is operating under Alternative 1 or Alternative 2.
16.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010; Minn. R. 7007.0800, subp. 11	Alternative Operating Scenario 1. Normal Operation.  The Permittee shall determine the first compliance ratio by the end of the calendar month following the first twelve operating months after the startup date of the facility - Operate and maintain the facility in accordance with the general duty provisions of 40 CFR Section 63.6(e). - Determine and record the extraction solvent loss in gallons. - Record the volume fraction of HAP present at greater than one percent by volume and gallons of extraction solvent in any shipments received. - Record the tons of shingles processed. - Determine the weighted average volume fraction of HAP in extraction solvent received by the end of the following calendar month.
17.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010; Minn. R. 7007.0800, subp. 11 CONTINUED	Alternative Operating Scenario 1. Normal Operation. (continued)  - Determine and record the actual solvent loss, weighted average volume fraction HAP, shingles process and compliance ratio for each 12 operating month period by the end of the following calendar month. - Submit a Notification of Compliance Status or Annual Compliance Certification, as appropriate. - Submit a Deviation Notification Report by the end of the calendar month in which the compliance ratio exceeds 1.00.



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18.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010; Minn. R. 7007.0800, subp. 11	Alternative Operating Scenario 2. Initial Startup Period.  The Permittee shall determine the first compliance ratio by the end of the calendar month following the first twelve operating months after the termination of the initial startup period, which can last for up to six months. For up to six calendar months after the startup date of the facility, comply with the following requirements: - Operate and maintain the facility in accordance with the general duty provisions of 40 CFR Section 63.6(e). - Determine and record the extraction solvent loss in gallons. - Record the volume fraction of HAP present at greater than one percent by volume and gallons of extraction solvent in any shipments received. - Submit a Notification of Compliance Status or Annual Compliance Certification, as appropriate. - Submit a Periodic SSM Report. - Submit an Immediate SSM Report, as appropriate.
19.0		CD	hdr	OPERATIONAL REQUIREMENTS
20.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010; 40 CFR Section 63.6(e)(1)(i); Minn. R. 7011.7000	Proper Operation and Maintenance: At all times, including periods of startup, shutdown and malfunction, the Permittee shall operate and maintain the emission unit subject to the case-by-case MACT standard for GP001 and its associated air pollution control and monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions at least to the levels required by all relevant standards.
21.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010; 40 CFR Section 63.6(e)(1)(ii); Minn. R. 7011.7000	Malfunctions shall be corrected as soon as practicable after their occurrence.
22.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010; 40 CFR Section 63.6(e)(3)(i); 40 CFR Section 63.6(e)(3)(v); Minn. R. 7011.7000	The Permittee shall prepare and implement a Startup, Shutdown, and Malfunction Plan (SSMP) for each of the emission units subject to the case-by-case Maximum Control Technology Standards by initial startup. The SSMP including associated control and monitoring equipment shall be prepared in accordance with 40 CFR Section 63.6(e)(3) and include requirements specified therein. The SSMP must be located at the plant site and must be kept updated. When the SSMP is updated, the Permittee must keep all previous versions of the SSMP for a period of 5 years. The Permittee must submit the SSMP when required.
23.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010; 40 CFR Section 63.6(e)(3)(viii); 40 CFR Section 63.6(e)(3)(v); Minn. R. 7011.7000	Revising the SSM Plan.  The Permittee may periodically revise the startup, shutdown, and malfunction plan as necessary to satisfy the requirements of the case-by-case MACT or to reflect changes in equipment or procedures. Unless the permitting authority provides otherwise, the Permittee may make such revisions to the startup, shutdown, and malfunction plan without prior approval by the Administrator or the permitting authority. However, each such revision to a startup, shutdown, and malfunction plan must be reported in the Semiannual Deviations Report.
24.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010; 40 CFR Section 63.6(e)(3)(viii); 40 CFR Section 63.6(e)(3)(v); Minn. R. 7011.7000 CONTINUED	Revising the SSM Plan. (continued)  If the startup, shutdown, and malfunction plan fails to address or inadequately addresses an event that meets the characteristics of a malfunction but was not included in the startup, shutdown, and malfunction plan at the time the Permittee developed the plan, the Permittee must revise the startup, shutdown, and malfunction plan within 45 days after the event to include detailed procedures for operating and maintaining the source during similar malfunction events and a program of corrective action for similar malfunctions of process or air pollution control and monitoring equipment.
25.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010; 40 CFR Section 63.6(e)(3)(viii); 40 CFR Section 63.6(e)(3)(v); Minn. R. 7011.7000 CONTINUED	Revising the SSM Plan. (continued)  In the event that the Permittee makes any revision to the startup, shutdown, and malfunction plan which alters the scope of the activities at the source which are deemed to be a startup, shutdown, or malfunction, or otherwise modifies the applicability of any emission limit, work practice requirement, or other requirement in a standard established under this part, the revised plan shall not take effect until after the Permittee has provided a written notice describing the revision to the Commissioner.
26.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010; 40 CFR Section 63.5(b)(3); Minn. R. 7011.7000	Prior to construction or reconstruction of an "affected source" under the promulgated MACT standards, the Permittee must apply for and obtain an air emission permit.



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27.0		CD	hdr	NOTIFICATIONS AND SUBMITTALS
28.0		S/A	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010; 40 CFR Section 63.9(b)(4)(v); Minn. R. 7019.0100, subp. 2	Notification of the Actual Date of Initial Startup: due 15 days after Initial Startup. Submit the name and number of each unit and the actual date of the initial startup of each unit.  The notification of actual startup date must also include whether the facility has elected to operate under an initial startup period. An estimate of the anticipated duration and a justification for that duration shall be included.
29.0		S/A	40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Notification of compliance status: due 610 days after Initial Startup (6 calendar months for the initial startup period, 12 operating months to record data, and 2 calendar months to complete the report), the Permittee shall submit a notification of compliance status report to the responsible agency no later than 60 days after determining the initial 12 operating months compliance ratio.
30.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Content of Notification of Compliance Status.  The notification of compliance status must contain the information in items (1) through (5): (1) The name and address of the Permittee. (2) The physical address of the shingle processing facility. (3) Each HAP identified as being present in concentrations greater than 1 percent by volume in each delivery of solvent received during the 12 operating months period used for the initial compliance determination. (4) A statement designating the source as a major source of HAP or a demonstration that the source qualifies as an area source.
31.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	Content of Notification of Compliance Status. (continued)  (5) A compliance certification indicating whether the source complied with all of the requirements of this subpart throughout the 12 operating months used for the initial source compliance determination. This certification must include a certification of the following items [(i) through (iii), below]: (i) A statement that the Plan for Demonstrating Compliance and the SSM plan are complete and available on-site for inspection. (ii) A statement that the facility is following the procedures described in the Plan for Demonstrating Compliance. (iii) A statement that the compliance ratio is less than or equal to 1.00.
32.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Content of Annual Compliance Certification.  See the facility conditions for the schedule for the annual compliance certification.  Include the information in items (1) through (5) in each annual certification: (1) The name and address of the Permittee. (2) The physical address of the shingle processing process. (3) Each HAP identified as being present in concentrations greater than 1 percent by volume in each delivery of solvent received during the 12 calendar months period covered by the report.
33.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	Content of Annual Compliance Certification. (continued)  (5) A compliance certification to indicate whether the source was in compliance for each compliance determination made during the 12 calendar months period covered by the report. For each such compliance determination, the Permittee shall include a certification of items (i) through (ii): (i) A statement that the facility is following the procedures described in the plan for demonstrating compliance. (ii) A statement that the compliance ratio is less than or equal to 1.00.
34.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Deviation notification report. The Permittee shall submit a deviation report for each compliance determination for which the compliance ratio exceeds 1.00. The Permittee shall submit the deviation report by the end of the month following the calendar month in which the deviation was determined. The deviation notification report must include the information in items (1) through (3): (1) The name and address of the Permittee. (2) The physical address of the shingle production process. (3) The compliance ratio comprising the deviation. The frequency of submittal of the deviation notification report may be reduced if the MPCA and EPA do not object as provided in 40 CFR Section 63.10(e)(3)(iii).



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35.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010	<p>Periodic startup, shutdown, and malfunction report.</p> <p>If the facility operates under an initial startup period, the Permittee shall submit a periodic SSM report by the end of the calendar month following each month in which the initial startup period occurred. The periodic SSM report must include items (1) through (3):</p> <p>(1) The name, title, and signature of a source's responsible official who is certifying that the report accurately states that all actions taken during the initial startup period were consistent with the SSM plan.</p> <p>(2) A description of events occurring during the time period, the date and duration of the events, and reason the time interval qualifies as an initial startup period.</p> <p>(3) An estimate of the solvent loss during the initial startup period with supporting documentation.</p>
36.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010	<p>Immediate SSM reports.</p> <p>If, during an initial startup period, a SSM is handled differently from procedures in the SSM plan and the relevant emission requirements are exceeded, the Permittee shall submit an immediate SSM report. Immediate SSM reports consist of a telephone call or facsimile transmission to the MPCA within 2 working days after starting actions inconsistent with the SSM plan, followed by a letter within 7 working days after the end of the event. The letter must include items (1) through (3):</p> <p>(1) The name, title, and signature of a source's responsible official who is certifying the accuracy of the report, an explanation of the event, and the reasons for not following the SSM plan.</p> <p>(2) A description and date of the SSM event, its duration, and reason it qualifies as a SSM.</p> <p>(3) An estimate of the solvent loss for the duration of the SSM event with supporting documentation.</p>
37.0		CD	hdr	CALCULATION OF THE ACTUAL SOLVENT LOSS
38.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	<p>By the end of each calendar month following an operating month, the Permittee shall determine the total solvent loss in gallons for the previous operating month. The total solvent loss for an operating month includes all solvent losses that occur during normal operating periods within the operating month. If solvent losses for twelve or more operating months have been determined, then the twelve operating months rolling sum of actual solvent loss in gallons shall also be determined by summing the monthly actual solvent loss for the previous twelve operating months. The twelve operating months rolling sum of solvent loss is the "actual solvent loss," which is used to calculate compliance.</p> <p>To determine the actual solvent loss from the facility, follow the procedures in the facility's Plan for Demonstrating Compliance to determine the items in paragraphs (1) through (5), below:</p>
39.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	<p>(continued)</p> <p>(1) The dates that define each operating status period during a calendar month. The dates that define each operating status period include the beginning date of each calendar month and the date of any change in the source operating status. These dates are the beginning and ending dates of the calendar month.</p> <p>(2) Source operating status. The Permittee shall categorize the operating status of the source for each recorded time interval as follows:</p> <p>(a) Normal operating period;</p> <p>(b) Nonoperating period; or</p> <p>(c) Initial startup period.</p>
40.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	<p>(continued)</p> <p>(3) Measuring the beginning and ending solvent inventory. The Permittee shall measure and record the solvent inventory on the beginning and ending dates of each normal operating period that occurs during an operating month. An operating month is any calendar month with at least one normal operating period. The Permittee shall consistently follow the procedures described in the facility's Plan for Demonstrating Compliance to determine the extraction solvent inventory. The Permittee shall maintain readily available records of the actual solvent loss inventory. In general, the Permittee shall measure and record the solvent inventory only when the source is actively processing shingles. When the source is not active, some or all of the solvent working capacity is transferred to solvent storage tanks which can artificially inflate the solvent inventory.</p>



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41.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	(continued)  (4) Gallons of extraction solvent received. The Permittee shall record the total gallons of extraction solvent received in each shipment. For most processes, the gallons of solvent received represents purchases of delivered solvent added to the solvent storage inventory. However, if the facility's process refines additional asphalt from off-site sources, recovers solvent from the off-site asphalt, and adds it to the on-site solvent inventory, then the Permittee shall determine the quantity of recovered solvent and include it in the gallons of extraction solvent received.
42.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	(continued)  (5) Solvent inventory adjustments. In some situations, solvent losses determined directly from the measured solvent inventory and quantity of solvent received is not an accurate estimate of the "actual solvent loss" for use in determining compliance ratios. In such cases, the Permittee may adjust the total solvent loss for each normal operating period as long as a reasonable justification for the adjustment is provided.  Situations that may require adjustments of the total solvent loss include, but are not limited to, changes in solvent working capacity (described below):
43.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	(5) (continued)  Changes in solvent working capacity. In the facility's records that are kept on-site, the Permittee shall document any process modifications resulting in changes to the solvent working capacity in the asphalt production process. In general, solvent working capacity is the volume of solvent normally retained in solvent recovery equipment such as the extractor, desolventizer-toaster, solvent storage, working tanks, mineral oil absorber, condensers, and asphalt/solvent distillation system. If the change occurs during a normal operating period, the Permittee shall determine the difference in working solvent volume and make a one-time documented adjustment to the solvent inventory.
44.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Use the following equation to determine the actual solvent loss occurring from the source for all normal operating periods recorded within a calendar month:  Monthly Actual Solvent Loss (gal) = Summation from i = 1 to n of [SOLV(B) <sub>i</sub> - SOLV(E) <sub>i</sub> + SOLV(R) <sub>i</sub> +/- SOLV(A) <sub>i</sub> ]  Where:  SOLV(B) <sub>i</sub> = Gallons of solvent in the inventory at the beginning of normal operating period i. SOLV(E) <sub>i</sub> = Gallons of solvent in the inventory at the end of normal operating period i. SOLV(R) <sub>i</sub> = Gallons of solvent received between the beginning and ending inventory dates of normal operating period i. SOLV(A) <sub>i</sub> = Gallons of solvent added or removed from the extraction solvent inventory during normal operating period i.  n = Number of normal operating periods in a calendar month.
45.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	(continued)  The actual solvent loss is the total solvent losses during normal operating periods for the previous 12 operating months. The Permittee shall determine the facility's actual solvent loss by summing the monthly actual solvent losses for the previous 12 operating months. The Permittee shall record the actual solvent loss by the end of each calendar month following an operating month.  The Permittee shall use the actual solvent loss to determine the compliance ratio. Actual solvent loss does not include losses that occur during nonoperating periods or initial startup periods. If any one of these operating status periods span an entire month, then the month is treated as nonoperating and there is no compliance ratio determination.
46.0		CD	hdr	DETERMINING THE WEIGHTED AVERAGE VOLUME FRACTION OF HAP IN THE ACTUAL SOLVENT LOSS



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47.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	By the end of each calendar month following an operating month, the Permittee shall determine the weighted average volume fraction of HAP in extraction solvent received since the end of the previous operating month. If the monthly weighted average volume fraction of HAP in solvent received for 12 or more operating months has been determined, then the Permittee shall also determine an overall weighted average volume fraction of HAP in solvent received for the previous 12 operating months. Use the volume fraction of HAP determined as a 12 operating months weighted average to determine the compliance ratio.
48.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	The Permittee shall record the volume fraction of each HAP comprising more than 1 percent by volume of the solvent in each delivery of solvent, including solvent recovered from off-site asphalt. To determine the HAP content of the material in each delivery of solvent, the reference method is EPA Method 311 of appendix A of this part. EPA Method 311, an approved alternative method, or any other reasonable means for determining the HAP content may be used. Other reasonable means of determining HAP content include, but are not limited to, a material safety data sheet or a manufacturer's certificate of analysis. A certificate of analysis is a legal and binding document provided by a solvent manufacturer. The purpose of a certificate of analysis is to list the test methods and analytical results that determine chemical properties of the solvent and the volume percentage of all HAP components present in the solvent at quantities greater than 1 percent by volume.
49.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	(continued)  The facility is not required to test the materials that used at the facility, but the Commissioner may require a test using EPA Method 311 (or an approved alternative method) to confirm the reported HAP content. However, if the results of an analysis by EPA Method 311 are different from the HAP content determined by another means, the EPA Method 311 results will govern compliance determinations.
50.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	The Permittee shall determine the weighted average volume fraction of HAP in the extraction solvent each operating month. The weighted average volume fraction of HAP for an operating month includes all solvent received since the end of the last operating month, regardless of the operating status at the time of the delivery. The Permittee shall determine the monthly weighted average volume fraction of HAP by summing the products of the HAP volume fraction of each delivery and the volume of each delivery and dividing the sum by the total volume of all deliveries as expressed in the following equation:  Monthly Weighted Average HAP Content of Extraction Solvent (volume fraction) = $\text{Summation from } i = 1 \text{ to } n [\text{Received}(i) * \text{Content}(i)] / (\text{Total Received})$
51.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	(continued)  Where:  Received(i) = Gallons of extraction solvent received in delivery i. Content(i) = The volume fraction of HAP in extraction solvent delivery i. Total Received = Total gallons of extraction solvent received since the end of the previous operating month. n = Number of extraction solvent deliveries since the end of the previous operating month.  The Permittee shall record the result by the end of each calendar month following an operating month.
52.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	The Permittee shall determine the volume fraction of HAP in the extraction solvent as a 12 operating months weighted average. When the facility has processed shingles for 12 operating months, the Permittee shall sum the products of the monthly weighted average HAP volume fraction and corresponding volume of solvent received, and divide the sum by the total volume of solvent received for the 12 operating months, as expressed in the following equation:  12-month weighted average of HAP content in solvent received (volume fraction) = $\text{Summation from } i = 1 \text{ to } n [\text{Received}(i) * \text{Content}(i)] / (\text{Total Received})$



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53.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	(continued)  Where:  Received(i) = Gallons of extraction solvent received in operating month i = [SOLV(R)]i Content(i) = Average volume fraction of HAP in extraction solvent received in operating month i (as determined for the "Monthly Weighted Average HAP Content of Extraction Solvent" equation). Total Received = Total gallons of extraction solvent received during the previous 12 operating months.  The Permittee shall record the result by the end of each calendar month following an operating month and use it to determine the compliance ratio.
54.0		CD	hdr	DETERMINING THE QUANTITY OF SHINGLES PROCESSED
55.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	The Permittee shall determine all shingle measurements on an as received basis. The as received basis refers to the shingle's chemical and physical characteristics (e.g., weight) as initially received by the source and prior to any handling and processing of the shingles. By the end of each calendar month following an operating month, the Permittee shall determine the tons as received of shingles processed for the operating month. The total shingles processed for an operating month includes the shingles processed during all normal operating periods that occur within the operating month. If the tons of shingles processed for 12 or more operating months have been determined, the Permittee shall also determine the 12 operating months rolling sum of shingles processed by summing the tons of shingles processed for the previous 12 operating months. The 12 operating months rolling sum of shingles processed is used to calculate the compliance ratio.
56.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	The Permittee shall follow the procedures in the Plan for Demonstrating Compliance to determine the items in (1) through (5), below. (1) The dates that define each operating status period. The dates that define each operating status period include the beginning date of each calendar month and the date of any change in the source operating status. The dates on each shingle inventory log must be consistent with the dates recorded for the solvent inventory. (2) Source operating status. The Permittee shall categorize the source operation for each recorded time interval. The source operating status for each time interval recorded on the shingle inventory must agree with the operating status recorded on the solvent inventory logs.
57.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	(continued)  (3) Measuring the beginning and ending inventory for shingles. The Permittee shall measure and record the shingles on the beginning and ending dates of each normal operating period that occurs during an operating month. An operating month is any calendar month with at least one normal operating period. The Permittee shall consistently follow the procedures described in the Plan for Demonstrating Compliance to determine the shingle inventory on an as received basis. The Permittee shall maintain readily available records of the shingle inventory. (4) Tons of shingles received. Record the tons of each shipment of shingles received and added to the on-site storage.
58.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	(continued)  (5) Shingle inventory adjustments. In some situations, determining the quantity of shingles processed directly from the measured shingle inventory and quantity of shingles received is not an accurate estimate of the tons of shingles processed for use in determining compliance ratios. If shingles are removed from storage but not processed at the facility, the Permittee shall adjust the shingle inventory and provide a justification for the adjustment. Situations that may require shingle inventory adjustments include, but are not limited to, the situations listed in items (i) through (v): (i) Shingles that become unsuitable for processing (ii) Shingles that are sold before they enter the processing operation. (iii) Shingles destroyed by an event such as a process malfunction, fire, or natural disaster. (iv) Shingles processed through operations prior to solvent extraction but not routed to the solvent extractor for further processing.



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59.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	(5) (continued)  (v) Periodic physical measurements of inventory. For example, the facility may periodically empty shingles storage areas to physically measure the current shingle inventory. This periodic measurement procedure typically results in a small inventory correction. The correction factor, usually less than 1 percent, may be used to make an adjustment to the facility's shingle inventory that was estimated previously with indirect measurement techniques. To make this adjustment, the Plan for Demonstrating Compliance must provide for such an adjustment.
60.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	The Permittee shall determine the quantity of shingles processed at the facility during normal operating periods recorded within a calendar month using the following equation:  Monthly Quantity of Shingles Processed (tons) = summation from n = 1 to n [SHINGLE(B) - SHINGLE(E) + SHINGLE(R) +/- SHINGLE(A)]  Where: SHINGLE(B) = Tons of shingles in the inventory at the beginning of normal operating period i. SHINGLE(E) = Tons of shingle in the inventory at the end of normal operating period i. SHINGLE(R) = Tons of shingles received during normal operating period i. SHINGLE(A) = Tons of shingles added or removed from the shingle inventory during normal operating period i. n = Number of normal operating periods in the calendar month during which shingles were processed.
61.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	The quantity of shingles processed is the total tons of shingles processed during normal operating periods in the previous 12 operating months. The Permittee shall determine the tons of shingles processed by summing the monthly quantity of shingles processed for the previous 12 operating months. The Permittee shall record the 12 operating months quantity of shingles processed by the end of each calendar month following an operating month. Use the 12 operating months quantity of shingles processed to determine the compliance ratio. The quantity of shingles processed does not include shingles processed during the operating status periods in items (1) through (3):  (1) Nonoperating periods. (2) Initial startup periods. (3) Exempt operation periods.  If any one of these four operating status periods span an entire calendar month, then the calendar month is treated as a nonoperating month and there is no compliance ratio determination.
62.0		CD	hdr	RECORDKEEPING
63.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010; 40 CFR Section 63.10(b)(2); Minn. R. 7019.0100, subp. 2(B)	The Permittee shall maintain, at a minimum, the following information in the files: 1) the occurrence and duration of each startup, shutdown, or malfunction of operation; 2) the occurrence and duration of each malfunction of the air pollution control equipment; 3) all maintenance performed on the pollution control equipment; 4) actions taken during periods of startup, shutdown, and malfunction when such actions are different from the procedures specified in the affected source's startup, shutdown, and malfunction plan (SSMP). In this case, the Permittee shall report this action within 2 days of occurrence and follow by a written notification within 7 days of occurrence; 5) all information necessary to demonstrate conformance with the affected source's SSMP and actions taken in accordance with SSMP;



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64.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010; 40 CFR Section 63.10(b)(2); Minn. R. 7019.0100, subp. 2(B) CONTINUED	(continued)  6) each period during which a continuous monitoring system (CMS) is malfunctioning or inoperative; 7) all required measurements needed to demonstrate compliance with a relevant standard; 8) all results of performance test, CMS performance evaluations, and opacity and visible emission observations; 9) all measurements as may be necessary to determine the conditions of performance tests and performance evaluations; 10) all CMS calibration checks; 11) all adjustments and maintenance performed on CMS; 12) any information demonstrating whether a source is meeting the requirements for a waiver of recordkeeping or reporting requirements under this part; 13) all documents supporting initial notifications and notifications of compliance status.
65.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010; 40 CFR Section 63.10(b)(1); Minn. R. 7019.0100, subp. 2(B)	Recordkeeping: The Permittee shall maintain files of all information required by 40 CFR pt. 63 in a form suitable and readily available for expeditious inspection and review.  The files should be retained for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. Only the most recent two years of information must be kept on site.
66.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010	On and after the startup date, the Permittee shall keep the Plan for Demonstrating Compliance and the SSM plan on-site and readily available as long as the source is operational.
67.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010	On and after the startup date, the Permittee shall record the information in (i) through (vii) in accordance with the facility's Plan for Demonstrating Compliance for the solvent inventory: (i) Dates that define each operating status period during a calendar month. (ii) The operating status of the facility (such as normal operation, nonoperating, initial startup period, or exempt operation) for each recorded time interval. (iii) Record the gallons of extraction solvent in the inventory on the beginning and ending dates of each normal operating period. (iv) The gallons of all extraction solvent received, purchased, and recovered during each calendar month. (v) All extraction solvent inventory adjustments, additions or subtractions in gallons. The Permittee shall document the reason for the adjustment and justify the quantity of the adjustment. (vi) The total solvent loss for each calendar month, regardless of the source operating status.
68.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	(continued)  (vii) The actual solvent loss in gallons for each operating month.
69.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010	On and after the startup date, the Permittee shall record the items in (i) through (iii) for the weighted average volume fraction of HAP in the extraction solvent: (i) The gallons of extraction solvent received in each delivery. (ii) The volume fraction of each HAP exceeding 1 percent by volume in each delivery of extraction solvent. (iii) The weighted average volume fraction of HAP in extraction solvent received since the end of the last operating month.
70.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010	On and after the startup date, the Permittee shall record items (i) through (vi) in accordance with the facility's Plan for Demonstrating Compliance: (i) The dates that define each operating status period. These dates must be the same as the dates entered for the extraction solvent inventory. (ii) The operating status of the facility (such as normal operation, nonoperating, initial startup period, or exempt operation) for each recorded time interval. (iii) The shingle inventory being processed on the beginning and ending dates of each normal operating period. (iv) The tons of shingles received at the affected source each normal operating period. (v) All shingle inventory adjustments, additions or subtractions for normal operating periods. The Permittee shall document the reason for the adjustment and justify the quantity of the adjustment. (vi) The tons of shingles processed during each operating month.



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71.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010	After the facility has processed shingles for 12 operating months and the facility is not operating during an initial startup period, record items (1) through (5) by the end of the calendar month following each operating month: (1) The 12 operating months rolling sum of the actual solvent loss in gallons. (2) The weighted average volume fraction of HAP in extraction solvent received for the previous 12 operating months. (3) The 12 operating months rolling sum of shingles processed at the the facility in tons. (4) A determination of the compliance ratio. (5) A statement of whether the source is in compliance with all elements of the requirements of this case-by-case MACT standard for GP001.
72.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010	For each SSM event subject to an initial startup period, record items (1) through (3) by the end of the calendar month following each month in which the initial startup period occurred: (1) A description and date of the SSM event, its duration, and reason it qualifies as an initial startup. (2) An estimate of the solvent loss in gallons for the duration of the initial startup or malfunction period with supporting documentation. (3) A checklist or other mechanism to indicate whether the SSM plan was followed during the initial startup period.
73.0		CD	hdr	PLAN FOR DEMONSTRATING COMPLIANCE
74.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Plan for Demonstrating Compliance.  Prior to initial startup, the Permittee shall develop and implement a site-specific Plan for Demonstrating Compliance. The Permittee shall develop and implement a written Plan for Demonstrating Compliance that provides the detailed procedures that will be followed to monitor and record data necessary for demonstrating compliance with the requirements for GP 001. Upon completion, the plan is incorporated into this Part 70 permit by reference. The Permittee shall keep the plan on-site and readily available as long as the source is operational. If any changes to the plan for demonstrating compliance are made, the Permittee shall keep all previous versions of the plan and make them readily available for inspection for at least 5 years after each revision. The plan for demonstrating compliance must include the items in (1) through (7):
75.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	Plan for Demonstrating Compliance. (continued)  (1) The name and address of the owner or operator. (2) The physical address of the asphalt production process. (3) A detailed description of all methods of measurement that will be used at the facility to determine solvent losses, HAP content of solvent, and the tons of shingles processed. (4) When each measurement will be made. (5) Examples of each calculation to will use to determine compliance status. Include examples of how data measured with one parameter will be converted to other terms for use in compliance determination. (6) Example logs of how data will be recorded. (7) A plan to ensure that the data continue to meet compliance demonstration needs.
76.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	The MPCA or EPA may require revisions to the Plan for Demonstrating Compliance. Revisions may be required by the MPCA or EPA if the procedures lack detail, are inconsistent or do not accurately determine solvent loss, HAP content of the solvent, or the tons of shingles processed.



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**Subject Item:** EU 001 Dryer

**Associated Items:** CE 001 Centrifugal Collector - High Efficiency

SV 001 Dryer Cyclone

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	LIMITS
2.0		LIMIT	[Stage 1] Minn. R. 7011.0715, subp. 1(A)	Total Particulate Matter: less than or equal to 0.30 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.
3.0		LIMIT	[Stage 1] Minn. R. 7011.0715, subp. 1(B)	Opacity: less than or equal to 20 percent
4.0		LIMIT	[Stage 1] Minn. R. 7007.0800, subp. 2	The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for Total Particulate Matter: greater than or equal to 80.6 percent control efficiency
5.0		LIMIT	[Stage 1] Minn. R. 7007.0800, subp. 2	The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for PM < 10 micron: greater than or equal to 61.2 percent control efficiency
6.0		LIMIT	[Stage 1] Minn. R. 7007.0800, subp. 2	The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for PM < 2.5 micron: greater than or equal to 61.2 percent control efficiency
7.0		LIMIT	[Stage 1] Minn. R. 7007.0800, subps. 2 and 14	Pressure Drop: greater than or equal to 2.0 inches of water column and less than or equal to 8.0 inches of water column for CE001.
8.0		CD	hdr	OPERATIONAL REQUIREMENTS
9.0		CD	[Stage 1] Minn. R. 7007.0800, subp. 2	The Permittee shall operate the control equipment (CE 001) at all times that the emission unit (EU 001) is in operation.
10.0		CD	[Stage 1] Minn. R. 7007.0800, subps. 2 and 14	The Permittee shall monitor and record the pressure drop for the cyclone (CE 001) at least once every 24 hours when the cyclone is in operation.
11.0		CD	Minn. R. 7007.0800, subp. 4	Monitoring Equipment: The Permittee shall maintain the necessary monitoring equipment for measuring and recording pressure drop on the cyclone. The monitoring equipment must be installed, in use, and properly maintained when the cyclone is in operation.
12.0		CD	Minn. R. 7007.0800, subp. 4	The Permittee shall maintain CE001 according to the control equipment manufacturer's specifications and shall perform the following on each piece of listed control equipment: A. maintain an inventory of spare parts that are subject to frequent replacement, as required by the manufacturing specification or documented in records under items H and I; B. train staff on the operation and monitoring of control equipment and troubleshooting, and train and require staff to respond to indications of malfunctioning equipment, including alarms and other indicators of abnormal operation; C. thoroughly inspect all control equipment at least annually, or as required by the manufacturing specification (this often requires shutting down temporarily); D. inspect monthly, or as required by the manufacturing specification, components that are subject to wear or plugging, for example: bearings, belts, hoses, fans, nozzles, orifices, and ducts;



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13.0		CD	Minn. R. 7007.0800, subp. 4 CONTINUED	(continued)  E. inspect quarterly, or as required by the manufacturing specification, components that are not subject to wear including structural components, housings, ducts, and hoods; F. check daily, or as required by the manufacturing specification, monitoring equipment, for example: pressure gauges, chart recorders, temperature indicators, and recorders; G. calibrate annually, or as required by the manufacturing specification, all monitoring equipment; H. maintain a record of activities conducted in items A to G consisting of the activity completed, the date the activity was completed, and any corrective action taken; and I. maintain a record of parts replaced, repaired, or modified for the previous five years.
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## COMPLIANCE PLAN **CD-01**

Facility Name: Recovery Technology Solutions

Permit Number: 03700368 - 001

**Subject Item:** EU 003 Screen

**Associated Items:** SV 003 Screener Dust Collector

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	LIMITS
2.0		LIMIT	[Stage 1] Minn. R. 7011.0715, subp. 1(A)	Total Particulate Matter: less than or equal to 0.30 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.
3.0		LIMIT	[Stage 1] Minn. R. 7011.0715, subp. 1(B)	Opacity: less than or equal to 20 percent
4.0		CD	[Stage 1] Minn. R. 7007.0800, subp. 2	The Permittee shall operate the fabric filter at all times that the emission unit (EU 003) is in operation.
5.0		CD	Minn. R. 7007.0800, subp. 4	The Permittee shall maintain the fabric filter according to the manufacturer's specifications and shall perform the following on each piece of listed control equipment: A. maintain an inventory of spare parts that are subject to frequent replacement, as required by the manufacturing specification or documented in records under items H and I; B. train staff on the operation and monitoring of the fabric filter and troubleshooting, and train and require staff to respond to indications of malfunctioning equipment, including alarms and other indicators of abnormal operation; C. thoroughly inspect the fabric filter at least annually, or as required by the manufacturing specification (this often requires shutting down temporarily); D. inspect monthly, or as required by the manufacturing specification, components that are subject to wear or plugging, for example: bearings, belts, hoses, fans, nozzles, orifices, and ducts;
6.0		CD	Minn. R. 7007.0800, subp. 4 CONTINUED	(continued)  E. inspect quarterly, or as required by the manufacturing specification, components that are not subject to wear including structural components, housings, ducts, and hoods; F. check daily, or as required by the manufacturing specification, monitoring equipment, for example: pressure gauges, chart recorders, temperature indicators, and recorders; G. calibrate annually, or as required by the manufacturing specification, all monitoring equipment; H. maintain a record of activities conducted in items A to G consisting of the activity completed, the date the activity was completed, and any corrective action taken; and I. maintain a record of parts replaced, repaired, or modified for the previous five years.



## COMPLIANCE PLAN **CD-01**

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**Subject Item:** EU 004 Boiler 1

**Associated Items:** SV 004 Boiler 1

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	LIMITS
2.0		LIMIT	[Stage 1] Minn. R. 7011.0515, subp. 1	Total Particulate Matter: less than or equal to 0.40 lbs/million Btu heat input . The potential to emit from the unit is 0.00765 lb/MMBtu due to equipment design and allowable fuels.
3.0		LIMIT	[Stage 1] Minn. R. 7011.0515, subp. 2	Opacity: less than or equal to 20 percent except for one six-minute period per hour of not more than 60 percent opacity.
4.0		CD	[Stage 1] C Minn. R. 7005.0100, subp. 35a	Fuel type: Limited to natural gas or propane only, by design.
5.0		CD	hdr	OPERATIONAL REQUIREMENTS
6.0		CD	40 CFR Section 63.6(b); 40 CFR Section 63.7565; 40 CFR pt. 63, subp. DDDDD, Table 10	The Permittee shall comply with the requirements of 40 CFR pt. 63, subp. DDDDD for EU004 upon startup.
7.0		CD	40 CFR Section 63.6(a)(1), 63.6(i)(1) & Minn. R. 7011.7000; 40 CFR Section 63.7565; 40 CFR pt. 63, subp. DDDDD, Table 10	<p>The requirements of 40 CFR pt. 63, subp. A shall apply to EU004 unless:</p> <ul style="list-style-type: none"> <li>(i) The Commissioner has granted an extension of compliance; or</li> <li>(ii) The President has granted an exemption from compliance with the standards of 40 CFR pt. 63, subp. A in accordance with section 112(i)(4) of the Act.</li> </ul> <p>Until an extension of compliance has been granted by the Commissioner under 40 CFR Section 63.6(i), the Permittee shall comply with all applicable requirements of 40 CFR pt. 63 for EU004.</p>
8.0		CD	40 CFR Section 63.4 & Minn. R. 7011.7000; 40 CFR Section 63.7565; 40 CFR pt. 63, subp. DDDDD, Table 10	<p>Circumvention. The Permittee shall not build, erect, install, or use any article, machine, equipment, or process to conceal an emission that would otherwise constitute noncompliance with a relevant standard. Such concealment includes, but is not limited to:</p> <ul style="list-style-type: none"> <li>(1) The use of diluents to achieve compliance with a relevant standard based on the concentration of a pollutant in the effluent discharged to the atmosphere or</li> <li>(2) The use of gaseous diluents to achieve compliance with a relevant standard for visible emissions.</li> </ul>
9.0		CD	[Stage 1] 40 CFR Section 63.7500(a)(3)	At all times, the Permittee shall operate and maintain EU004, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.
10.0		CD	40 CFR Section 63.7500(b)	<p>As provided in 40 CFR Section 63.6(g), EPA may approve use of an alternative to the work practice standards in this section.</p> <p>EPA has not approved an alternative for this facility.</p>
11.0		CD	40 CFR Section 63.7540(a)(10); 40 CFR Section 63.7500(b); 40 CFR Section 63.7515(d)	<p>The Permittee shall conduct an annual tune-up of EU 004 to demonstrate continuous compliance. The Permittee shall conduct first annual tune-up no later than 13 months after the initial startup of the new or reconstructed affected source. Each annual tune-up must be no more than 13 months after the previous tune-up.</p> <p>To conduct the tune-up, the Permittee shall:</p> <ul style="list-style-type: none"> <li>(i) As applicable, inspect the burner, and clean or replace any components of the burner as necessary. (The burner inspection may be delayed until the next scheduled unit shutdown). At units where entry into a piece of process equipment or into a storage vessel is required to complete the tune-up inspections, inspections are required only during planned entries into the storage vessel or process equipment;</li> </ul>



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12.0		CD	40 CFR Section 63.7540(a)(10) CONTINUED	(continued)  (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 (the inspection may be delayed until the next scheduled unit shutdown); (iv) Optimize total emissions of CO. This optimization should be consistent with the manufacturer's specifications, if available, and with any NOx requirement to which the unit is subject;
13.0		CD	40 CFR Section 63.7540(a)(10) CONTINUED	(continued)  (v) Measure the concentrations in the effluent stream of CO 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). Measurements may be taken using a portable CO analyzer; and
14.0		CD	40 CFR Section 63.7540(a)(10) CONTINUED	(continued)  (vi) Maintain on-site and submit, if requested by the MPCA or EPA, an annual report containing the information in (A) through (C): (A) The concentrations of CO in the effluent stream in parts per million by volume, and oxygen in volume percent, measured at high fire or typical operating load, before and after the tune-up of the boiler or process heater; (B) A description of any corrective actions taken as a part of the tune-up; and (C) The type and amount of fuel used over the 12 months prior to the tune-up, 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 used by each unit.
15.0		CD	40 CFR Section 63.7540(a)(13)	If the unit is not operating on the required date for a tune-up, the tune-up must be conducted within 30 calendar days of startup.
16.0		CD	hdr	NOTIFICATIONS
17.0		S/A	40 CFR Section 60.7(a)(1); 40 CFR Section 60.48c & Minn. R. 7011.0570	Notification of the Date Construction Began: due 30 days after Start Of Construction of EU 004.  This notification shall include: (1) The design heat input capacity of the affected facility and identification of fuels to be combusted in the affected facility; (2) If applicable, a copy of any federally enforceable requirement that limits the annual capacity factor for any fuel or mixture of fuels under 40 CFR Section 60.42c or 40 Section 60.43c; and (3) The annual capacity factor at which the Permittee anticipates operating the affected facility based on all fuels fired and based on each individual fuel fired.
18.0		S/A	40 CFR Section 63.9(b)(4) & Minn. R. 7011.7000; 40 CFR Section 63.7545(a); 40 CFR Section 63.7495(d); 40 CFR Section 63.7565	Notification of the Actual Date of Initial Startup: due 15 days after Initial Startup of EU004.  This notification shall include: (1) The design heat input capacity of the affected facility and identification of fuels to be combusted in the affected facility; (2) If applicable, a copy of any federally enforceable requirement that limits the annual capacity factor for any fuel or mixture of fuels under 40 CFR Section 60.42c or 40 Section 60.43c; and (3) The annual capacity factor at which the Permittee anticipates operating the affected facility based on all fuels fired and based on each individual fuel fired.
19.0		CD	hdr	RECORDKEEPING
20.0		CD	[Stage 1] 40 CFR Section 60.48c(g)(2) & Minn. R. 7011.0570	Recordkeeping: By the last day of each calendar month, the Permittee shall record the amount of natural gas combusted in the boilers during the previous calendar month. These records shall consist of purchase records, receipts, or fuel meter readings.
21.0		CD	40 CFR Section 63.7555(h)	If the Permittee operates EU004 using an alternative fuel other than natural gas, refinery gas, gaseous fuel subject to another subpart under this part, other gas 1 fuel, or gaseous fuel subject to another subpart of this part or part 60, 61, or 65, the Permittee must keep records of the total hours per calendar year that alternative fuel is burned and the total hours per calendar year that the unit operated during periods of gas curtailment or gas supply emergencies.



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22.0		CD	40 CFR Section 63.7555(i), (j)	The Permittee shall maintain records of the calendar date, time, occurrence and duration of each startup and shutdown. The Permittee shall maintain records of the type(s) and amount(s) of fuels used during each startup and shutdown.
23.0		CD	40 CFR Section 63.10(b)(2)(xiv); 40 CFR Section 63.7555(a)(1)	The Permittee shall keep a copy of each notification and report submitted to comply with this subpart, including all documentation supporting any Initial Notification or Notification of Compliance Status or semiannual compliance report submitted, according to the requirements in 40 CFR Section 63.10(b)(2)(xiv).
24.0		CD	40 CFR Section 63.10(b)(1); Minn. R. 7019.0100, subp. 2(B); 40 CFR Section 63.7560(a)	The Permittee shall keep the records in a form suitable and readily available for expeditious review, according to 40 CFR Section 63.10(b)(1).
25.0		CD	40 CFR Section 63.10(b)(1); 40 CFR Section 63.7560(c)	The Permittee shall keep each record on site, or they must be accessible from on site (for example, through a computer network), for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to 40 CFR Section 63.10(b)(1). The records may be kept off site for the remaining 3 years.
26.0		CD	40 CFR Section 63.10(b)(2)(iii)	The Permittee shall maintain relevant records for EU004 for all required maintenance performed on the air pollution control and monitoring equipment.
27.0		CD	40 CFR Section 63.10(d)(1)	The Permittee shall maintain files of all information (including all reports and notifications) required by 40 CFR pt. 63, subp. DDDDD in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. At a minimum, the most recent 2 years of data shall be retained on site. The remaining 3 years of data may be retained off site. Such files may be maintained on microfilm, on a computer, on computer floppy disks, on magnetic tape disks, or on microfiche.
28.0		CD	hdr	REPORTING
29.0		CD	40 CFR Section 63.10(a) & (d)(1); Minn. R. 7007.0800, subp. 6	The Permittee shall submit reports required under 40 CFR pt. 63, subp. DDDDD to the MPCA.
30.0		CD	40 CFR Section 63.7550(h)	The Permittee shall submit all reports required by Table 9 of 40 CFR pt. 63, subp. DDDDD electronically using CEDRI that is accessed through the EPA's Central Data Exchange (CDX) ( <a href="http://www.epa.gov/cdx">www.epa.gov/cdx</a> ). However, if the reporting form specific to this subpart is not available in CEDRI at the time that the report is due the report, the Permittee shall submit the report to the Administrator at the appropriate address listed in 40 CFR Section 63.13. At the discretion of the Administrator, the Permittee shall submit these reports, to the Administrator in the format specified by the Administrator.
31.0		CD	40 CFR 63.10(d)(1); 40 CFR Section 63.7550; Minn. R. 7007.0800, subp. 6(A)(2)	<p>The Semiannual Deviations Report shall contain the information required in 40 CFR Section 63.7550(c)(1), (c)(2), (c)(3), and (c)(12).</p> <p>If there are no deviations from the requirements for work practice standards in Table 3 to 40 CFR Section 63, Subpart DDDDD, provide a statement that there were no deviations from the emission limitations and work practice standards during the reporting period.</p> <p>If there is a deviation from a work practice standard during the reporting period, the report must contain the information in 40 CFR Section 63.7550(d).</p>
32.0		CD	40 CFR Section 63.9(h); 40 CFR Section 63.7495(d); 40 CFR Section 63.7545(a); 40 CFR Section 63.7565	<p>Notification of compliance status. The Permittee shall comply with all permit requirements for compliance status reports. Each time a notification of compliance status is required, the Permittee shall submit the notification of compliance status to the MPCA following completion of the relevant compliance demonstration activity specified in the relevant standard.</p> <p>Advice on a notification of compliance status may be obtained from the Commissioner.</p>



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33.0		CD	40 CFR Section 63.7545(f)	<p>Within 48 hours of the declaration of each period of natural gas curtailment or supply interruption, as defined in 40 CFR Section 63.7575, the Permittee shall submit a notification of alternative fuel use if he or she intends to use a fuel other than natural gas, refinery gas, gaseous fuel subject to a subpart of 40 CFR pt. 60, pt. 61, pt. 63, or pt. 65, or other gas 1 fuel to fire EU004 during a period of natural gas curtailment or supply interruption, as defined in 40 CFR Section 63.7575.</p> <p>The notification must include the information specified in paragraphs (1) through (5):</p> <ul style="list-style-type: none"><li>(1) Company name and address.</li><li>(2) Identification of the affected unit.</li><li>(3) Reason EU004 is unable to use natural gas or equivalent fuel, including the date when the natural gas curtailment was declared or the natural gas supply interruption began.</li><li>(4) Type of alternative fuel intended to be used.</li><li>(5) Dates when the alternative fuel use is expected to begin and end.</li></ul>
34.0		S/A	40 CFR Section 63.7550(b)	<p>Compliance Status Report: due 30 days after end of each calendar year following Permit Issuance.</p> <p>The Permittee shall submit a compliance report for EU004 on at least an annual basis. The report shall follow paragraphs (1) through (4):</p> <ul style="list-style-type: none"><li>(1) The first compliance report must cover the period beginning on the initial startup of EU004 and ending on December 31.</li><li>(2) The first annual report must be postmarked or submitted no later than January 31.</li><li>(3) Each annual report must cover the applicable annual period from January 1 to December 31.</li><li>(4) Each annual report must be postmarked or submitted no later than January 31.</li></ul>
35.0		CD	40 CFR Section 63.7550(c)	<p>Compliance status report contents.</p> <p>The Permittee shall include the following information in the compliance report:</p> <ul style="list-style-type: none"><li>(i) Company and Facility name and address.</li><li>(ii) Process unit information, emissions limitations, and operating parameter limitations.</li><li>(iii) Date of report and beginning and ending dates of the reporting period.</li><li>(iv) The total operating time during the reporting period.</li><li>(v) Include the date of the most recent tune-up for EU004. Include the date of the most recent burner inspection if it was not done annually was delayed until the next scheduled or unscheduled unit shutdown.</li></ul>



## COMPLIANCE PLAN **CD-01**

Facility Name: Recovery Technology Solutions

Permit Number: 03700368 - 001

**Subject Item:** EU 005 Process Heater for HOS

**Associated Items:** SV 005 Process Heater for HOS

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	LIMITS
2.0		LIMIT	[Stage 1] Minn. R. 7011.0515, subp. 1	Total Particulate Matter: less than or equal to 0.40 lbs/million Btu heat input . The potential to emit from the unit is 0.00765 lb/MMBtu due to equipment design and allowable fuels.
3.0		LIMIT	[Stage 1] Minn. R. 7011.0515, subp. 2	Opacity: less than or equal to 20 percent except for one six-minute period per hour of not more than 60 percent opacity.
4.0		CD	[Stage 1] C Minn. R. 7005.0100, subp. 35a	Fuel type: Limited to natural gas or propane only, by design.
5.0		CD	hdr	OPERATIONAL REQUIREMENTS
6.0		CD	[Stage 1] 40 CFR Section 63.7500(a)	At all times, the Permittee shall operate and maintain EU005, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.
7.0		CD	40 CFR Section 63.7500(b); 40 CFR Section 63.7515(d)	The Permittee shall conduct a 5-year performance tune-up. Each 5-year tune-up must be conducted no more than 61 months after the previous tune-up.  The Permittee shall conduct the first 5-year tune-up no later than 61 months after the initial startup of the new or reconstructed affected source.
8.0		CD	[Stage 1] 40 CFR Section 63.7540(a)(12)	The Permittee shall conduct a tune-up of EU 005 to demonstrate continuous compliance every 5 years as specified below. The Permittee may delay the burner inspection specified in paragraph (i) until the next scheduled or unscheduled unit shutdown, but the Permittee shall inspect each burner at least once every 72 months.  To conduct the tune-up, the Permittee shall: (i) As applicable, inspect the burner, and clean or replace any components of the burner as necessary. (The burner inspection may be delayed until the next scheduled unit shutdown). At units where entry into a piece of process equipment or into a storage vessel is required to complete the tune-up inspections, inspections are required only during planned entries into the storage vessel or process equipment;
9.0		CD	40 CFR Section 63.7540(a)(12) CONTINUED	(continued)  (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 (the inspection may be delayed until the next scheduled unit shutdown); (iv) Optimize total emissions of CO. This optimization should be consistent with the manufacturer's specifications, if available, and with any NOx requirement to which the unit is subject;
10.0		CD	40 CFR Section 63.7540(a)(12) CONTINUED	(continued)  (v) Measure the concentrations in the effluent stream of CO 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). Measurements may be taken using a portable CO analyzer; and



## COMPLIANCE PLAN **CD-01**

Facility Name: Recovery Technology Solutions

Permit Number: 03700368 - 001

11.0		CD	40 CFR Section 63.7540(a)(12) CONTINUED	(continued)  (vi) Maintain on-site and submit, if requested by the MPCA or EPA, an annual report containing the information in (A) through (C): (A) The concentrations of CO in the effluent stream in parts per million by volume, and oxygen in volume percent, measured at high fire or typical operating load, before and after the tune-up of the boiler or process heater; (B) A description of any corrective actions taken as a part of the tune-up; and (C) The type and amount of fuel used over the 12 months prior to the tune-up, 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 used by each unit.
12.0		CD	40 CFR Section 63.7540(a)(13)	If the unit is not operating on the required date for a tune-up, the tune-up must be conducted within 30 calendar days of startup.
13.0		CD	hdr	NOTIFICATIONS
14.0		S/A	[Stage 1] 40 CFR Section 63.9(b)(4) & Minn. R. 7011.7000; 40 CFR Section 63.7545(a); 40 CFR Section 63.7495(d); 40 CFR Section 63.7565	Notification of the Actual Date of Initial Startup: due 15 days after Initial Startup of EU005.
15.0		CD	40 CFR Section 63.7545(f)	Within 48 hours of the declaration of each period of natural gas curtailment or supply interruption, as defined in 40 CFR Section 63.7575, the Permittee shall submit a notification of alternative fuel use if he or she intends to use a fuel other than natural gas, refinery gas, gaseous fuel subject to a subpart of 40 CFR pt. 60, pt. 61, pt. 63, or pt. 65, or other gas 1 fuel to fire EU005 during a period of natural gas curtailment or supply interruption, as defined in 40 CFR Section 63.7575.  The notification must include the information specified in paragraphs (1) through (5): (1) Company name and address. (2) Identification of the affected unit. (3) Reason EU005 is unable to use natural gas or equivalent fuel, including the date when the natural gas curtailment was declared or the natural gas supply interruption began. (4) Type of alternative fuel intended to be used. (5) Dates when the alternative fuel use is expected to begin and end.
16.0		CD	40 CFR Section 63.7545(f)	If the use of a fuel other than natural gas, refinery gas, or other gas 1 fuel to fire EU005 is intended during a period of natural gas curtailment or supply interruption, as defined in 40 CFR Section 63.7575, submit a notification of alternative fuel use within 48 hours of the declaration of each period of natural gas curtailment or supply interruption, as defined in 40 CFR Section 63.7575. The notification must include the information specified in paragraphs (1) through (5).  (1) Company name and address. (2) Identification of the affected unit. (3) Reason that the facility is unable to use natural gas or equivalent fuel, including the date when the natural gas curtailment was declared or the natural gas supply interruption began. (4) Type of alternative fuel that is intended to be used. (5) Dates when the alternative fuel use is expected to begin and end.
17.0		CD	hdr	REPORTING
18.0		CD	40 CFR Section 63.7550; Minn. R. 7007.0800, subp. 6(A)(2)	The Semiannual Deviations Report shall contain the information required in 40 CFR Section 63.7550(c)(1), (c)(2), (c)(3), and (c)(12).  If there are no deviations from the requirements for work practice standards in Table 3 to 40 CFR Section 63, Subpart DDDDD, provide a statement that there were no deviations from the emission limitations and work practice standards during the reporting period.  If there is a deviation from a work practice standard during the reporting period, the report must contain the information in 40 CFR Section 63.7550(d).
19.0		CD	40 CFR Section 63.10(b)(1)	The Permittee shall keep the records in a form suitable and readily available for expeditious review, according to 40 CFR Section 63.10(b)(1).



## COMPLIANCE PLAN **CD-01**

Facility Name: Recovery Technology Solutions

Permit Number: 03700368 - 001

20.0		CD	40 CFR Section 63.10(b)(1)	The Permittee shall keep each record on site, or they must be accessible from on site (for example, through a computer network), for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to 40 CFR Section 63.10(b)(1). The records may be kept off site for the remaining 3 years.
21.0		CD	40 CFR Section 63.7500(b)	As provided in 40 CFR Section 63.6(g), EPA may approve use of an alternative to the work practice standards in this section.
22.0		CD	40 CFR Section 63.9(h); 40 CFR Section 63.7495(d); 40 CFR Section 63.7545(a); 40 CFR Section 63.7565	Notification of compliance status. The Permittee shall comply with all permit requirements for compliance status reports. Each time a notification of compliance status is required, the Permittee shall submit the notification of compliance status to the MPCA following completion of the relevant compliance demonstration activity specified in the relevant standard.  Advice on a notification of compliance status may be obtained from the Administrator.
23.0		S/A	40 CFR Section 63.7550(b)	Compliance Status Report: due 30 days after end of each calendar 60 months following Permit Issuance.  The Permittee shall submit a compliance report for EU005 on at least a 5-year basis. The report shall follow paragraphs (1) through (4):  (1) The first compliance report must cover the period beginning on the initial startup of EU005 and ending on the first December 31 at least five years after initial startup of EU005. (2) The first 5-year compliance report must be postmarked or submitted no later than the first January 31 following the completion of the five-year period after initial startup of EU005. (3) Each 5-year compliance report must cover the applicable 5-year periods from January 1 to December 31. (4) Each 5-year compliance report must be postmarked or submitted no later than January 31.
24.0		CD	40 CFR Section 63.7550(c)	Compliance status report contents.  The Permittee shall include the following information in the compliance report: (i) Company and Facility name and address. (ii) Process unit information, emissions limitations, and operating parameter limitations. (iii) Date of report and beginning and ending dates of the reporting period. (iv) The total operating time during the reporting period. (v) Include the date of the most recent tune-up for EU005. Include the date of the most recent burner inspection if it was not done on a 5-year period was delayed until the next scheduled or unscheduled unit shutdown.
25.0		CD	40 CFR Section 63.7550(h)	The Permittee shall submit all reports required by Table 9 of 40 CFR pt. 63, subp. DDDDD electronically using CEDRI that is accessed through the EPA's Central Data Exchange (CDX) ( <a href="http://www.epa.gov/cdx">www.epa.gov/cdx</a> ). However, if the reporting form specific to this subpart is not available in CEDRI at the time that the report is due the report, the Permittee shall submit the report to the Administrator at the appropriate address listed in 40 CFR Section 63.13. At the discretion of the Administrator, the Permittee shall submit these reports, to the Administrator in the format specified by the Administrator.
26.0		CD	hdr	RECORDKEEPING
27.0		CD	40 CFR Section 63.10(b)(2)(xiv)	The Permittee shall keep a copy of each notification and report submitted to comply with this subpart, including all documentation supporting any Initial Notification or Notification of Compliance Status or semiannual compliance report submitted, according to the requirements in 40 CFR Section 63.10(b)(2)(xiv).



## COMPLIANCE PLAN **CD-01**

Facility Name: Recovery Technology Solutions

Permit Number: 03700368 - 001

**Subject Item:** TK 001 Toluene

**Associated Items:** GP 001 Extraction (Subject to case-by-case MACT)

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	DESIGN REQUIREMENT
2.0		CD	[Stage 1] Minn. R. 7011.1505, subp. 3	The Permittee shall equip the storage vessel with a permanent submerged fill pipe or the Permittee shall equip the storage vessel with a vapor recovery system or its equivalent.
3.0		CD	hdr	OPERATIONAL REQUIREMENTS
4.0		CD	[Stage 1] 40 CFR Section 63.6(b)(2)	Comply with the requirements of 40 CFR pt. 63 subp. EEEE upon startup.
5.0		CD	[Stage 1] 40 CFR Section 63.2346(a); 40 CFR Section 63.2378(a) & (d); 40 CFR Section 63.982(a)(1); 40 CFR Section 63.984(a)(1)	<p>The Permittee shall route all emissions from TK001 to the process. The process shall be operating at all times when the emissions from TK001 are routed to it, except during periods of start-up, shutdown and malfunction.</p> <p>The total aggregate amount of time during which the emissions bypass the fuel gas system or process during the calendar year without being routed to a control device, for all reasons (except SSM or product changeovers of flexible operation units and periods when a storage tank has been emptied and degassed), must not exceed 240 hours.</p>
6.0		CD	[Stage 1] Minn. R. 7007.0800, subp. 4	The Permittee shall record the times at which each emissions bypass of the fuel gas system or the process begins and ends. At the end of each bypass event, the Permittee shall sum the total bypass time for the calendar year.
7.0		CD	[Stage 1] 40 CFR Section 63.6(e)(1)(i); Minn. R. 7011.7000	Proper Operation and Maintenance: At all times, including periods of startup, shutdown and malfunction, the Permittee shall operate and maintain the emission unit subject to the MACT standard and its associated air pollution control and monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions at least to the levels required by all relevant standards.
8.0		CD	[Stage 1] 40 CFR Section 63.6(e)(1)(ii); Minn. R. 7011.7000	Malfunctions shall be corrected as soon as practicable after their occurrence.
9.0		CD	[Stage 1] 40 CFR Section 63.2346(i)	Opening of a safety device is allowed at any time that it is required to avoid unsafe operating conditions.
10.0		CD	hdr	NOTIFICATIONS AND SUBMITTALS
11.0		S/A	[Stage 1] 40 CFR Section 63.5(d)(1)(i) & Minn. R. 7011.7000; 40 CFR Section 63.9(b)(4)(v)	Notification of the Actual Date of Initial Startup: due 15 days after Initial Startup for TK001. Submit the notification to the MPCA and provide a copy to EPA Region 5.
12.0		S/A	40 CFR Section 63.2343(b)(1)&(2)	<p>Compliance Status Report: due 31 days after end of each calendar half-year following Initial Startup.</p> <p>The Permittee shall submit the first Compliance report for the facility for the period beginning at startup and ending on June 30 or December 31, whichever date is the first date following the end of the first calendar half after startup. The first Compliance report must be postmarked no later than July 31 or January 31, whichever date follows the end of the first calendar half after startup.</p> <p>Each subsequent Compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31. Each subsequent Compliance report must be postmarked no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period.</p>
13.0		CD	40 CFR Section 63.2343(b)(1)(i)	The Permittee shall submit the information required for the First Compliance report in either the Notification of Compliance Status or in the first Compliance report, whichever occurs first.



## COMPLIANCE PLAN **CD-01**

Facility Name: Recovery Technology Solutions

Permit Number: 03700368 - 001

14.0		CD	[Stage 1] 40 CFR Section 63.2386(c)(1), (2), (3) & (10)	First Compliance report. The first Compliance report must contain the information specified below: (1) Company name and address. (2) Statement by a responsible official, including the official's name, title, and signature, certifying that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete. (3) Date of report and beginning and ending dates of the reporting period. (4) A listing of all transfer racks (except those racks at which only unloading of organic liquids occurs) and of tanks greater than or equal to 18.9 cubic meters (5,000 gallons) that are part of the affected source but are not subject to any of the emission limitations, operating limits, or work practice standards of this subpart.
15.0		CD	40 CFR Section 63.2386(d)	Subsequent Compliance reports. Subsequent Compliance reports must contain the information below: (1) Company name and address. (2) Statement by a responsible official, including the official's name, title, and signature, certifying that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete. (3) Date of report and beginning and ending dates of the reporting period. (4)(i) A listing of any storage tank that became subject to controls based on the criteria for control specified in table 2 to this subpart, items 1 through 6, since the filing of the last Compliance report. (ii) A listing of any transfer rack that became subject to controls based on the criteria for control specified in table 2 to this subpart, items 7 through 10, since the filing of the last Compliance report.
16.0		CD	40 CFR Section 63.2386(d) CONTINUED	Subsequent Compliance reports. (continued)  (5)(i) A listing of tanks greater than or equal to 18.9 cubic meters (5,000 gallons) that became part of the affected source but are not subject to any of the emission limitations, operating limits, or work practice standards of this subpart, since the last Compliance report. (ii) A listing of all transfer racks (except those racks at which only the unloading of organic liquids occurs) that became part of the affected source but are not subject to any of the emission limitations, operating limits, or work practice standards of this subpart, since the last Compliance report.
17.0		CD	40 CFR Section 63.2343(d)	The Permittee shall submit a subsequent Compliance report if one or more of the events identified below occur since the filing of the Notification of Compliance Status or the last Compliance report: (1) Any storage tank or transfer rack became subject to control under this subpart EEEE; or (2) Any storage tank equal to or greater than 18.9 cubic meters (5,000 gallons) became part of the affected source but is not subject to any of the emission limitations, operating limits, or work practice standards of this subpart; or (3) Any transfer rack (except those racks at which only unloading of organic liquids occurs) became part of the affected source; or
18.0		CD	40 CFR Section 63.2343(d) CONTINUED	(continued)  (4) Any of the following information has changed: (a) Company name and address. (b) Statement by a responsible official, including the official's name, title, and signature, certifying that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete. (c) Date of report and beginning and ending dates of the reporting period.
19.0		CD	40 CFR Section 63.9(h)(3)	The Permittee shall submit the notification of compliance status to the MPCA following completion of each relevant compliance demonstration activity specified in 40 CFR pt. 63 subp. EEEE.
20.0		CD	[Stage 1] 40 CFR Section 63.2378(a); 40 CFR Part 63, Subpart EEEE, Tables 2, 4 & 10; 40 CFR Section 63.984(b)(2) & (b)(3); 40 CFR Section 63.999(b)(1)(i)	The Permittee shall prepare a design evaluation (or engineering assessment) that demonstrates the extent to which the hazardous air pollutant emissions from TK001 are recovered and returned to the process. The Permittee shall submit this information as part of the Notification of Compliance Status.



## COMPLIANCE PLAN **CD-01**

Facility Name: Recovery Technology Solutions

Permit Number: 03700368 - 001

21.0		CD	40 CFR Section 63.10(d)(5)(ii); Minn. R. 7019.0100, subp. 2(B)	Notwithstanding the allowance to reduce the frequency of reporting for periodic SSM reports under 40 CFR Section 63.10(d)(5)(i), any time an action taken by the Permittee during a startup or shutdown that caused the source to exceed any applicable emission limitation in the standard, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures specified in the facility's SSMP, the Permittee shall report the actions taken for that event within 2 working days after commencing actions inconsistent with the plan followed by a letter within 7 working days after the end of the event. The immediate report required shall consist of a telephone call (FAX) to the Administrator within 2 working days after commencing actions inconsistent with the plan, and it shall be followed by a letter delivered or postmarked within 7 working days after the end of the event. The report shall contain the information specified in 40 CFR Section 63.10(d)(5)(ii).
22.0		CD	hdr	RECORDKEEPING
23.0		CD	40 CFR Section 63.10(b)(1); Minn. R. 7019.0100, subp. 2(B)	Recordkeeping: The Permittee shall maintain files of all information required by 40 CFR pt. 63 in a form suitable and readily available for expeditious inspection and review.  The files should be retained for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. Only the most recent two years of information must be kept on site.
24.0		CD	[Stage 1] Minn. R. 7007.0800, subp. 5	The Permittee shall retain the records of each emissions bypass of the fuel gas system or the process, including the date and time of the event, its duration, and the total time in bypass mode for the calendar year. These records shall be retained for 5 years.
25.0		CD	40 CFR Section 63.2343(b)(3)	The Permittee shall keep documentation, including a record of the annual average true vapor pressure of the total Table 1 organic HAP in the stored organic liquid, that verifies that TK 001 is not required to be controlled under this subpart. The documentation shall be kept up-to-date and must be in a form suitable and readily available for expeditious inspection and review according to 40 CFR Section 63.10(b)(1), including records stored in electronic form in a separate location.
26.0		CD	40 CFR Section 63.10(b)(2); Minn. R. 7019.0100, subp. 2(B)	The Permittee shall maintain, at a minimum, the following information in the files: 1) the occurrence and duration of each startup, shutdown, or malfunction of operation; 2) the occurrence and duration of each malfunction of the air pollution control equipment; 3) all maintenance performed on the pollution control equipment; 4) actions taken during periods of startup, shutdown, and malfunction when such actions are different from the procedures specified in the affected source's startup, shutdown, and malfunction plan (SSMP). In this case, the Permittee shall report this action within 2 days of occurrence and follow by a written notification within 7 days of occurrence. 5) all information necessary to demonstrate conformance with the affected source's SSMP and actions taken in accordance with SSMP;
27.0		CD	40 CFR Section 63.10(b)(2); Minn. R. 7019.0100, subp. 2(B) CONTINUED	(continued)  6) each period during which a continuous monitoring system (CMS) is malfunctioning or inoperative; 7) all required measurements needed to demonstrate compliance with a relevant standard; 8) all results of performance test, CMS performance evaluations, and opacity and visible emission observations; 9) all measurements as may be necessary to determine the conditions of performance tests and performance evaluations; 10) all CMS calibration checks; 11) all adjustments and maintenance performed on CMS; 12) any information demonstrating whether a source is meeting the requirements for a waiver of recordkeeping or reporting requirements under this part; 13) all documents supporting initial notifications and notifications of compliance status.



## COMPLIANCE PLAN **CD-01**

Facility Name: Recovery Technology Solutions

Permit Number: 03700368 - 001

**Subject Item:** TK 002 Miscella

**Associated Items:** GP 001 Extraction (Subject to case-by-case MACT)

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	DESIGN REQUIREMENT
2.0		CD	[Stage 1] Minn. R. 7011.1505, subp. 3	The Permittee shall equip the storage vessel with a permanent submerged fill pipe or the Permittee shall equip the storage vessel with a vapor recovery system or its equivalent.



## COMPLIANCE PLAN **CD-01**

Facility Name: Recovery Technology Solutions

Permit Number: 03700368 - 001

**Subject Item:** TK 003 Asphalt Cement

**Associated Items:** GP 001 Extraction (Subject to case-by-case MACT)

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	DESIGN REQUIREMENT
2.0		CD	[Stage 1] Minn. R. 7011.1505, subp. 3	The Permittee shall equip the storage vessel with a permanent submerged fill pipe or the Permittee shall equip the storage vessel with a vapor recovery system or its equivalent.



## COMPLIANCE PLAN **CD-01**

Facility Name: Recovery Technology Solutions

Permit Number: 03700368 - 001

**Subject Item:** TK 004 Asphalt Cement

**Associated Items:** GP 001 Extraction (Subject to case-by-case MACT)

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	DESIGN REQUIREMENT
2.0		CD	[Stage 1] Minn. R. 7011.1505, subp. 3	The Permittee shall equip the storage vessel with a permanent submerged fill pipe or the Permittee shall equip the storage vessel with a vapor recovery system or its equivalent.



## COMPLIANCE PLAN **CD-01**

Facility Name: Recovery Technology Solutions

Permit Number: 03700368 - 001

**Subject Item:** TK 005 Asphalt Cement

**Associated Items:** GP 001 Extraction (Subject to case-by-case MACT)

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	DESIGN REQUIREMENT
2.0		CD	[Stage 1] Minn. R. 7011.1505, subp. 3	The Permittee shall equip the storage vessel with a permanent submerged fill pipe or the Permittee shall equip the storage vessel with a vapor recovery system or its equivalent.



## COMPLIANCE PLAN **CD-01**

Facility Name: Recovery Technology Solutions

Permit Number: 03700368 - 001

**Subject Item:** TK 006 Asphalt Cement

**Associated Items:** GP 001 Extraction (Subject to case-by-case MACT)

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	DESIGN REQUIREMENT
2.0		CD	[Stage 1] Minn. R. 7011.1505, subp. 3	The Permittee shall equip the storage vessel with a permanent submerged fill pipe or the Permittee shall equip the storage vessel with a vapor recovery system or its equivalent.



## COMPLIANCE PLAN **CD-01**

Facility Name: Recovery Technology Solutions

Permit Number: 03700368 - 001

**Subject Item:** FS 001 Fugitive Toluene Losses

**Associated Items:** GP 001 Extraction (Subject to case-by-case MACT)

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	RECEIVING SOLVENT DELIVERIES
2.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	When receiving deliveries of solvent by truck or tank car, the Permittee shall connect the vapor space of the stationary solvent tank with the vapor space of the truck or tank car making the delivery.
3.0		CD	hdr	LEAK DETECTION AND REPAIR (LDAR) PROVISIONS
4.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	LDAR provisions apply beginning at the time of startup and thereafter.  The Permittee shall comply with the Phase I LDAR requirements upon initial startup. The Permittee shall comply with the Phase II LDAR requirements (in place of the Phase I requirements) beginning no later than 1 year after initial startup.
5.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Each piece of equipment in a process unit to which the LDAR provisions apply shall be identified such that it can be distinguished readily from equipment that is not subject to the LDAR provisions. Identification of the equipment does not require physical tagging of the equipment. For example, the equipment may be identified on a plant site plan, in log entries, or by designation of process unit boundaries by some form of weatherproof identification.
6.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Equipment that is in vacuum service is excluded from the LDAR provisions for FS 001.  Equipment that is in organic HAP service less than 300 hours per calendar year is excluded from the LDAR provisions for FS 001.
7.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	When each leak is detected, the following requirements apply: (1) Clearly identify the leaking equipment. (2) The identification on a valve may be removed after it has been monitored as specified in REPAIRING LEAKS FOR VALVES IN GAS/VAPOR SERVICE AND IN LIGHT LIQUID SERVICE, and in the pump quality assurance program, and no leak has been detected during the follow-up monitoring. If the Permittee elects to monitor a valve or connector that has been opened or has otherwise had the seal broken, the identification on that valve or connector may be removed after it is monitored as required and no leak is detected during that monitoring. (3) The identification which has been placed on equipment determined to have a leak, except for a valve or for a connector that has been opened or has otherwise had the seal broken but has not yet completed the required monitoring, may be removed after it is repaired.
8.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Except as provided in paragraph (1) below, all terms in this subpart that define a period of time for completion of required tasks (e.g., weekly, monthly, quarterly, annual), refer to the standard calendar periods unless specified otherwise in the section or subsection that imposes the requirement. (1) If the initial compliance date does not coincide with the beginning of the standard calendar period, the Permittee may elect to utilize a period beginning on the compliance date, or may elect to comply in accordance with the provisions of paragraphs (2) or (3). (2) Time periods specified in this subpart for completion of required tasks may be changed by mutual agreement between the Permittee and the Commissioner, as specified in 40 CFR pt. 63, subp. A. For each time period that is changed by agreement, the revised period shall remain in effect until it is changed. A new request is not necessary for each recurring period.



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9.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	(continued)  (3) Except as provided in paragraph (1) or (2), where the period specified for compliance is a standard calendar period, if the initial compliance date does not coincide with the beginning of the calendar period, compliance shall be required according to the schedule specified in paragraphs (3)(i) or (3)(ii), as appropriate. (i) Compliance shall be required before the end of the standard calendar period within which the compliance deadline occurs, if there remain at least 3 days for tasks that must be performed weekly, at least 2 weeks for tasks that must be performed monthly, at least 1 month for tasks that must be performed each quarter, or at least 3 months for tasks that must be performed annually; or (ii) In all other cases, compliance shall be required before the end of the first full standard calendar period after the period within which the initial compliance deadline occurs.
10.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	(continued)  (4) In all instances where an LDAR provision requires completion of a task during each of multiple successive periods, the Permittee may perform the required task at any time during each period, provided the task is conducted at a reasonable interval after completion of the task during the previous period.
11.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	In all cases where the Permittee must repair leaks by a specified time after the leak is detected, it is a violation to fail to take action to repair the leaks within the specified time. If action is taken to repair the leaks within the specified time, failure of that action to successfully repair the leak is not a violation. However, if the repairs are unsuccessful, a leak is detected and the Permittee shall take further action as required by applicable provisions of the case-by-case MACT standard for FS001.
12.0		CD	hdr	PUMPS IN LIGHT LIQUID SERVICE
13.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	(1) The Permittee shall monitor each pump monthly to detect leaks by the method specified in NORMAL MONITORING METHODS AND REQUIREMENTS and shall comply with the PUMPS IN LIGHT LIQUID SERVICE requirements, except as provided in the exemptions, below. (2) The instrument reading, as determined by the method as specified in NORMAL MONITORING METHODS AND REQUIREMENTS, that defines a leak in each phase of the standard is: (i) For Phase I, an instrument reading of 5,000 parts per million or greater. (ii) For Phase II, an instrument reading of 1,000 parts per million or greater.
14.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	(1) When a leak is detected, The Permittee shall repair it as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in paragraph (3) or in the DELAY OF REPAIR section. (2) A first attempt at repair shall be made no later than 5 calendar days after the leak is detected. First attempts at repair include, but are not limited to, the following practices where practicable: (i) Tightening of packing gland nuts. (ii) Ensuring that the seal flush is operating at design pressure and temperature. (3) For pumps in Phase II to which a 1,000 parts per million leak definition applies, repair is not required unless an instrument reading of 2,000 parts per million or greater is detected.
15.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	(1) The Permittee shall decide no later than the first monitoring period whether to calculate percent leaking pumps on a process unit basis or on a source-wide basis. Once the Permittee has decided, all subsequent percent calculations shall be made on the same basis. (2) If, in Phase II, calculated on a 6-month rolling average, the greater of either 10 percent of the pumps in a process unit or three pumps in a process unit leak, the Permittee shall implement a quality improvement program for pumps that complies with the QUALITY IMPROVEMENT PROGRAM FOR PUMPS requirements. (3) The number of pumps at a process unit shall be the sum of all the pumps in organic HAP service, except that pumps found leaking in a continuous process unit within 1 month after start-up of the pump shall not count in the percent leaking pumps calculation for that one monitoring period only.



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16.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	(continued)  (4) Percent leaking pumps shall be determined by the following equation: $\%PL = ((PL-PS)/(PT-PS)) * 100$ where: %PL =Percent leaking pumps PL =Number of pumps found leaking as determined through monthly monitoring as required in paragraphs (1) and (2). PT =Total pumps in organic HAP service, including those equipped with a dual mechanical seal system that includes a barrier fluid system or designed with no externally actuated shaft penetrating the pump housing. PS =Number of pumps leaking within 1 month of start-up during the current monitoring period.
17.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Pumps with dual mechanical seal systems.  Each pump equipped with a dual mechanical seal system that includes a barrier fluid system is exempt from the PUMPS IN LIGHT LIQUID SERVICE requirements, provided the following requirements are met: (1) Each dual mechanical seal system is: (i) Operated with the barrier fluid at a pressure that is at all times greater than the pump stuffing box pressure; or (ii) Equipped with a barrier fluid degassing reservoir that is routed to a process or fuel gas system or connected by a closed-vent system to a control device that complies with the CLOSED-VENT SYSTEMS AND CONTROL DEVICES requirements; or (iii) Equipped with a closed-loop system that purges the barrier fluid into a process stream. (2) The barrier fluid is not in light liquid service. (3) Each barrier fluid system is equipped with a sensor that will detect failure of the seal system, the barrier fluid system, or both.
18.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	Pumps with dual mechanical seal systems. (continued)  (4) Each pump is checked by visual inspection each calendar week for indications of liquids dripping from the pump seal. (i) If there are indications of liquids dripping from the pump seal at the time of the weekly inspection, the pump shall be monitored as specified in NORMAL MONITORING METHODS AND REQUIREMENTS to determine if there is a leak of organic HAP in the barrier fluid. (ii) If an instrument reading of 1,000 parts per million or greater is measured, a leak is detected. (5) Each sensor as described in paragraph (3) is observed daily or is equipped with an alarm unless the pump is located within the boundary of an unmanned plant site.
19.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	Pumps with dual mechanical seal systems. (continued)  (6)(i) The Permittee determines, based on design considerations and operating experience, criteria applicable to the presence and frequency of drips and to the sensor that indicates failure of the seal system, the barrier fluid system, or both. (ii) If indications of liquids dripping from the pump seal exceed the criteria established in paragraph(6)(i), or if, based on the criteria established in paragraph(6)(i), the sensor indicates failure of the seal system, the barrier fluid system, or both, a leak is detected. (iii) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in the DELAY OF REPAIR section. (iv) A first attempt at repair shall be made no later than 5 calendar days after each leak is detected.
20.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Any pump that is designed with no externally actuated shaft penetrating the pump housing is exempt from the PUMPS IN LIGHT LIQUID SERVICE requirements.  Any pump equipped with a closed-vent system capable of capturing and transporting any leakage from the seal or seals to a process or to a fuel gas system or to a control device that complies with the CLOSED-VENT SYSTEMS AND CONTROL DEVICES requirements is exempt from the PUMPS IN LIGHT LIQUID SERVICE requirements.



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21.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Any pump that is designated as an unsafe-to-monitor pump is exempt from the monitoring and repair requirements for PUMPS IN LIGHT LIQUID SERVICE if: (1) The Permittee determines that the pump is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with the PUMPS IN LIGHT LIQUID SERVICE requirements; and (2) The Permittee has a written plan that requires monitoring of the pump as frequently as practical during safe-to-monitor times, but not more frequently than the periodic monitoring schedule otherwise applicable.
22.0		CD	hdr	PRESSURE RELIEF VALVES IN GAS/VAPOR SERVICE
23.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	(a) Except during pressure releases, each pressure relief device in gas/vapor service shall be operated with an instrument reading of less than 500 parts per million above background except as provided in paragraph (b), as measured by the method specified in NORMAL MONITORING METHODS AND REQUIREMENTS.  (b)(1) After each pressure release, the pressure relief device shall be returned to a condition indicated by an instrument reading of less than 500 parts per million above background, as soon as practicable, but no later than 5 calendar days after each pressure release, except as provided in the DELAY OF REPAIR section. (2) No later than 5 calendar days after the pressure release and being returned to organic HAP service, the pressure relief device shall be monitored to confirm the condition indicated by an instrument reading of less than 500 parts per million above background, as measured by the method specified in NORMAL MONITORING METHODS AND REQUIREMENTS.
24.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Any pressure relief device that is routed to a process or fuel gas system or equipped with a closed-vent system capable of capturing and transporting leakage from the pressure relief device to a control device as described in the CLOSED-VENT SYSTEMS AND CONTROL DEVICES requirements is exempt from the PRESSURE RELIEF VALVES IN GAS/VAPOR SERVICE requirements.
25.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	(1) Any pressure relief device that is equipped with a rupture disk upstream of the pressure relief device is exempt from the PRESSURE RELIEF VALVES IN GAS/VAPOR SERVICE requirements, provided the Permittee complies with the requirements in paragraph (2). (2) After each pressure release, a rupture disk shall be installed upstream of the pressure relief device as soon as practicable, but no later than 5 calendar days after each pressure release, except as provided in the DELAY OF REPAIR section.
26.0		CD	hdr	SAMPLING CONNECTION SYSTEMS
27.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Each sampling connection system shall be equipped with a closed-purge, closed-loop, or closed-vent system. Gases displaced during filling of the sample container are not required to be collected or captured.
28.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Requirements for closed-purge, closed-loop, or closed-vent systems.  Each closed-purge, closed-loop, or closed-vent system shall: (1) Return the purged process fluid directly to the process line; or (2) Collect and recycle the purged process fluid to a process; or (3) Be designed and operated to capture and transport the purged process fluid to a control device that complies with the CLOSED-VENT SYSTEMS AND CONTROL DEVICES requirements.
29.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	In-situ sampling systems and sampling systems without purges are exempt from the SAMPLING CONNECTION SYSTEMS requirements.
30.0		CD	hdr	OPEN-ENDED VALVES OR LINES
31.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Requirements for open-ended valves or lines.  (a)(1) Each open-ended valve or line shall be equipped with a cap, blind flange, plug, or a second valve, except as provided in paragraphs (d) and (e). (2) The cap, blind flange, plug, or second valve shall seal the open end at all times except during operations requiring process fluid flow through the open-ended valve or line, or during maintenance or repair. (b) Each open-ended valve or line equipped with a second valve shall be operated in a manner such that the valve on the process fluid end is closed before the second valve is closed. (c) When a double block and bleed system is being used, the bleed valve or line may remain open during operations that require venting the line between the block valves but shall comply with paragraph (a) at all other times.



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32.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	Requirements for open-ended valves or lines. (continued)  (d) Open-ended valves or lines in an emergency shutdown system which are designed to open automatically in the event of a process upset are exempt from the OPEN-ENDED VALVES OR LINES requirements. (e) Open-ended valves or lines containing materials which would autocatalytically polymerize or, would present an explosion, serious overpressure, or other safety hazard if capped or equipped with a double block and bleed system as specified in paragraphs (a) through (c) are exempt from the OPEN-ENDED VALVES OR LINES requirements.
33.0		CD	hdr	VALVES IN GAS/VAPOR SERVICE AND IN LIGHT LIQUID SERVICE
34.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	These provisions apply to valves that are either in gas service or in light liquid service.
35.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	The Permittee shall monitor all valves, except for those that are designated as unsafe-to-monitor or difficult-to-monitor, according to the valve monitoring frequency, and shall comply with all other provisions, except as provided in the DELAY OF REPAIR section. (1) The valves shall be monitored to detect leaks by the method specified in NORMAL MONITORING METHODS AND REQUIREMENTS. (2) The instrument reading that defines a leak in each phase of the standard is a reading of 500 parts per million or greater.
36.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Valve monitoring frequency.  In Phase I, each valve shall be monitored quarterly. In Phase II, the Permittee shall monitor valves for leaks at the intervals specified below: (1) At process units with 2 percent or greater leaking valves, the Permittee shall monitor each valve once per month (except for unsafe-to-monitor or difficult-to-monitor valves). (2) At process units with less than 2 percent leaking valves, the Permittee shall monitor each valve once each quarter, except as provided in paragraphs (3) and (4). (3) At process units with less than 1 percent leaking valves, the Permittee may elect to monitor each valve once every 2 quarters. (4) At process units with less than 0.5 percent leaking valves, the Permittee may elect to monitor each valve once every 4 quarters.
37.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Calculating monitoring frequency.  (1) Percent leaking valves at a process unit shall be determined by the following equation: $\%VL = (VL / (VT + VC)) * 100$ where: %VL =Percent leaking valves as determined through periodic monitoring. VL =Number of valves found leaking excluding nonrepairables as provided in paragraph (3)(i). VT =Total valves monitored, in a monitoring period excluding valves monitored as required when repairing leaks (below). VC =Optional credit for removed valves= $0.67 * \text{net number (i.e., total removed minus total added)}$ of valves in organic HAP service removed from process unit after initial start-up. If credits are not taken, then VC =0.
38.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	Calculating monitoring frequency. (continued)  (2) For use in determining monitoring frequency, as specified in paragraph (d) of this section, the percent leaking valves shall be calculated as a rolling average of two consecutive monitoring periods for monthly, quarterly, or semiannual monitoring programs; and as an average of any three out of four consecutive monitoring periods for annual monitoring programs. (3)(i) Nonrepairable valves shall be included in the calculation of percent leaking valves the first time the valve is identified as leaking and nonrepairable and as required to comply with paragraph (ii). Otherwise, a number of nonrepairable valves (identified and included in the percent leaking calculation in a previous period) up to a maximum of 1 percent of the total number of valves in organic HAP service at a process unit may be excluded from calculation of percent leaking valves for subsequent monitoring periods.



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39.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	Calculating monitoring frequency. (continued)  (ii) If the number of nonrepairable valves exceeds 1 percent of the total number of valves in organic HAP service at a process unit, the number of nonrepairable valves exceeding 1 percent of the total number of valves in organic HAP service shall be included in the calculation of percent leaking valves.
40.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Repairing leaks for valves in gas/vapor service and in light liquid service.  (1) When a leak is detected, it shall be repaired as soon as practicable, but no later than 15 calendar days after the leak is detected, except as provided in the DELAY OF REPAIR section. (2) A first attempt at repair shall be made no later than 5 calendar days after each leak is detected. (3) When a leak has been repaired, the valve shall be monitored at least once within the first 3 months after its repair. (i) The monitoring shall be conducted using the NORMAL MONITORING METHODS AND REQUIREMENTS or the MONITORING METHODS AND REQUIREMENTS WITH ADJUSTMENTS TO BACKGROUND LEVELS, as appropriate, to determine whether the valve has resumed leaking.
41.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	Repairing leaks for valves in gas/vapor service and in light liquid service. (continued)  (ii) The normal requirements to monitor periodically may be used to satisfy the requirements of this paragraph (3), if the timing of the monitoring period coincides with the time specified in this paragraph (3). Alternatively, other monitoring may be performed to satisfy the requirements of this paragraph (3), regardless of whether the timing of the monitoring period for periodic monitoring coincides with the time specified in this paragraph (3). (iii) If a leak is detected by monitoring that is conducted pursuant to paragraph (3) of this section, the Permittee shall follow the normal requirements to monitor periodically to determine whether that valve must be counted as a leaking valve for purposes of calculating the percent leaking valves at a process unit.
42.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	Repairing leaks for valves in gas/vapor service and in light liquid service. (continued)  (A) If the Permittee elected to use normal periodic monitoring required to satisfy the requirements of paragraph (3) of this section, then the valve shall be counted as a leaking valve. (B) If the Permittee elected to use other monitoring, prior to the normal periodic monitoring, to satisfy the requirement to monitor within 3 months of its repair, then the valve shall be counted as a leaking valve unless it is repaired and shown by periodic monitoring not to be leaking
43.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	First attempts at repair include, but are not limited to, the following practices where practicable: (1) Tightening of bonnet bolts, (2) Replacement of bonnet bolts, (3) Tightening of packing gland nuts, and (4) Injection of lubricant into lubricated packing.
44.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Any valve that is designated as an unsafe-to-monitor valve is exempt from these requirements if: (1) The Permittee determines that the valve is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with the monitoring requirements; and (2) The Permittee has a written plan that requires monitoring of the valve as frequently as practicable during safe-to-monitor times, but not more frequently than the periodic monitoring schedule otherwise applicable.
45.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Any valve that is designated as a difficult-to-monitor valve is exempt from these requirements if: (1) The Permittee determines that the valve cannot be monitored without elevating the monitoring personnel more than 2 meters above a support surface or it is not accessible at anytime in a safe manner; (2) The Permittee designates less than 3 percent of the total number of valves as difficult-to-monitor; and (3) The Permittee follows a written plan that requires monitoring of the valve at least once per calendar year.
46.0		CD	hdr	PUMPS, VALVES, CONNECTORS, AND AGITATORS IN HEAVY LIQUID SERVICE; INSTRUMENTATION SYSTEMS; AND PRESSURE RELIEF DEVICES IN LIQUID SERVICE



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47.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Pumps, valves, connectors, and agitators in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and instrumentation systems shall be monitored within 5 calendar days by the method specified in NORMAL MONITORING METHODS AND REQUIREMENTS if evidence of a potential leak to the atmosphere is found by visual, audible, olfactory, or any other detection method. If such a potential leak is repaired as required, it is not necessary to monitor the system for leaks by the method specified in NORMAL MONITORING METHODS AND REQUIREMENTS.
48.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Leak thresholds.  If an instrument reading of 10,000 parts per million or greater for agitators or 500 parts per million or greater for valves, connectors, instrumentation systems, and pressure relief devices is measured, a leak is detected.
49.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Response to detected leaks.  (1) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in the DELAY OF REPAIR section. (2) The first attempt at repair shall be made no later than 5 calendar days after each leak is detected. (3) For equipment identified in paragraph (a) of this section that is not monitored by the method specified in NORMAL MONITORING METHODS AND REQUIREMENTS, repaired shall mean that the visual, audible, olfactory, or other indications of a leak to the atmosphere have been eliminated; that no bubbles are observed at potential leak sites during a leak check using soap solution; or that the system will hold a test pressure.
50.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	First attempts at repair include, but are not limited to, the following:  For pumps: (i) Tightening of packing gland nuts; and (ii) Ensuring that the seal flush is operating at design pressure and temperature. For valves: (1) Tightening of bonnet bolts; (2) Replacement of bonnet bolts; (3) Tightening of packing gland nuts; and (4) Injection of lubricant into lubricated packing.
51.0		CD	hdr	DELAY OF REPAIR
52.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Delay of repair of equipment for which leaks have been detected is allowed if repair within 15 days is technically infeasible without a process unit shutdown. Repair of this equipment shall occur by the end of the next process unit shutdown.  Delay of repair of equipment for which leaks have been detected is allowed for equipment that is isolated from the process and that does not remain in organic HAP service.
53.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Delay of repair for valves, connectors, and agitators is also allowed if: (1) The Permittee determines that emissions of purged material resulting from immediate repair would be greater than the fugitive emissions likely to result from delay of repair, and (2) When repair procedures are effected, the purged material is collected and destroyed or recovered in a control device complying with the CLOSED-VENT SYSTEMS AND CONTROL DEVICES requirements.
54.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Delay of repair for pumps is also allowed if: (1) Repair requires replacing the existing seal design with a new system that the Permittee has determined under the QUALITY IMPROVEMENT PROGRAM FOR PUMPS provisions will provide better performance or: (i) A dual mechanical seal system that meets the requirements listed in FS 001 for pumps with dual mechanical seal system, (ii) A pump with no externally actuated shaft penetrating the pump housing, or (iii) A closed-vent system capable of capturing and transporting any leakage from the seal or seals to a process or to a fuel gas system or to a control device that complies with the CLOSED-VENT SYSTEMS AND CONTROL DEVICES requirements; and (2) Repair is completed as soon as practicable, but not later than 6 months after the leak was detected.



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55.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Delay of repair beyond a process unit shutdown will be allowed for a valve if valve assembly replacement is necessary during the process unit shutdown, valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before the supplies were depleted. Delay of repair beyond the second process unit shutdown will not be allowed unless the third process unit shutdown occurs sooner than 6 months after the first process unit shutdown.
56.0		CD	hdr	CLOSED-VENT SYSTEMS AND CONTROL DEVICES
57.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Except for parts of the closed-vent system that are designated unsafe-to-inspect and difficult-to-inspect, each closed-vent system shall be inspected according to the procedures and schedule specified in (1) and (2). (1) If the closed-vent system is constructed of hard-piping, the Permittee shall: (i) Conduct an initial inspection according to the NORMAL MONITORING METHODS AND REQUIREMENTS procedures, and (ii) Conduct annual visual inspections for visible, audible, or olfactory indications of leaks. (2) If the vapor collection system or closed-vent system is constructed of duct work, the Permittee shall: (i) Conduct an initial inspection according to the NORMAL MONITORING METHODS AND REQUIREMENTS procedures, and (ii) Conduct annual inspections according to the NORMAL MONITORING METHODS AND REQUIREMENTS procedures.
58.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Leaks, as indicated by an instrument reading greater than 500 parts per million above background or by visual inspections, shall be repaired as soon as practicable, except as provided in (3). (1) A first attempt at repair shall be made no later than 5 calendar days after the leak is detected. (2) Repair shall be completed no later than 15 calendar days after the leak is detected, except as provided in (3). (3) Delay of repair of a closed-vent system for which leaks have been detected is allowed if the repair is technically infeasible without a process unit shutdown or if the Permittee determines that emissions resulting from immediate repair would be greater than the fugitive emissions likely to result from delay of repair. Repair of such equipment shall be complete by the end of the next process unit shutdown.
59.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Any parts of the closed-vent system that are designated as unsafe to inspect are exempt from the NORMAL MONITORING METHODS AND REQUIREMENTS inspection if: (1) The Permittee determines that the equipment is unsafe to inspect because inspecting personnel would be exposed to an imminent or potential danger as a consequence of complying with the NORMAL MONITORING METHODS AND REQUIREMENTS; and (2) The Permittee has a written plan that requires inspection of the equipment as frequently as practicable during safe-to-inspect times, but not more frequently than annually.
60.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Whenever organic HAP emissions are vented to a closed-vent system or control device used to comply with the LDAR provisions, such system or control device shall be operating.
61.0		CD	hdr	AGITATORS IN GAS/VAPOR SERVICES AND IN LIGHT LIQUID SERVICE
62.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Monitoring requirements for agitators in gas/vapor services and in light liquid service.  (a)(1) Each agitator shall be monitored monthly to detect leaks by the NORMAL MONITORING METHODS AND REQUIREMENTS. (2) If an instrument reading of 10,000 parts per million or greater is measured, a leak is detected. (b)(1) Each agitator shall be checked by visual inspection each calendar week for indications of liquids dripping from the agitator. (2) If there are indications of liquids dripping from the agitator, a leak is detected. (c)(1) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in the DELAY OF REPAIR section. (2) A first attempt at repair shall be made no later than 5 calendar days after each leak is detected.



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63.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	<p>Agitators with a dual mechanical seal system.</p> <p>Each agitator equipped with a dual mechanical seal system that includes a barrier fluid system is exempt from the NORMAL MONITORING METHODS AND REQUIREMENTS, provided the requirements specified in (1) through (6) are met:</p> <p>(1) Each dual mechanical seal system is:</p> <p>(i) Operated with the barrier fluid at a pressure that is at all times greater than the agitator stuffing box pressure; or</p> <p>(ii) Equipped with a barrier fluid degassing reservoir that is routed to a process or fuel gas system or connected by a closed-vent system to a control device that complies with the NORMAL MONITORING METHODS AND REQUIREMENTS; or</p> <p>(iii) Equipped with a closed-loop system that purges the barrier fluid into a process stream.</p> <p>(2) The barrier fluid is not in light liquid organic HAP service.</p> <p>(3) Each barrier fluid system is equipped with a sensor that will detect failure of the seal system, the barrier fluid system, or both.</p>
64.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	<p>Agitators with a dual mechanical seal system. (continued)</p> <p>(4) Each agitator is checked by visual inspection each calendar week for indications of liquids dripping from the agitator seal.</p> <p>(i) If there are indications of liquids dripping from the agitator seal at the time of the weekly inspection, the agitator shall be monitored as specified in the NORMAL MONITORING METHODS AND REQUIREMENTS to determine the presence of organic HAP in the barrier fluid.</p> <p>(ii) If an instrument reading of 10,000 parts per million or greater is measured, a leak is detected.</p> <p>(5) Each sensor as described in (3) is observed daily or is equipped with an alarm unless the agitator is located within the boundary of an unmanned plant site.</p>
65.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	<p>Agitators with a dual mechanical seal system. (continued)</p> <p>(6)(i) The Permittee determines, based on design considerations and operating experience, criteria applicable to the presence and frequency of drips and to the sensor that indicates failure of the seal system, the barrier fluid system, or both.</p> <p>(ii) If indications of liquids dripping from the agitator seal exceed the criteria established in (6)(i), or if, based on the criteria established in (6)(i), the sensor indicates failure of the seal system, the barrier fluid system, or both, a leak is detected.</p> <p>(iii) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in the DELAY OF REPAIR section.</p> <p>(iv) A first attempt at repair shall be made no later than 5 calendar days after each leak is detected.</p>
66.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	<p>Any agitator equipped with a closed-vent system capable of capturing and transporting any leakage from the seal or seals to a process or fuel gas system or to a control device that complies with the CLOSED-VENT SYSTEMS AND CONTROL DEVICES requirements is exempt from the monitoring requirements for agitators in gas/vapor services and in light liquid service.</p>
67.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	<p>Any agitator that is difficult-to-monitor is exempt from the monitoring requirements for agitators in gas/vapor services and in light liquid service if:</p> <p>(1) The Permittee determines that the agitator cannot be monitored without elevating the monitoring personnel more than two meters above a support surface or it is not accessible at anytime in a safe manner;</p> <p>(2) The process unit within which the agitator is located is an existing source or the Permittee designates less than three percent of the total number of agitators in a new source as difficult-to-monitor; and</p> <p>(3) The Permittee follows a written plan that requires monitoring of the agitator at least once per calendar year.</p>
68.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	<p>Any agitator that is obstructed by equipment or piping that prevents access to the agitator by a monitor probe is exempt from the monitoring requirements for agitators in gas/vapor services and in light liquid service.</p>



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69.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Any agitator that is designated as an unsafe-to-monitor agitator is exempt from the monitoring requirements for agitators in gas/vapor services and in light liquid service if: (1) The Permittee operating determines that the agitator is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of fulfilling the monitoring requirements for agitators in gas/vapor services and in light liquid service; and (2) The Permittee has a written plan that requires monitoring of the agitator as frequently as practical during safe-to-monitor times, but not more frequently than the periodic monitoring schedule otherwise applicable.
70.0		CD	hdr	CONNECTORS IN GAS/VAPOR SERVICE AND IN LIGHT LIQUID SERVICE
71.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	The Permittee shall monitor all connectors in gas/vapor and light liquid service, at the monitoring intervals for connectors in gas/vapor service and in light liquid service, except for connectors that are unsafe-to-monitor, unsafe-to-repair, or inaccessible, or that are ceramic or ceramic-lined. (1) The connectors shall be monitored to detect leaks by the NORMAL MONITORING METHODS AND REQUIREMENTS. (2) If an instrument reading greater than or equal to 500 parts per million is measured, a leak is detected.
72.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Monitoring intervals for connectors in gas/vapor service and in light liquid service. The Permittee shall monitor for leaks at the intervals specified in (1) and (2). (1) Within the first 12 months after initial start-up or by no later than 12 months after the date of promulgation of a specific subpart that references this subpart, whichever is later, the Permittee shall monitor all connectors, except as provided in paragraphs (f) through (h) of this section. (2) After conducting the initial survey required in (1), the Permittee shall perform all subsequent monitoring of connectors at the frequencies specified in paragraphs (i) through (v): (i) Once per year (i.e., 12-month period), if the percent leaking connectors in the process unit was 0.5 percent or greater during the last required annual or biennial monitoring period.
73.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	Monitoring intervals for connectors in gas/vapor service and in light liquid service. (continued)  (ii) Once every 2 years, if the percent leaking connectors was less than 0.5 percent during the last required monitoring period. The Permittee may comply with this paragraph by monitoring at least 40 percent of the connectors in the first year and the remainder of the connectors in the second year. The percent leaking connectors will be calculated for the total of all monitoring performed during the 2-year period. (iii) If the Permittee operating a process unit in a biennial leak detection and repair program calculates less than 0.5 percent leaking connectors from the 2-year monitoring period, the Permittee may monitor the connectors one time every 4 years. The Permittee may comply with the requirements of this paragraph by monitoring at least 20 percent of the connectors each year until all connectors have been monitored within 4 years.
74.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	Monitoring intervals for connectors in gas/vapor service and in light liquid service. (continued)  (iv) If a process unit complying with the requirements of paragraph (b) of this section using a 4-year monitoring interval program has greater than or equal to 0.5 percent but less than 1 percent leaking connectors, the Permittee shall increase the monitoring frequency to one time every 2 years. The Permittee may comply with the requirements of this paragraph by monitoring at least 40 percent of the connectors in the first year and the remainder of the connectors in the second year. The Permittee may again elect to use the provisions of (iii) when the percent leaking connectors decreases to less than 0.5 percent.
75.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	Monitoring intervals for connectors in gas/vapor service and in light liquid service. (continued)  (v) If a process unit complying with requirements of (iii) using a 4-year monitoring interval program has 1 percent or greater leaking connectors, the Permittee shall increase the monitoring frequency to one time per year. The Permittee may again elect to use the provisions of paragraph (iii) of this section when the percent leaking connectors decreases to less than 0.5 percent.



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76.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Connectors that have been opened or otherwise had the seal broken.  (i) Except as provided in (ii), each connector that has been opened or has otherwise had the seal broken shall be monitored for leaks when it is reconnected or within the first 3 months after being returned to organic hazardous air pollutants service. If the monitoring detects a leak, it shall be repaired according to the provisions for normal repair of connectors, unless it is determined to be nonrepairable, in which case it is counted as a nonrepairable connector for the purposes of calculating the percent leaking connectors for determining the monitoring frequency.
77.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	Connectors that have been opened or otherwise had the seal broken. (continued)  (ii) As an alternative to the requirements in (i), the Permittee may choose not to monitor connectors that have been opened or otherwise had the seal broken. In this case, the Permittee may not count nonrepairable connectors for the purposes of calculating the percent leaking connectors for determining the monitoring frequency. The Permittee shall calculate the percent leaking connectors for the monitoring periods by setting the nonrepairable component, C(AN), for calculating the percent leaking connectors for determining the monitoring frequency to zero for all monitoring periods. (iii) The Permittee may switch alternatives described in (i) and (ii) at the end of the current monitoring period, provided that it is reported as required begin the new alternative in annual monitoring. The initial monitoring in the new alternative shall be completed no later than 12 months after reporting the switch.
78.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Normal repair of connectors.  When a leak is detected, it shall be repaired as soon as practicable, but no later than 15 calendar days after the leak is detected, except for unsafe-to-repair connectors and as provided in DELAY OF REPAIR. A first attempt at repair shall be made no later than 5 calendar days after the leak is detected.
79.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Any connector that is designated as an unsafe-to-monitor connector is exempt from the NORMAL MONITORING METHODS AND REQUIREMENTS if: (1) The Permittee determines that the connector is unsafe to monitor because personnel would be exposed to an immediate danger as a result of complying with the NORMAL MONITORING METHODS AND REQUIREMENTS; and (2) The Permittee has a written plan that requires monitoring of the connector as frequently as practicable during safe to monitor periods, but not more frequently than the periodic schedule otherwise applicable.
80.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Any connector that is designated as an unsafe-to-repair connector is exempt from the NORMAL MONITORING METHODS AND REQUIREMENTS if: (1) The Permittee determines that repair personnel would be exposed to an immediate danger as a consequence of repairing the connector; and (2) The connector will be repaired before the end of the next scheduled process unit shutdown.
81.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	(1) Any connector that is inaccessible or is ceramic or ceramic-lined (e.g., porcelain, glass, or glass-lined), is exempt from the NORMAL MONITORING METHODS AND REQUIREMENTS and from the recordkeeping and reporting requirements. An inaccessible connector is one that is: (i) Buried; (ii) Insulated in a manner that prevents access to the connector by a monitor probe; (iii) Obstructed by equipment or piping that prevents access to the connector by a monitor probe; (iv) Unable to be reached from a wheeled scissor-lift or hydraulic-type scaffold which would allow access to connectors up to 7.6 meters (25 feet) above the ground; (v) Inaccessible because it would require elevating the monitoring personnel more than 2 meters above a permanent support surface or would require the erection of scaffold; or



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82.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	(continued)  (vi) Not able to be accessed at any time in a safe manner to perform monitoring. Unsafe access includes, but is not limited to, the use of a wheeled scissor-lift on unstable or uneven terrain, the use of a motorized man-lift basket in areas where an ignition potential exists, or access would require near proximity to hazards such as electrical lines, or would risk damage to equipment. (2) If any inaccessible or ceramic or ceramic-lined connector is observed by visual, audible, olfactory, or other means to be leaking, the leak shall be repaired as soon as practicable, but no later than 15 calendar days after the leak is detected, except as provided in the DELAY OF REPAIR provisions or for unsafe-to-repair connectors. (3) A first attempt at repair shall be made no later than 5 calendar days after the leak is detected.
83.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Determining the monitoring frequency.  For use in determining the monitoring frequency, the percent leaking connectors shall be calculated as specified in (1) and (2). (1) For the first monitoring period, use the following equation: $\% C(L) = C(L) / (C(t) + C(c)) * 100$ where: $\% C(L)$ = Percent leaking connectors as determined through periodic monitoring required in paragraphs (a) and (b) of this section. $C(L)$ = Number of connectors measured at 500 parts per million or greater, by the NORMAL MONITORING METHODS AND REQUIREMENTS. $C(t)$ = Total number of monitored connectors in the process unit. $C(c)$ = Optional credit for removed connectors = 0.67 * net (i.e., total removed-total added) number of connectors in organic hazardous air pollutants service removed from the process unit after the date of initial start-up. If credits are not taken, then $C(c) = 0$ .
84.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	Determining the monitoring frequency. (continued)  (2) For subsequent monitoring periods, use the following equation: $\% C(L) = [(C(L) - C(AN)) / (C(t) + C(c))] * 100$ where: $\% C(L)$ = Percent leaking connectors as determined through the required periodic monitoring. $C(L)$ = Number of connectors, including nonrepairables, measured at 500 parts per million or greater, by the NORMAL MONITORING METHODS AND REQUIREMENTS. $C(AN)$ = Number of allowable nonrepairable connectors, as determined by monitoring of connectors required above, not to exceed 2 percent of the total connector population, $C(t)$ . $C(t)$ = Total number of monitored connectors, including nonrepairables, in the process unit. $C(c)$ = Optional credit for removed connectors = 0.67 * net number (i.e., total removed-total added) of connectors in organic hazardous air pollutants service removed from the process unit after the date of initial startup. If credits are not taken, then $C(c) = 0$ .
85.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Optional credit for removed connectors.  If the Permittee eliminates a connector subject to monitoring, the Permittee may receive credit for elimination of the connector provided the requirements in (1) through (3) are met. (1) The connector was welded after initial startup. (2) The integrity of the weld is demonstrated by monitoring it according to the NORMAL MONITORING METHODS AND REQUIREMENTS or by testing using X-ray, acoustic monitoring, hydrotesting, or other applicable method. (3) Welds created after initial startup are monitored or tested within 3 months after being welded. (4) If an inadequate weld is found or the connector is not welded completely around the circumference, the connector is not considered a welded connector and is therefore not exempt from the LDAR provisions.
86.0		CD	hdr	QUALITY IMPROVEMENT PROGRAM FOR PUMPS
87.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	In Phase II, if, on a 6-month rolling average, the greater of either 10 percent of the pumps in a process unit (or plant site) or three pumps in a process unit (or plant site) leak, the Permittee shall comply with the requirements specified below.



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88.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	The Permittee shall comply with the requirements of this section until the number of leaking pumps is less than the greater of either 10 percent of the pumps or three pumps, calculated as a 6-month rolling average, in the process unit (or plant site). Once the performance level is achieved, the Permittee shall comply with the PUMPS IN LIGHT LIQUID SERVICE requirements.
89.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	If in a subsequent monitoring period, the process unit (or plant site) has greater than 10 percent of the pumps leaking or three pumps leaking (calculated as a 6-month rolling average), the Permittee shall resume the quality improvement program starting at performance trials.
90.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Requirements for the quality improvement program (QIP) for pumps.  The quality improvement program shall include the following: (1) The Permittee shall comply with the PUMPS IN LIGHT LIQUID SERVICE requirements. (2) The Permittee shall collect the following data, and maintain records as required in the RECORDKEEPING section for pumps in the quality improvement program, for each pump in each process unit (or plant site) subject to the quality improvement program. The data may be collected and the records may be maintained on a process unit or plant site basis. (i) Pump type (e.g., piston, horizontal or vertical centrifugal, gear, bellows); pump manufacturer; seal type and manufacturer; pump design (e.g., external shaft, flanged body); materials of construction; if applicable, barrier fluid or packing material; and year installed. (ii) Service characteristics of the stream such as discharge pressure, temperature, flow rate, corrosivity, and annual operating hours.
91.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	Requirements for the QIP for pumps. (continued)  (iii) The maximum instrument readings observed in each monitoring observation before repair, response factor for the stream if appropriate, instrument model number, and date of the observation. (iv) If a leak is detected, the repair methods used and the instrument readings after repair. (v) If the data will be analyzed as part of a larger analysis program involving data from other plants or other types of process units, a description of any maintenance or quality assurance programs used in the process unit that are intended to improve emission performance. (3) The Permittee shall continue to collect data on the pumps as long as the process unit (or plant site) remains in the quality improvement program.
92.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	Requirements for the QIP for pumps. (continued)  (4) The Permittee shall inspect all pumps or pump seals which exhibited frequent seal failures and were removed from the process unit due to leaks. The inspection shall determine the probable cause of the pump seal failure or of the pump leak and shall include recommendations, as appropriate, for design changes or changes in specifications to reduce leak potential. (5)(i) The Permittee shall analyze the data collected to comply with the requirements of (2) to determine the services, operating or maintenance practices, and pump or pump seal designs or technologies that have poorer than average emission performance and those that have better than average emission performance. The analysis shall determine if specific trouble areas can be identified on the basis of service, operating conditions or maintenance practices, equipment design, or other process specific factors.
93.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	Requirements for the QIP for pumps. (continued)  (ii) The analysis shall also be used to determine if there are superior performing pump or pump seal technologies that are applicable to the service(s), operating conditions, or pump or pump seal designs associated with poorer than average emission performance. A superior performing pump or pump seal technology is one with a leak frequency of less than 10 percent for specific applications in the process unit or plant site. A candidate superior performing pump or pump seal technology is one demonstrated or reported in the available literature or through a group study as having low emission performance and as being capable of achieving less than 10 percent leaking pumps in the process unit (or plant site). (iii) The analysis shall include consideration of: (A) The data obtained from the inspections of pumps and pump seals removed from the process unit due to leaks;



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94.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	Requirements for the QIP for pumps. (continued)  (B) Information from the available literature and from the experience of other plant sites that will identify valve designs or technologies and operating conditions associated with low emission performance for specific services, and (C) Information on limitations on the service conditions for the pump seal technology operating conditions as well as information on maintenance procedures to ensure continued low emission performance. (iv) The data analysis may be conducted through an inter- or intra-company program (or through some combination of the two approaches) and may be for a single process unit, a plant site, a company, or a group of process units.
95.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	Requirements for the QIP for pumps. (continued)  (5)(v) The first analysis of the data shall be completed no later than 18 months after the start of Phase II. The first analysis shall be performed using a minimum of two quarters of data. An analysis of the data shall be done each year the process unit is in the quality improvement program. (6) A trial evaluation program shall be conducted at each plant site for which the data analysis does not identify use of superior performing pump seal technology or pumps that can be applied to the areas identified as having poorer than average performance, except as provided in paragraph (6)(v). The trial program shall be used to evaluate the feasibility of using in the process unit (or plant site) the pump designs or seal technologies, and operating and maintenance practices that have been identified by others as having low emission performance.
96.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	Requirements for the QIP for pumps. (continued)  (i) The trial program shall include on-line trials of pump seal technologies or pump designs and operating and maintenance practices that have been identified in the available literature or in analysis by others as having the ability to perform with leak rates below 10 percent in similar services, as having low probability of failure, or as having no external actuating mechanism in contact with the process fluid. If any of the candidate superior performing pump seal technologies or pumps is not included in the performance trials, the reasons for rejecting specific technologies from consideration shall be documented as required in the RECORDKEEPING section for each superior emission performing pump technology that is rejected from performance trials.
97.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	Requirements for the QIP for pumps. (continued)  (ii) The number of pump seal technologies or pumps in the trial evaluation program shall be the lesser of 1 percent or pumps for programs involving single process units and the lesser of 1 percent or 5 pumps for programs involving a plant site or groups of process units. The minimum number of pumps or pump seal technologies in a trial program shall be 1. (iii) The trial evaluation program shall specify and include documentation of: (A) The candidate superior performing pump seal designs or technologies to be evaluated, the stages for evaluating the identified candidate pump designs or pump seal technologies, including the time period necessary to test the applicability; (B) The frequency of monitoring or inspection of the equipment; (C) The range of operating conditions over which the component will be evaluated; and
98.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	Requirements for the QIP for pumps. (continued)  (D) Conclusions regarding the emission performance and the appropriate operating conditions and services for the trial pump seal technologies or pumps.
99.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	Requirements for the QIP for pumps. (continued)  (iv) The performance trials shall initially be conducted, at least, for a 6-month period beginning not later than 18 months after the start of the quality improvement program. No later than 24 months after the start of the quality improvement program, the Permittee shall have identified pump seal technologies or pump designs that, combined with appropriate process, operating, and maintenance practices, operate with low emission performance for specific applications in the process unit. The Permittee shall continue to conduct performance trials as long as no superior performing design or technology has been identified, except as provided in paragraph (6)(vi) of this section. The initial list of superior emission performance pump designs or pump seal technologies shall be amended in the future, as appropriate, as additional information and experience is obtained.



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100.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	Requirements for the QIP for pumps. (continued)  (v) Any plant site with fewer than 400 valves and owned by a corporation with fewer than 100 employees shall be exempt from trial evaluations of pump seals or pump designs. Plant sites exempt from the trial evaluations of pumps shall begin the pump seal or pump replacement program at the start of the fourth year of the quality improvement program.
101.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	Requirements for the QIP for pumps. (continued)  (vi) A Permittee who has conducted performance trials on all alternative superior emission performance technologies suitable for the required applications in the process unit may stop conducting performance trials provided that a superior performing design or technology has been demonstrated or there are no technically feasible alternative superior technologies remaining. The Permittee shall prepare an engineering evaluation documenting the physical, chemical, or engineering basis for the judgment that the superior emission performance technology is technically infeasible or demonstrating that it would not reduce emissions.
102.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	Requirements for the QIP for pumps. (continued)  (7) Each Permittee shall prepare and implement a pump quality assurance program that details purchasing specifications and maintenance procedures for all pumps and pump seals in the process unit. The quality assurance program may establish any number of categories, or classes, of pumps as needed to distinguish among operating conditions and services associated with poorer than average emission performance as well as those associated with better than average emission performance. The quality assurance program shall be developed considering the findings of the data analysis required under paragraph (d)(5) of this section, if applicable, the findings of the trial evaluation required in paragraph (d)(6) of this section, and the operating conditions in the process unit. The quality assurance program shall be updated each year as long as the process unit has the greater of either 10 percent or more leaking pumps or has three leaking pumps.
103.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	Requirements for the QIP for pumps. (continued)  (i) The quality assurance program shall: (A) Establish minimum design standards for each category of pumps or pump seal technology. The design standards shall specify known critical parameters such as tolerance, manufacturer, materials of construction, previous usage, or other applicable identified critical parameters; (B) Require that all equipment orders specify the design standard (or minimum tolerances) for the pump or the pump seal; (C) Provide for an audit procedure for quality control of purchased equipment to ensure conformance with purchase specifications. The audit program may be conducted by the Permittee of the plant site or process unit or by a designated representative; and
104.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	Requirements for the QIP for pumps. (continued)  (D) Detail off-line pump maintenance and repair procedures. These procedures shall include provisions to ensure that rebuilt or refurbished pumps and pump seals will meet the design specifications for the pump category and will operate such that emissions are minimized. (ii) The quality assurance program shall be established no later than the start of the third year of the quality improvement program for plant sites with 400 or more valves or 100 or more employees; and no later than the start of the fourth year of the quality improvement program for plant sites with less than 400 valves and less than 100 employees.
105.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	Requirements for the QIP for pumps. (continued)  (8) Beginning at the start of the third year of the quality improvement program for plant sites with 400 or more valves or 100 or more employees and at the start of the fourth year of the quality improvement program for plant sites with less than 400 valves and less than 100 employees, the Permittee shall replace, as described in paragraphs (d)(8)(i) and (d)(8)(ii) of this section, the pumps or pump seals that are not superior emission performance technology with pumps or pump seals that have been identified as superior emission performance technology and that comply with the quality assurance standards for the pump category. Superior emission performance technology is that category or design of pumps or pump seals with emission performance which, when combined with appropriate process, operating, and maintenance practices, will result in less than 10 percent leaking pumps for specific applications in the process unit or plant site.



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106.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	Requirements for the QIP for pumps. (continued)  (8) (continued) Superior emission performance technology includes material or design changes to the existing pump, pump seal, seal support system, installation of multiple mechanical seals or equivalent, or pump replacement.
107.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	Requirements for the QIP for pumps. (continued)  (i) Pumps or pump seals shall be replaced at the rate of 20 percent per year based on the total number of pumps in light liquid service. The calculated value shall be rounded to the nearest nonzero integer value. The minimum number of pumps or pump seals shall be one. Pump replacement shall continue until all pumps subject to the PUMPS IN LIGHT LIQUID SERVICE requirements are pumps determined to be superior performance technology. (ii) The Permittee may delay replacement of pump seals or pumps with superior technology until the next planned process unit shutdown, provided the number of pump seals and pumps replaced is equivalent to the 20 percent or greater annual replacement rate. (iii) The pumps shall be maintained as specified in the quality assurance program.
108.0		CD	hdr	NORMAL MONITORING METHODS AND REQUIREMENTS
109.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Monitoring shall comply with Method 21 of 40 CFR part 60, appendix A.
110.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	(i) Except as provided for in (ii), the detection instrument shall meet the performance criteria of Method 21 of 40 CFR part 60, appendix A, except the instrument response factor criteria in Section 3.1.2(a) of Method 21 shall be for the average composition of the process fluid not each individual VOC in the stream. For process streams that contain nitrogen, water, air, or other inerts which are not organic HAP's or VOC's, the average stream response factor may be calculated on an inert-free basis. The response factor may be determined at any concentration for which monitoring for leaks will be conducted. (ii) If no instrument is available at the plant site that will meet the performance criteria specified in (i), the instrument readings may be adjusted by multiplying by the average response factor of the process fluid, calculated on an inert-free basis as described in (i).
111.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	The instrument shall be calibrated before use on each day of its use by the procedures specified in Method 21 of 40 CFR part 60, appendix A.
112.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Calibration gases shall be: (i) Zero air (less than 10 parts per million of hydrocarbon in air); and (ii) Mixtures of methane in air at the concentrations specified in (ii)(A) and (ii)(B). A calibration gas other than methane in air may be used if the instrument does not respond to methane or if the instrument does not meet the performance criteria specified in paragraph (i) of this section. In such cases, the calibration gas may be a mixture of one or more of the compounds to be measured in air. (A) For Phase I, a mixture of methane or other compounds, as applicable, and air at a concentration of approximately, but less than, 10,000 parts per million for agitators, 5,000 parts per million for pumps, and 500 parts per million for all other equipment, except as provided in (iii).
113.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	(continued)  (B) For Phase II, a mixture of methane or other compounds, as applicable, and air at a concentration of approximately, but less than, 10,000 parts per million methane for agitators; 2,000 parts per million for pumps in food/medical service; 5,000 parts per million for pumps in polymerizing monomer service; 1,000 parts per million for all other pumps; and 500 parts per million for all other equipment, except as provided in (iii).



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114.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	(continued)  (iii) The instrument may be calibrated at a higher methane concentration than the concentration specified for that piece of equipment. The concentration of the calibration gas may exceed the concentration specified as a leak by no more than 2,000 parts per million. If the monitoring instrument's design allows for multiple calibration scales, then the lower scale shall be calibrated with a calibration gas that is no higher than 2,000 parts per million above the concentration specified as a leak and the highest scale shall be calibrated with a calibration gas that is approximately equal to 10,000 parts per million. If only one scale on an instrument will be used during monitoring, the Permittee need not calibrate the scales that will not be used during that day's monitoring.
115.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Monitoring shall be performed when the equipment is in organic HAP service, in use with an acceptable surrogate volatile organic compound which is not an organic HAP, or is in use with any other detectable gas or vapor.
116.0		CD	hdr	MONITORING METHODS AND REQUIREMENTS WITH ADJUSTMENTS TO BACKGROUND LEVELS
117.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010	When compressors, pressure relief devices in gas/vapor services, or closed-vent systems and control devices are monitored for compliance with a leak definition of 500 ppm or when equipment subject to a leak definition of 500 ppm is monitored for leaks as required by this subpart, the Permittee may elect to adjust or not to adjust the instrument readings for background. If the Permittee elects to not adjust instrument readings for background, the Permittee shall monitor the equipment according to the procedures specified in the NORMAL MONITORING METHODS AND REQUIREMENTS. In such case, all instrument readings shall be compared directly to the applicable leak definition to determine whether there is a leak. If the Permittee elects to adjust instrument readings for background, the Permittee shall monitor the equipment according to the procedures specified in (1) through (4) below:
118.0		CD	[Stage 1] 40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	(continued)  (1) The NORMAL MONITORING METHODS AND REQUIREMENTS shall apply. (2) The background level shall be determined, using the same procedures that will be used to determine whether the equipment is leaking. (3) The instrument probe shall be traversed around all potential leak interfaces as close to the interface as possible as described in Method 21 of 40 CFR part 60, appendix A. (4) The arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared with 500 parts per million for determining compliance.
119.0		CD	hdr	RECORDKEEPING REQUIREMENTS
120.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010	LDAR recordkeeping requirements.  The following information pertaining to all equipment in each process unit subject to the LDAR requirements shall be recorded: (1)(i) A list of identification numbers for equipment (except connectors exempt from monitoring and recordkeeping otherwise identified and instrumentation systems) subject to the LDAR requirements. Connectors need not be individually identified if all connectors in a designated area or length of pipe subject to the LDAR provisions are identified as a group, and the number of connectors subject is indicated. With respect to connectors, the list shall be complete no later than the completion of the initial survey required within 12 months of initial startup. (ii) A schedule by process unit for monitoring connectors and valves that are subject to the LDAR provisions.



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121.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	LDAR recordkeeping requirements. (continued)  (iii) Physical tagging of the equipment to indicate that it is in organic HAP service is not required. Equipment subject to the LDAR provisions may be identified on a plant site plan, in log entries, or by other appropriate methods. (2)(i) A list of identification numbers for equipment that the Permittee elects to equip with a closed-vent system and control device, including pumps, compressors, pressure relief devices, or agitators. (ii) A list of identification numbers for compressors that the Permittee elects to designate as operating with an instrument reading of less than 500 parts per million above background. (3)(i) A list of identification numbers for pressure relief devices subject to the LDAR provisions. (ii) A list of identification numbers for pressure relief devices equipped with rupture disks.
122.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	LDAR recordkeeping requirements. (continued)  (4) Identification of instrumentation systems subject to the LDAR provisions. Individual components in an instrumentation system need not be identified. (5) The following information shall be recorded for each dual mechanical seal system: (i) Design criteria required for each pump, compressor or agitator equipped with a dual mechanical seal system operated with a barrier fluid system and an explanation of the design criteria; and (ii) Any changes to these criteria and the reasons for the changes. (6) The following information pertaining to all pumps identified as unsafe-to-monitor, all valves identified as unsafe-to-monitor or difficult-to-monitor, all agitators identified as unsafe-to-monitor or difficult-to-monitor or identified as obstructed by equipment or piping, and connectors identified as unsafe-to-monitor or unsafe-to-repair shall be recorded:
123.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	LDAR recordkeeping requirements. (continued)  (i) Identification of equipment designated as unsafe to monitor, difficult to monitor, or unsafe to inspect and the plan for monitoring or inspecting this equipment. (ii) A list of identification numbers for the equipment that is designated as difficult to monitor, an explanation of why the equipment is difficult to monitor, and the planned schedule for monitoring this equipment. (iii) A list of identification numbers for connectors that are designated as unsafe to repair and an explanation why the connector is unsafe to repair. (7)(i) A list of valves removed from and added to the process unit, if the net credits for removed valves is expected to be used. (ii) A list of connectors removed from and added to the process unit and documentation of the integrity of the weld for any removed connectors, as required. This is not required unless the net credits for removed connectors is expected to be used.
124.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	LDAR recordkeeping requirements. (continued)  (8) For any leaks detected from pumps in light liquid service; from compressors; from valves in gas/vapor service and in light liquid service; from pumps, valves, connectors, and agitators in heavy liquid service; instrumentation systems, and pressure relief devices in liquid service; from agitators in gas/vapor service and in light liquid service; and from connectors in gas/vapor service and in light liquid service; a weatherproof and readily visible identification, marked with the equipment identification number, shall be attached to the leaking equipment.
125.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010	Calibration recordkeeping requirements.  The Permittee shall document the calibration of each detection instrument each day of its use. The documentation for each detection instrument shall include: (1) A description of the calibration gases, including methane concentration; (2) The instrument's response factor; (3) The instrument's response time; and (4) The instrument's calibration precision.
126.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010	For visual inspections of equipment subject to the LDAR provisions, the Permittee document that the inspection was conducted and the date of the inspection. The Permittee shall maintain records as specified for leaking equipment identified in this inspection. These records shall be retained for 2 years.



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127.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010	<p>When each leak is detected from pumps in light liquid service; from valves in gas/vapor service and in light liquid service; from pumps, valves, connectors, and agitators in heavy liquid service; instrumentation systems, and pressure relief devices in liquid service; from agitators in gas/vapor service and in light liquid service; and from connectors in gas/vapor service and in light liquid, the following information shall be recorded and kept for 2 years:</p> <p>(1) The instrument and the equipment identification number and the operator name, initials, or identification number.</p> <p>(2) The date the leak was detected and the date of first attempt to repair the leak.</p> <p>(3) The date of successful repair of the leak.</p> <p>(4) Maximum instrument reading measured by Method 21 of 40 CFR part 60, appendix A after it is successfully repaired or determined to be nonrepairable.</p>
128.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	<p>(continued)</p> <p>(5) "Repair delayed" and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak.</p> <p>(i) The Permittee may develop a written procedure that identifies the conditions that justify a delay of repair. The written procedures may be included as part of the startup/shutdown/malfunction plan, required by 40 CFR Section 63.6(e)(3), for the source or may be part of a separate document that is maintained at the plant site. In such cases, reasons for delay of repair may be documented by citing the relevant sections of the written procedure.</p> <p>(ii) If delay of repair was caused by depletion of stocked parts, there must be documentation that the spare parts were sufficiently stocked on-site before depletion and the reason for depletion.</p> <p>(6) Dates of process unit shutdowns that occur while the equipment is unrepaired.</p>
129.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	<p>(continued)</p> <p>(7)(i) Identification, either by list, location (area or grouping), or tagging of connectors that have been opened or otherwise had the seal broken since the last monitoring period required for monitoring connectors, as described in paragraph (i) of Connectors that have been opened or otherwise had the seal broken, unless the Permittee elects not to monitor connectors according to paragraph (ii) of Connectors that have been opened or otherwise had the seal broken.</p> <p>(ii) The date and results of monitoring as required for Connectors that have been opened or otherwise had the seal broken. If identification of connectors that have been opened or otherwise had the seal broken is made by location under paragraph (7)(i) of this section, then all connectors within the designated location shall be monitored.</p> <p>(8) Copies of the periodic reports, if records are not maintained on a computerized database capable of generating summary reports from the records.</p>
130.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010	<p>The dates and results of the monitoring following a pressure release for each pressure relief device subject to the PRESSURE RELIEF DEVICES IN GAS/VAPOR SERVICE provisions. The results shall include:</p> <p>(1) The background level measured during each compliance test.</p> <p>(2) The maximum instrument reading measured at each piece of equipment during each compliance test.</p>
131.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010	<p>The Permittee shall maintain records of the information specified in (1) through (3) for closed-vent systems and control devices subject to the CLOSED-VENT SYSTEMS AND CONTROL DEVICES provisions. The records specified in (1) shall be retained for the life of the equipment. The records specified in (2) and (3) shall be retained for 2 years.</p> <p>(1) The design specifications and performance demonstrations specified in paragraphs (1)(i) through (1)(iii) of this section.</p> <p>(i) Detailed schematics, design specifications of the control device, and piping and instrumentation diagrams.</p> <p>(ii) The dates and descriptions of any changes in the design specifications.</p> <p>(iii) A description of the parameter or parameters monitored, as required in CLOSED-VENT SYSTEMS AND CONTROL DEVICES, to ensure that control devices are operated and maintained in conformance with their design and an explanation of why that parameter (or parameters) was selected for the monitoring.</p>



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132.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	(continued)  (2) Records of operation of closed-vent systems and control devices, as specified in paragraphs (2)(i) through (2)(iii). (i) Dates and durations when the required closed-vent systems and control devices are not operated as designed as indicated by the monitored parameters. (ii) Dates and durations during which the monitoring system or monitoring device is inoperative. (iii) Dates and durations of start-ups and shutdowns of required control devices.
133.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	(continued)  (3) Records of inspections of closed-vent systems subject to the CLOSED-VENT SYSTEMS AND CONTROL DEVICES provisions. (i) For each inspection conducted in accordance with the CLOSED-VENT SYSTEMS AND CONTROL DEVICES provisions during which no leaks were detected, a record that the inspection was performed, the date of the inspection, and a statement that no leaks were detected. (ii) For each inspection conducted in accordance with the CLOSED-VENT SYSTEMS AND CONTROL DEVICES provisions during which leaks were detected, the following information shall be recorded: (a) The instrument and the equipment identification number and the operator name, initials, or identification number. (b) The date the leak was detected and the date of first attempt to repair the leak. (c) The date of successful repair of the leak.
134.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	(continued)  (d) Maximum instrument reading measured by Method 21 of 40 CFR part 60, appendix A after it is successfully repaired or determined to be nonreparable. (e) "Repair delayed" and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak. (i) The Permittee may develop a written procedure that identifies the conditions that justify a delay of repair. The written procedures may be included as part of the startup/shutdown/malfunction plan, required by 40 CFR Section 63.6(e)(3), for the source or may be part of a separate document that is maintained at the plant site. In such cases, reasons for delay of repair may be documented by citing the relevant sections of the written procedure. (ii) If delay of repair was caused by depletion of stocked parts, there must be documentation that the spare parts were sufficiently stocked on-site before depletion and the reason for depletion.
135.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	(continued)  (f) Dates of process unit shutdowns that occur while the equipment is unrepaired. (g)(i) Identification, either by list, location (area or grouping), or tagging of connectors that have been opened or otherwise had the seal broken since the last monitoring period required for monitoring connectors, as described in paragraph (i) of Connectors that have been opened or otherwise had the seal broken, unless the Permittee elects not to monitor connectors according to paragraph (ii) of Connectors that have been opened or otherwise had the seal broken. (ii) The date and results of monitoring as required for Connectors that have been opened or otherwise had the seal broken. If identification of connectors that have been opened or otherwise had the seal broken is made by location under paragraph (g)(i) of this section, then all connectors within the designated location shall be monitored.
136.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	(continued)  (h) Copies of the periodic reports, if records are not maintained on a computerized database capable of generating summary reports from the records.
137.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010	A Permittee subject to the quality improvement programs requirements for pumps shall maintain the records specified in paragraphs (1) through (6) for the period of the quality improvement program for the process unit. (1) For Permittees subject to the requirements of the pump quality improvement program: (i) All quality improvement program data in (a) through (e) : (a) Pump type (e.g., piston, horizontal or vertical centrifugal, gear, bellows); pump manufacturer; seal type and manufacturer; pump design (e.g., external shaft, flanged body); materials of construction; if applicable, barrier fluid or packing material; and year installed. (b) Service characteristics of the stream such as discharge pressure, temperature, flow rate, corrosivity, and annual operating hours.



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138.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	(continued)  (c) The maximum instrument readings observed in each monitoring observation before repair, response factor for the stream if appropriate, instrument model number, and date of the observation. (d) If a leak is detected, the repair methods used and the instrument readings after repair. (e) If the data will be analyzed as part of a larger analysis program involving data from other plants or other types of process units, a description of any maintenance or quality assurance programs used in the process unit that are intended to improve emission performance. (ii) The rolling average percent leaking pumps. (iii) Documentation of all inspections conducted and any recommendations for design or specification changes to reduce leak frequency. (iv) The beginning and ending dates while meeting the quality improvement program requirements.
139.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	(continued)  (2) If a leak is not repaired within 15 calendar days after discovery of the leak, the reason for the delay and the expected date of successful repair. (3) Records of all analyses required for the quality improvement program for pumps. The records will include the following: (i) A list identifying areas associated with poorer than average performance and the associated service characteristics of the stream, the operating conditions and maintenance practices. (ii) The reasons for rejecting specific candidate superior emission performing valve or pump technology from performance trials. (iii) The list of candidate superior emission performing valve or pump technologies, and documentation of the required performance trial program items. (iv) The beginning date and duration of performance trials of each candidate superior emission performing technology. (4) All records documenting the quality assurance program for valves or pumps.
140.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	(continued)  (5) Records indicating that all valves or pumps replaced or modified during the period of the quality improvement program are in compliance with the quality assurance requirement. (6) Information and data to show the corporation has fewer than 100 employees, including employees providing professional and technical contracted services.
141.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010	The Permittee with equipment in heavy liquid service shall comply with the requirements of either (1) or (2) of this section, as provided in (3). (1) Retain information, data, and analyses used to determine that a piece of equipment is in heavy liquid service. (2) When requested by the Administrator, demonstrate that the piece of equipment or process is in heavy liquid service. (3) A determination or demonstration that a piece of equipment or process is in heavy liquid service shall include an analysis or demonstration that the process fluids do not meet the definition of "in light liquid service." Examples of information that could document this include, but are not limited to, records of chemicals purchased for the process, analyses of process stream composition, engineering calculations, or process knowledge.
142.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010	The Permittee shall identify, either by list or location (area or group), equipment in organic HAP service less than 300 hours per year.
143.0		CD	hdr	REPORTING



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144.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010	<p>The Permittee shall submit the reports listed in (1) through (3). Permittees requesting an extension of compliance shall also submit the report listed in paragraph (4) of this section.</p> <p>(1) An Initial Notification, and</p> <p>(2) A Notification of Compliance Status, and</p> <p>(3) Periodic Reports.</p> <p>(4) Pursuant to section 112(i)(3)(B) of the Act, the Permittee may request an extension allowing an existing source up to 1 additional year beyond the compliance date.</p> <p>(i) A request for an extension shall be submitted to the operating permit authority as part of the operating permit application.</p> <p>(ii) A request for an extension of compliance must include the data described in 40 CFR Section 63.6(i)(6)(i) (A), (B), and (D).</p> <p>(iii) The requirements in 40 CFR Section 63.6(i)(8) through (i)(14) will govern the review and approval of requests for extensions of compliance.</p>
145.0		S/A	40 CFR Section 63.43: MACT & Minn. R. 7007.3010	<p>Notification of compliance status: due 90 days after Initial Startup.</p> <p>The Notification of Compliance Status shall provide the information listed in (1) through (4) of this section for each process unit subject to the LDAR.</p> <p>(1) Process unit identification.</p> <p>(2) Number of each equipment type (e.g., valves, pumps) excluding equipment in vacuum service.</p> <p>(3) Method of compliance with the standard (for example, "monthly leak detection and repair" or "equipped with dual mechanical seals").</p> <p>(4) Planned schedule for each phase of the PUMPS IN LIGHT LIQUID SERVICE and VALVES IN GAS/VAPOR SERVICE AND IN LIGHT LIQUID SERVICE requirements.</p>
146.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010	<p>The Permittee shall submit Periodic Reports.</p> <p>(1) A report containing the information in (2) and (3) shall be submitted semiannually starting 6 months after the Notification of Compliance Status. The first periodic report shall cover the first 6 months after initial startup. Each subsequent periodic report shall cover the 6 month period following the preceding period.</p> <p>(2) For each process unit complying with the LDAR provisions, the summary information listed in paragraphs (i) through (xiv) of this paragraph for each monitoring period during the 6-month period.</p> <p>(i) The number of valves for which leaks were detected, the percent leakers, and the total number of valves monitored;</p> <p>(ii) The number of valves for which leaks were not repaired, identifying the number of those that are determined nonrepairable;</p> <p>(iii) The number of pumps for which leaks were detected, the percent leakers, and the total number of pumps monitored;</p> <p>(iv) The number of pumps for which leaks were not repaired;</p>
147.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	<p>(continued)</p> <p>(v) The number of compressors for which leaks were detected;</p> <p>(vi) The number of compressors for which leaks were not repaired;</p> <p>(vii) The number of agitators for which leaks were detected;</p> <p>(viii) The number of agitators for which leaks were not repaired;</p> <p>(ix) The number of connectors for which leaks were detected, the percent of connectors leaking, and the total number of connectors monitored;</p> <p>(x) The number of connectors for which leaks were not repaired, identifying the number of those that are determined nonrepairable;</p> <p>(xi) The facts that explain any delay of repairs and, where appropriate, why a process unit shutdown was technically infeasible.</p> <p>(xii) The results of all monitoring to show compliance with the standards for PRESSURE RELIEF DEVICES IN GAS/VAPOR SERVICE and for CLOSED-VENT SYSTEMS AND CONTROL DEVICES within the semiannual reporting period.</p> <p>(xiii) If applicable, the initiation of a quality improvement program for pumps.</p>
148.0		CD	40 CFR Section 63.43: MACT & Minn. R. 7007.3010 CONTINUED	<p>(continued)</p> <p>(xiv) If applicable, notification of a change in connector monitoring alternatives as described in "Connectors that have been opened or otherwise had the seal broken."</p> <p>(3) The information listed in paragraph (c) of this section for the Notification of Compliance Status for process units with later compliance dates. Any revisions to items reported in earlier Notification of Compliance Status, if the method of compliance has changed since the last report.</p>
149.0		CD	hdr	GENERAL PROVISIONS



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150.0		CD	40 CFR Section 63.5(b)(3); Minn. R. 7011.7000	Prior to construction or reconstruction of a major-emitting "affected source" under the promulgated MACT standards, the Permittee must apply for and obtain an air emission permit.
151.0		CD	40 CFR Section 63.5(b)(4); Minn. R. 7011.7000	After the effective date of any relevant standard promulgated by the Administrator under 40 CFR pt. 63, the Permittee who constructs a new affected source that is not major-emitting or reconstructs an affected source that is not major-emitting that is subject to such standard, or reconstructs a source such that the source becomes an affected source subject to the standard, must notify the Administrator of the intended construction or reconstruction. The notification must be submitted in accordance with the procedures in 40 CFR Section 63.9(b).
152.0		CD	40 CFR Section 63.5(b); Minn. R. 7011.7000	After the effective date of any relevant standard promulgated by the Administrator under 40 CFR pt. 63, equipment added (or a process change) to an affected source that is within the scope of the definition of affected source under the relevant standard must be considered part of the affected source and subject to all provisions of the relevant standard established for that affected source.
153.0		CD	40 CFR Section 63.6(a)(1); Minn. R. 7011.7000	The GENERAL PROVISIONS shall apply to the facility unless: (i) The Administrator (or a State with an approved permit program) has granted an extension of compliance; or (ii) The President has granted an exemption from compliance with the LDAR standard in accordance with section 112(i)(4) of the Act.
154.0		CD	40 CFR Section 63.6(i)(1); Minn. R. 7011.7000	Until an extension of compliance has been granted by the Administrator (or a State with an approved permit program) under 40 CFR Section 63.6(i), the Permittee shall comply with all applicable GENERAL PROVISIONS.
155.0		CD	40 CFR Section 63.9(a)(2)	If the Permittee has been granted an extension of compliance under 40 CFR 63, subpart D, the LDAR requirements do not apply to those sources while the facility is operating under such compliance extensions.
156.0		CD	[Stage 1] 40 CFR Section 63.11(c)	Alternative work practice for monitoring equipment for leaks - (A)  Paragraphs (A), (B), and (C) apply to all equipment for which the applicable subpart requires monitoring with a 40 CFR part 60, appendix A-7, Method 21 monitor, except for closed vent systems, equipment designated as leakless, and equipment identified in the applicable subpart as having no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background. The Permittee may use an optical gas imaging instrument instead of a 40 CFR part 60, Appendix A-7, Method 21 monitor. Requirements that are specific to the Method 21 instrument do not apply under this section. All other LDAR requirements that are not addressed in paragraphs (A), (B), and (C) of this section continue to apply. For example, equipment specification requirements, and non-Method 21 instrument recordkeeping and reporting requirements in the applicable subpart continue to apply.
157.0		CD	[Stage 1] 40 CFR Section 63.11(c) CONTINUED	Alternative work practice for monitoring equipment for leaks - (A) (continued)  The terms defined in paragraphs (A)(1) through (5) of this section have meanings that are specific to the alternative work practice standard in paragraphs (A), (B), and (C) of this section. (1) LDAR requirements means the requirements of FS 001 that require monitoring of equipment with a 40 CFR part 60, appendix A-7, Method 21 monitor. (2) Equipment means pumps, valves, pressure relief valves, compressors, open-ended lines, flanges, connectors, and other equipment covered by the applicable subpart that require monitoring with a 40 CFR part 60, appendix A-7, Method 21 monitor. (3) Imaging means making visible emissions that may otherwise be invisible to the naked eye. (4) Optical gas imaging instrument means an instrument that makes visible emissions that may otherwise be invisible to the naked eye. (5) Repair means that equipment is adjusted, or otherwise altered, in order to eliminate a leak.
158.0		CD	[Stage 1] 40 CFR Section 63.11(c) CONTINUED	Alternative work practice for monitoring equipment for leaks - (A) (continued)  (6) Leak means: (i) Any emissions imaged by the optical gas instrument; (ii) Indications of liquids dripping; (iii) Indications by a sensor that a seal or barrier fluid system has failed; or (iv) Screening results using a 40 CFR part 60, appendix A-7, Method 21 monitor that exceed the leak definition in the applicable subpart to which the equipment is subject.



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159.0		CD	[Stage 1] 40 CFR Section 63.11(d)	<p>Alternative work practice for monitoring equipment for leaks - (B)</p> <p>Alternative work practice for monitoring equipment for leaks. (B) The alternative work practice standard for monitoring equipment for leaks is available to the portions of the LDAR requirements that require monitoring of equipment with a 40 CFR part 60, appendix A-7, Method 21 monitor. (1) The Permittee can choose to comply with the alternative work practice requirements in paragraph (C) of this section instead of using the 40 CFR part 60, appendix A-7, Method 21 monitor to identify leaking equipment. The Permittee shall document the equipment, process units, and facilities for which the alternative work practice will be used to identify leaks. (2) Any leak detected when following the leak survey procedure in paragraph (C)(3) of this section must be identified for repair as required in the applicable subpart.</p>
160.0		CD	[Stage 1] 40 CFR Section 63.11(d) CONTINUED	<p>Alternative work practice for monitoring equipment for leaks - (B) (continued)</p> <p>(3) If the alternative work practice is used to identify leaks, re-screening after an attempted repair of leaking equipment must be conducted using either the alternative work practice or the 40 CFR part 60, Appendix A-7, Method 21 monitor at the leak definition required in the applicable subparts to which the equipment is subject. (4) The schedule for repair is as required in the applicable subpart. (5) When this alternative work practice is used for detecting leaking equipment, choose one of the monitoring frequencies listed in Table 1 to subpart A of this part in lieu of the monitoring frequency specified for regulated equipment in the applicable subpart. Reduced monitoring frequencies for good performance are not applicable when using the alternative work practice.</p>
161.0		CD	[Stage 1] 40 CFR Section 63.11(d) CONTINUED	<p>Alternative work practice for monitoring equipment for leaks - (B) (continued)</p> <p>(6) When this alternative work practice is used for detecting leaking equipment, the following are not applicable for the equipment being monitored: (i) Skip period leak detection and repair; (ii) Quality improvement plans; or (iii) Complying with standards for allowable percentage of valves and pumps to leak.</p>
162.0		CD	[Stage 1] 40 CFR Section 63.11(d) CONTINUED	<p>Alternative work practice for monitoring equipment for leaks - (B) (continued)</p> <p>(7) When the alternative work practice is used to detect leaking equipment, the regulated equipment in paragraph (d)(1)(i) of this section must also be monitored annually using a 40 CFR part 60, Appendix A-7, Method 21 monitor at the leak definition required in the applicable subpart. The owner or operator may choose the specific monitoring period (for example, first quarter) to conduct the annual monitoring. Subsequent monitoring must be conducted every 12 months from the initial period. Owners or operators must keep records of the annual Method 21 screening results, as specified in 40 CFR Section 63.11(i)(4)(vii).</p>
163.0		CD	[Stage 1] 40 CFR Section 63.11(e)	<p>Alternative work practice for monitoring equipment for leaks - (C)</p> <p>If the Permittee chooses to use the alternative work practice, the Permittee must comply with the requirements of paragraphs (C)(1) through (C)(5) of this section. (1) Instrument specifications. The optical gas imaging instrument must comply with the requirements specified in paragraphs (C)(1)(i) and (C)(1)(ii) of this section. (i) Provide the operator with an image of the potential leak points for each piece of equipment at both the detection sensitivity level and within the distance used in the daily instrument check described in paragraph (C)(2) of this section. The detection sensitivity level depends upon the frequency at which leak monitoring is to be performed. (ii) Provide a date and time stamp for video records of every monitoring event.</p>
164.0		CD	[Stage 1] 40 CFR Section 63.11(e) CONTINUED	<p>Alternative work practice for monitoring equipment for leaks - (C) (continued)</p> <p>(2) Daily instrument check. On a daily basis, and prior to beginning any leak monitoring work, test the optical gas imaging instrument at the mass flow rate determined in paragraph (C)(2)(i) of this section in accordance with the procedure specified in paragraphs (C)(2)(ii) through (C)(2)(iv) of this section for each camera configuration used during monitoring (for example, different lenses used), unless an alternative method to demonstrate daily instrument checks has been approved in accordance with paragraph (C)(2)(v) of this section. (i) Calculate the mass flow rate to be used in the daily instrument check by following the procedures in paragraphs (C)(2)(i)(A) and (C)(2)(i)(B) of this section.</p>



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165.0		CD	[Stage 1] 40 CFR Section 63.11(e) CONTINUED	Alternative work practice for monitoring equipment for leaks - (C) (continued)  (A) For a specified population of equipment to be imaged by the instrument, determine the piece of equipment in contact with the lowest mass fraction of chemicals that are detectable, within the distance to be used in paragraph (C)(2)(iv)(B) of this section, at or below the standard detection sensitivity level. (B) Multiply the standard detection sensitivity level, corresponding to the selected monitoring frequency in Table 1 of subpart A of this part, by the mass fraction of detectable chemicals from the stream identified in paragraph (C)(2)(i)(A) of this section to determine the mass flow rate to be used in the daily instrument check, using the following equation. $E(dic) = E(sds) \text{ times the summation from } l = 1 \text{ to } k \text{ of } x(i)$
166.0		CD	[Stage 1] 40 CFR Section 63.11(e) CONTINUED	Alternative work practice for monitoring equipment for leaks - (C) (continued)  Where: $E(dic)$ = Mass flow rate for the daily instrument check, grams per hour $x(i)$ = Mass fraction of detectable chemical(s) $i$ seen by the optical gas imaging instrument, within the distance to be used in paragraph (C)(2)(iv)(B) of this section, at or below the standard detection sensitivity level, $E(sds)$ . $E(sds)$ = Standard detection sensitivity level from Table 1 to subpart A, grams per hour $k$ = Total number of detectable chemicals emitted from the leaking equipment and seen by the optical gas imaging instrument.  (ii) Start the optical gas imaging instrument according to the manufacturer's instructions, ensuring that all appropriate settings conform to the manufacturer's instructions. (iii) Use any gas chosen by the user that can be viewed by the optical gas imaging instrument and that has a purity of no less than 98 percent.
167.0		CD	[Stage 1] 40 CFR Section 63.11(e) CONTINUED	Alternative work practice for monitoring equipment for leaks - (C) (continued)  (iv) Establish a mass flow rate by using the following procedures: (A) Provide a source of gas where it will be in the field of view of the optical gas imaging instrument. (B) Set up the optical gas imaging instrument at a recorded distance from the outlet or leak orifice of the flow meter that will not be exceeded in the actual performance of the leak survey. Do not exceed the operating parameters of the flow meter. (C) Open the valve on the flow meter to set a flow rate that will create a mass emission rate equal to the mass rate calculated in paragraph (C)(2)(i) of this section while observing the gas flow through the optical gas imaging instrument viewfinder. When an image of the gas emission is seen through the viewfinder at the required emission rate, make a record of the reading on the flow meter.
168.0		CD	[Stage 1] 40 CFR Section 63.11(e) CONTINUED	Alternative work practice for monitoring equipment for leaks - (C) (continued)  (v) Repeat the procedures specified in paragraphs (C)(2)(ii) through (C)(2)(iv) of this section for each configuration of the optical gas imaging instrument used during the leak survey. (vi) To use an alternative method to demonstrate daily instrument checks, apply to the Administrator for approval of the alternative under 40 CFR Section 63.177 or 40 CFR Section 63.178, whichever is applicable.  (3) Leak survey procedure. Operate the optical gas imaging instrument to image every regulated piece of equipment selected for this work practice in accordance with the instrument manufacturer's operating parameters. All emissions imaged by the optical gas imaging instrument are considered to be leaks and are subject to repair. All emissions visible to the naked eye are also considered to be leaks and are subject to repair.



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169.0		CD	[Stage 1] 40 CFR Section 63.11(e) CONTINUED	Alternative work practice for monitoring equipment for leaks - (C) (continued)  (4) Recordkeeping. Keep the records described in paragraphs (C)(4)(i) through (C)(4)(vii) of this section: (i) The equipment, processes, and facilities for which the owner or operator chooses to use the alternative work practice. (ii) The detection sensitivity level selected from Table 1 to subpart A of this part for the optical gas imaging instrument. (iii) The analysis to determine the piece of equipment in contact with the lowest mass fraction of chemicals that are detectable, as specified in paragraph (C)(2)(i)(A) of this section. (iv) The technical basis for the mass fraction of detectable chemicals used in the equation in paragraph (C)(2)(i)(B) of this section.
170.0		CD	[Stage 1] 40 CFR Section 63.11(e) CONTINUED	Alternative work practice for monitoring equipment for leaks - (C) (continued)  (v) The daily instrument check. Record the distance, per paragraph (C)(2)(iv)(B) of this section, and the flow meter reading, per paragraph (C)(2)(iv)(C) of this section, at which the leak was imaged. Keep a video record of the daily instrument check for each configuration of the optical gas imaging instrument used during the leak survey (for example, the daily instrument check must be conducted for each lens used). The video record must include a time and date stamp for each daily instrument check. The video record must be kept for 5 years.
171.0		CD	[Stage 1] 40 CFR Section 63.11(e) CONTINUED	Alternative work practice for monitoring equipment for leaks - (C) (continued)  (vi) Recordkeeping requirements in the applicable subpart. A video record must be used to document the leak survey results. The video record must include a time and date stamp for each monitoring event. A video record can be used to meet the recordkeeping requirements of the LDAR requirements if each piece of regulated equipment selected for this work practice can be identified in the video record. The video record must be kept for 5 years. (vii) The results of the annual Method 21 screening required in 40 CFR Section 63.11(h)(7). Records must be kept for all regulated equipment specified in 40 CFR Section 63.11(h)(1). Records must identify the equipment screened, the screening value measured by Method 21, the time and date of the screening, and calibration information required in the LDAR requirements.
172.0		CD	[Stage 1] 40 CFR Section 63.11(e) CONTINUED	Alternative work practice for monitoring equipment for leaks - (C) (continued)  (5) Reporting. Submit the reports required in the LDAR requirements. Submit the records of the annual Method 21 screening required in 40 CFR Section 63.11(h)(7) to the Administrator via e-mail to CCG-AWP@EPA.GOV.

## Attachment 3

### Points Calculator

## Points Calculator

1) AQ Facility ID No.: 03700368  
 2) Facility Name: Recovery Technology Solutions  
 3) Small business? y/n?  
 4) DQ Numbers (including all rolled) : 4073  
 5) Date of each Application Received: 8/2/12  
 6) Final Permit No. 03700368-001  
 7) Permit Staff RCordes

**Total Points 155**

Application Type	DQ No.	Qty.	Points	Total Points	Details
Administrative Amendment			1	0	
Minor Amendment			4	0	
Applicability Request			10	0	
Moderate Amendment			15	0	
Major Amendment			25	0	
Individual State Permit (not reissuance)			50	0	
Individual Part 70 Permit (not reissuance)	4073	1	75	75	Part 70 permit application
<b>Additional Points</b>					
Modeling Review			15	0	
BACT Review			15	0	
LAER Review			15	0	
CAIR/Part 75 CEM analysis			10	0	
NSPS Review	4073	1	10	10	Subp. Dc (EU004)
NESHAP Review	4073	2	10	20	Subp. DDDDD (EU004, EU005)
Case-by-case MACT Review	4073	1	20	20	Asphalt extraction process
Netting			10	0	
Limits to remain below threshold	4073	3	10	30	Limit to stay below PSD majc
Plantwide Applicability Limit (PAL)			20	0	
AERA review			15	0	
Variance request under 7000.7000			35	0	
Confidentiality request under 7000.1300			2	0	
<b>EAW review</b>					
Part 4410.4300, subparts 18, item A; and 29			15	0	
Part 4410.4300, subparts 8, items A & B; 10, items A to C; 16, items A & D; 17, items A to C & E to G; and 18, items B & C			35	0	
Part 4410.4300, subparts 4; 5 items A & B; 13; 15; 16, items B & C; and 17 item D			70	0	
<b>Add'l Points</b>				<b>80</b>	

### NOTES:

Application fee (\$21,375) paid with original submittal  
 Additional fees total \$22,800