

ThermaTran, Inc.
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Web Site www.thermatran.com

Project # 1 Large Sulfur Plant Tail Gas Thermal Oxidizer with 250' from grade mast supported stack.

This unit has been in successful operation for five years. It is an extremely large structure in a Gulf Coast wind zone. The unit adequately combines and destroys several different streams from the refinery. The unit was erected in stages as shown in the attached pictures and went on stream on time.

Tail Gas Thermal Oxidizer
Texas Gulf Coast

Scope of Supply:

- A. All Mechanical Engineering and Design Including Drawings
- B. 250' Tall Lined Exhaust Stack Including 240' of Rain Shield and Support Derrick
- C. Lo-NO_x Combustion Burner
- D. Burner Management Controls
- E. Tail Gas Incineration Section
- F. Ladders and Platforms
- G. Complete Erection of Unit

Current Status: Operating Satisfactorily

Unit can process up to 108,742 lbs/hr of waste.

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Project # 2 Integrated EDC unit waste gas incinerator with waste heat boiler, HCl Absorber and HCl Scrubber.

This unit which has two (2) parallel incineration trains has been in operation for over five years and has performed properly with a maximum stack effluent of 7 PPM HCl+Cl₂. Substantial energy is recovered by the heat recovery boiler and returned to the plant. Additionally the plant utilizes a dilute HCl solution from the absorber further reducing its operating costs. The unit operates within CO and NO_x limits of the state as well.

Two(2) Vent Gas Thermal Oxidizers for EDC Plant
Texas Gulf Coast

Scope of Supply:

- A. All Process and Mechanical Design Including all Necessary Engineering Drawings.
- B. Foundation Loadings for use in customer's Foundation Design.
- C. All Necessary Equipment Including:
 - Burner
 - Thermal Oxidizer Vessel
 - Waste Heat Boiler - 1,800°F to 440°F 14.5 MMBtu/Hr x 15,300 lbs/hr of Steam (175 PSIG x 600°F)
 - Absorber Column - 98% HCl Removal
 - Heat Exchanger - Cooling Water vs HCL/Water mix
 - Wet Caustic Scrubber - < 10PPM Dissolved Solids
 - Exhaust Stack
 - Ancillary Equipment -
 - Combustion air blower
 - Burner management/ flame safety panel
 - Thermal oxidizer temperature controls

- Boiler trim instrumentation
- Absorber control system
- Scrubber control system

D. Start Up Assistance Upon Readiness for Start Up.

Current Status: Unit is erected and commissioned and operating properly.

Each unit will process a maximum of 9,553 lbs/hr of wet and dry wastes.

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Project # 3 Small skid mounted simple thermal oxidizer for film research laboratory.

This unit was designed for the customer to experiment on the fumes from and experimental film making process. The unit is completely skid mounted and sits on the roof of the research unit. Only the stack had to be field erected. This unit has been in successful operation for two and one half years.

Film Processing Fumes Thermal Oxidizer - 2.5 MMbtu/Hr @ 1,600 to 1,800°F
Customer Research Facility

Scope of Supply:

- A. Combustor
- B. Burner
- C. Fumes blower
- D. Ducts
- E. Controls
- F. Stack
- H. Completely Skid Mounted and Pre-wired and Pre-assembled
- J. Start Up

Current Status: Operating Satisfactorily

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Project # 4 Pulp & Paper Plant Effluent Incinerator

This unit incinerates the combined waste streams from a pulp and paper plant in the southern United States. The operation is completely automated and the unit has been in successful operation for over 4 years.

Formaldehyde Plant Tail Gas Thermal Oxidizer
Southern, Arkansas

Scope of Supply:

- A. All Process and Mechanical Design and Drawings
- B. Burner
- C. Thermal Oxidizer Vessel
- D. Exhaust Stack
- E. Burner Management/ Flame Safe Guard and Process Control System
- F. Combustion Air Blower
- G. Start Up Assistance

Current Status: Operating Satisfactorily

This unit can process up to 3,000 SCFM of tail gas.

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Project # 5 BTXE Incinerator combined into an existing Fired Steam Superheater.

This unit incinerates the BTXE wastes from a Glycol Dehydration unit in a major natural gas plant. The waste burner is installed in the end of a fired steam superheater and the overall fuel savings to the plant is approximately \$ 74,000 / year based on \$ 2.50/ MMBTU fuel.

VOC Thermal Oxidizer Fired Heater Combination
Louisiana Gulf Coast

Scope of Supply:

- A. All Necessary Process and Mechanical Engineering Including Drawings
- B. Primary VOC Combustion Chamber
- C. Primary VOC Burner
- D. Natural Gas Burner
- E. Combustion Air Blower
- F. Burner Management/ Flame Safeguard - Process Control System with PLC unit
- G. Field Erection / Modification
- H. Start Up Assistance

Current Status: Operating Properly at Above Design Rates

This unit is capable of incinerating up to 7,050 Lbs/Hour of Glycol Unit VOC's while providing 114,000 Lbs/ Hour of Superheated Steam at 600 PSIG and 750°F.

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Project # 6 Inline burner mix unit for sulfur plant in a large refinery.

This is the inline burner/ mixer unit for the Sulfur plant of a large Midwestern refinery. It has been in service for over four and one half years. This unit produces CO and H₂ rich tail gas for the reactor unit.

Reducing Gas Generator
Illinois

Scope of Supply:

- A. Substoichiometric Burner
- B. All Necessary Mechanical Engineering and Drawings Including Code Calculations
- C. Code Stamped Custom Designed Burner
- D. Code Stamped Combustion Vessel
- E. Completely Fabricated Vessel with Refractory Installed.

Current Status: Operating Satisfactorily

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Project # 7 Medium sized Sulfur Plant Tail Gas Thermal Oxidizer with 200' from grade guyed stack.
Includes a waste heat boiler.

This is a Sulfur Plant Tail Gas Thermal Oxidizer in a remote western gas plant. Substantial amounts of energy are recovered in a waste heat boiler just down stream from the incinerator. This unit has been successfully operating for over five years.

Tail Gas Thermal Oxidizer
Utah

Scope of Supply:

- A. All Required Process and Mechanical Engineering and Design Including Drawings
- B. Burners
- C. Main Combustion Chamber
- D. Heat Recovery Boiler
- E. Boiler Trim Controls
- F. 200' From Grade Guyed Exhaust Stack
- G. Primary Combustion Air Blowers
- H. Full Burner Management / Flame Safety and Process Control Systems

Current Status: Operating Satisfactorily

This unit will handle up to 94,800 lbs/hr of tail gas.

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Project # 8 Indirect air heater for Nitrogen heating used in a magnetic film process.

This unit provides heated nitrogen for a magnetic film processing plant in the southern US To meet the stringent CO requirements of the plant site the combustor was extended to provide destruction residence time for the CO produced by the burner. The unit has been in successful operation for almost one year.

Indirect Nitrogen Heater - 3.0 MMbtu/Hr
Texas Gulf Coast

Scope of Supply:

- A. Combustor
- B. Burner
- C. Combustion Air Blower
- D. N2 / Flue Gas heat exchanger
- E. Ducts
- F. Controls
- G. Start Up

Current Status: Fully operational

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Project # 9 Corn Processing fume incinerator.

This unit incinerates the wastes from a corn processing plant, Corn Gluten Feed unit. By utilizing a low pressure biogas as a fuel source this unit saves the plant operating budget some \$ 680,000 per year. This unit is a modification to an earlier design and has been successfully operating for over 8 months.

Fumes Thermal Oxidizer - 48 MMBTU/Hr @ 1,400°F
Northern, Indiana

Scope of Supply:

- A. Combustor
- B. Burner
- C. Flue Gas/ Fumes Mix Chamber with Brick Target Wall
- D. Premix Air Blower
- E. Ducts
- F. Controls
- G. Start Up

Current Status: Fully operational at design loads

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Project # 10 Textile Dryer Fumes Thermal Oxidizer

This is a textile dryer fumes incinerator for a multiple dryer operation. The unit starts up on ambient air and switches smoothly to dryer exhaust with out the dryer having to shut down. The unit also allows dryers to come on and off line individually as the unit continues to run. A fumes / flue gas heat exchanger produces a major reduction in fuel usage by this unit and an additional glycol/ water heat recovery unit produces further additional savings to the plant by displacing fuel used for building heating, dye vat heating and hot water heating. This unit has been successfully operating for over four months.

Tenter Frame Dryer - 26,500 ACFM x 12.5 MMbtu/Hr

Scope of Supply:

- A. Combustor
- B. Burner
- C. Premix Air Blower
- D. Gas to fumes recuperative heat exchanger
- E. Ducts
- F. Controls
- G. Stack
- H. Main Fumes Blower

Current Status: Installed and operating on first dryer, waiting for final dryer tie in.

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Project # 11 Corn Processing Plant - Inline air heater unit for Syrup Solids Spray Dryer

This unit heats the air for a corn processing plant, Syrup Solids Spray Dryer unit. The unit is designed to augment the heating provided by an upstream steam coil but is designed to provide full heating in the event of the steam coil failure. This unit is a replacement to an earlier design by the spray dryer supplier that failed to provide for heating in the event of the steam coil failure. The unit has been successfully operating for 1 month.

Inline air heater unit - **18.1 MMBTU/Hr @ 415°F**
Northern, Indiana

Scope of Supply:

- A. Combustor
- B. Burner
- C. Stainless Steel Duct Section
- D. Fuel Skid w/ controls consultation to utilize existing control modules at the plant.
- G. Start Up

Current Status: *Fully operational at design loads*