

**APPENDIX E-11**

**Alternative Monitoring Application for PM Control**

**Application for Alternative Monitoring Requirements to  
Document Compliance with MACT Emission Standards for  
Particulate Matter**

API Industries, Inc.  
Guayama, Puerto Rico

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## **1.0 Introduction**

API Industries, Inc. (API) operates two hazardous waste incinerators at its pharmaceutical manufacturing facility in Guayama, Puerto Rico. The incinerators, referred to as the Trane 1 and Trane 2 units, are subject to the Interim Standards for Hazardous Air Pollutants for Hazardous Waste Combustors (Interim Standards Rule), 40 CFR Part 63 Subpart EEE.

API's hazardous waste incinerators are vertically fired liquid injection incinerators which treat hazardous process wastewater generated in the pharmaceutical manufacturing process. The units are each equipped with a combustion chamber, a quench tank, a venturi scrubber, and a separator equipped with a mist eliminator. The incinerators are also equipped with a common wet electrostatic precipitator (WESP) and discharge emissions through a common stack. A schematic of the incinerators is presented in Figure 1.

API is hereby submitting an application for alternative monitoring requirements to document compliance with Hazardous Waste Combustor MACT emission standards for particulate matter for the Trane 1 and Trane 2 hazardous waste incinerators as set forth at 40 CFR §63.1203(a)(7). This application is being submitted pursuant to §63.1209(g). The objective of this application is to request an alternative to MACT-required monitoring requirements for the Trane 1 and Trane 2 venturi scrubbers as established at 40 CFR §63.1209(m)(1)(i)(B)(1).

Section 2 of this application describes applicable MACT monitoring requirements for wet scrubbers, including venturi scrubbers. A description of API's installed air pollution control equipment is presented in Section 3. Section 4 presents the proposed alternative monitoring requirement and a demonstration of monitoring equivalency.

## 2.0 HWC MACT Monitoring Requirements for Wet Scrubbers

API's venturi scrubbers are defined as "high energy" wet scrubbers as per §63.1209(m)(1)(i). In order to ensure an incinerator's compliance with MACT emission standards for particulate matter, 40 CFR §63.1209(m) establishes the following monitoring requirements for high energy wet scrubbers:

1. Establish a minimum pressure drop across the wet scrubber [§63.1209(m)(1)(i)(A)]
2. To ensure that the solids content of the scrubber liquid does not exceed levels during the performance test, either:
  - establish a limit on solids content of the scrubber liquid by CMS or manual sampling [§63.1209(m)(1)(i)(B)(I)(i)]; or
  - establish a minimum blowdown rate using a CMS and either a minimum scrubber tank volume or liquid level using a CMS [§63.1209(m)(1)(i)(B)(I)(ii)].
3. As an indicator of gas residence time, establish a maximum flue gas flowrate [§63.1209(m)(2)]
4. Establish a maximum ash feedrate [§63.1209(m)(3)]

API complies with items 1, 3 and 4 above as described in detail in the Comprehensive Performance Test (CPT) Plan. However, as discussed in the following sections, API is seeking an alternative monitoring requirement to comply with item 2.

## 3.0 Trane 1 and Trane 2 Equipment for Particulate Matter Removal

The air pollution control devices installed at the Trane 1 and Trane 2 Incinerators for the control of particulate matter emissions are the quench tanks, the venturi scrubbers, the separators and the common WESP. As illustrated in Figure 1 for the Trane 1 and Trane 2 units, respectively, particulate matter is controlled by monitoring the venturi scrubber differential pressure (PDT-945-1 and 2), the venturi scrubber blowdown rate (FT-944-1 and 2), the venturi scrubber recirculation rate (FT-901A-1 and 2), the separator tank water level (LT-907-1 and 2), and the WESP secondary power input (SQ300V/300A).

According to the requirements set forth at 40 CFR §63.1209(m)(i)(B)(1)(ii), a minimum venturi scrubber tank liquid level must be established and monitored with a CMS. As illustrated in Figure 1, however, the venturi scrubber is not equipped with a dedicated collection tank. Rather, liquids are drained from the venturi scrubber into the separator tank from where it is recirculated

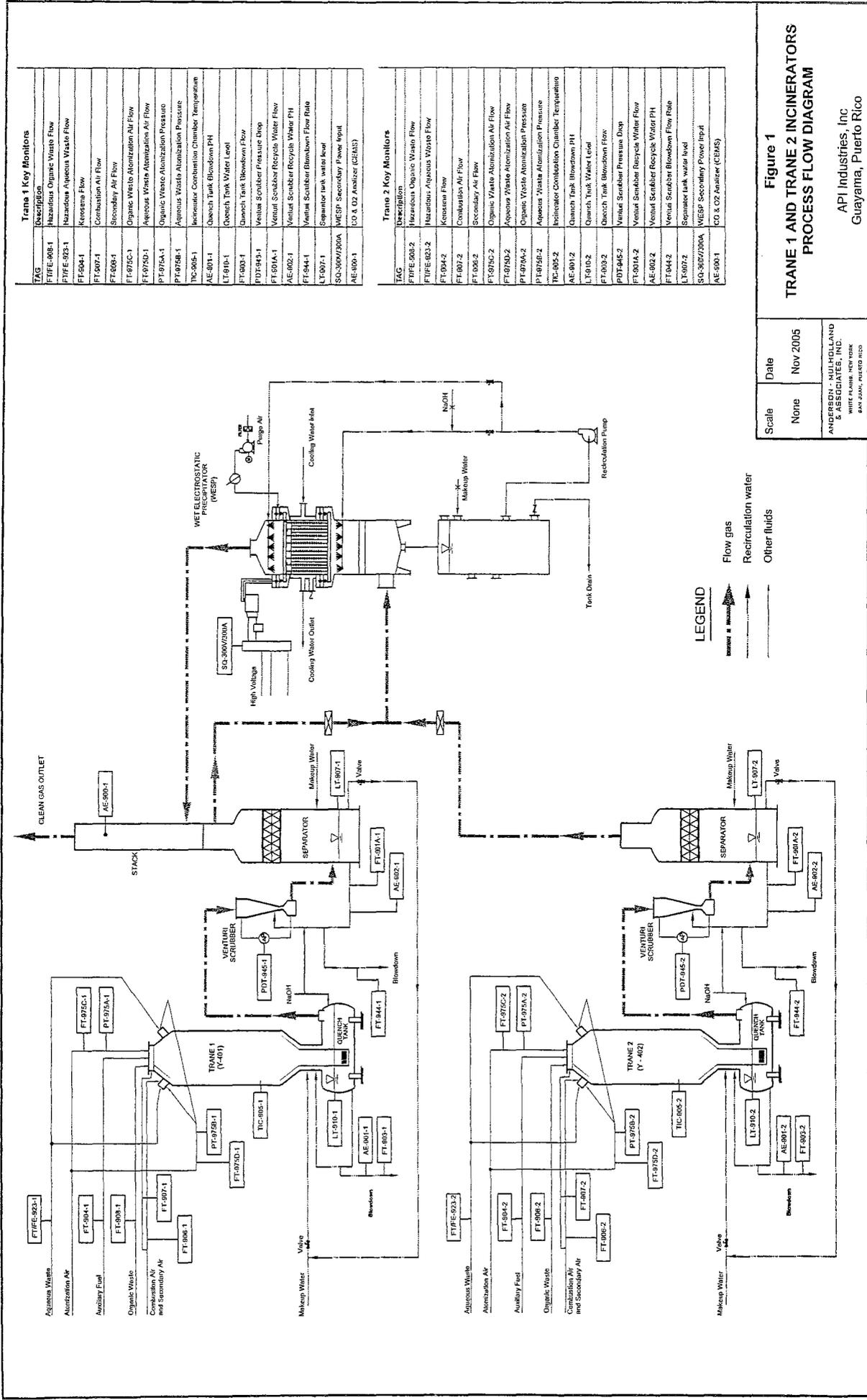
back to the venturi scrubber inlet. The separator tank water level is continuously monitored by a CMS.

#### **4.0 Alternative Monitoring Requirements for Particulate Matter Emissions**

Considering the configuration of the existing Trane 1 and Trane 2 air pollution control equipment and the absence of a dedicated venturi scrubber liquid collection tank, API is proposing to establish a minimum separator tank liquid level as an alternative to a minimum venturi scrubber tank level and to continuously monitor the separator tank liquid level using a CMS. The minimum separator tank liquid level will be established during the CPT and will be based on a 60-minute rolling average as the average of the test run averages.

Due to the design of the liquid recirculation system at both Trane 1 and Trane 2, a combination of venturi scrubber and separator operating parameters is required to control the solids content in the liquid recirculation system. Solids content in the liquid recirculation system is controlled by maintaining a minimum venturi scrubber blowdown rate and a minimum separator tank level. During the CPT, minimum separator tank water levels will be maintained during both tests. Consequently, separator tank water level will be continuously monitored during both tests.

In summary, the separator tanks are functionally equivalent to venturi scrubber collection tanks in relation to control of solids recirculation to the venturi scrubber. Monitoring of the Trane 1 and Trane 2 separator tank level is equivalent to monitoring a venturi scrubber tank level. Accordingly, controlling the separator tank water level complies with the substantive requirements set forth at 40 CFR §63.1209(m)(i)(B)(1)(ii), which indicates that a minimum venturi scrubber tank liquid level must be established. Limitations for minimum venturi scrubber pressure drop, liquid flow rate, blowdown rate, and separator tank water level will be established during the CPT, will be continuously monitored using a CMS, and will be incorporated into the Notification of Compliance to ensure continuous compliance with MACT particulate matter standards.



**Trane 1 Key Monitors**

TAG	Description
FTIFE-903-1	Hazardous Organic Waste Flow
FTIFE-903-1	Hazardous Aqueous Waste Flow
FT904-1	Kerosene Flow
FT907-1	Combustion Air Flow
FT908-1	Secondary Air Flow
FT979C-1	Organic Waste Atomization Air Flow
FT979D-1	Aqueous Waste Atomization Air Flow
PT979A-1	Organic Waste Atomization Pressure
PT979B-1	Aqueous Waste Atomization Pressure
TIC-905-1	Incinerator Combustion Chamber Temperature
AE-901-1	Quench Tank Blowdown PH
AE-901-1	Quench Tank Water Level
FT909-1	Quench Tank Blowdown Flow
PDT-943-1	Venturi Scrubber Pressure Drop
FT-901A-1	Venturi Scrubber Recycle Water Flow
AE-902-1	Venturi Scrubber Recycle Water PH
FT-944-1	Venturi Scrubber Blowdown Flow Rate
LF-907-1	Separator tank water level
SG-3000/200A	WESP Secondary Power Input
AE-900-1	CO & O2 Analyzer (CEMS)

**Trane 2 Key Monitors**

TAG	Description
FTIFE-903-2	Hazardous Organic Waste Flow
FTIFE-903-2	Hazardous Aqueous Waste Flow
FT904-2	Kerosene Flow
FT907-2	Combustion Air Flow
FT908-2	Secondary Air Flow
FT979C-2	Organic Waste Atomization Air Flow
FT979D-2	Aqueous Waste Atomization Air Flow
PT979A-2	Organic Waste Atomization Pressure
PT979B-2	Aqueous Waste Atomization Pressure
TIC-905-2	Incinerator Combustion Chamber Temperature
AE-901-2	Quench Tank Blowdown PH
LT-910-2	Quench Tank Water Level
FT-903-2	Quench Tank Blowdown Flow
PDT-945-2	Venturi Scrubber Pressure Drop
FT-901A-2	Venturi Scrubber Recycle Water Flow
AE-902-2	Venturi Scrubber Recycle Water PH
FT-944-2	Venturi Scrubber Blowdown Flow Rate
LT-907-2	Separator tank water level
SG-3000/200A	WESP Secondary Power Input
AE-900-1	CO & O2 Analyzer (CEMS)

**Figure 1**  
**TRANE 1 AND TRANE 2 INCINERATORS**  
**PROCESS FLOW DIAGRAM**

Scale: None  
 Date: Nov 2005

ANDERSON - MULLHOLLAND & ASSOCIATES, INC.  
 4000 FARM ROAD WEST  
 SUITE 200, FARMERSBURGH, NY 11737

API Industries, Inc  
 Guayama, Puerto Rico

**LEGEND**

Flow gas: (solid line with arrow)

Recirculation water: (dashed line with arrow)

Other fluids: (dotted line with arrow)

Instrument & Monitor: (circle with 'I' or 'M')

Valve: (rectangle with 'V')

Blowdown: (line with 'B')