



# MONROE ENVIRONMENTAL

Water & Wastewater Treatment | Air Pollution Control

## ENVIRONMENTAL SOLUTIONS FOR WASTE MANAGEMENT



ENGINEER | DESIGN | BUILD | INSTALL

## Custom Systems for Air Pollution Control and Water & Wastewater Treatment

Monroe Environmental® has decades of experience working with landfills, recycling facilities (metals, plastics, liquids, etc.), and waste-to-energy plants. We offer cost-effective solutions to meet demanding regulatory requirements, reduce maintenance costs, improve worker safety, streamline production, and minimize downtime.

### Monroe's Engineered Systems

#### Air Pollution Control

- Packed Tower Scrubbers
- Venturi Scrubbers
- Quench Towers
- Dust Collectors
- Oil Mist Collectors
- Wet ESPs
- Fiber Bed Filters

#### Water & Wastewater Treatment

- Circular Clarifiers & Thickeners
- Lamella Plate Vertical Clarifiers
- Horizontal Plate Clarifiers
- API Oil/Water Separators
- Oil Skimmers/Oil Recovery Units
- X-Flo Mobile Clarifier™ and Rental Clarifiers
- Air Strippers

### Application & Process Expertise

#### Air Pollution Control

- NH<sub>3</sub>, H<sub>2</sub>S, SO<sub>2</sub>, HCl, HF, HCN, and acid gasses
- Particulate matter – PM<sub>10</sub> and PM<sub>2.5</sub>
- Condensables, aerosols, and opacity
- VOCs and odor
- Mist and dust collection

#### Water & Wastewater Treatment

- Suspended (TSS) and dissolved (TDS) solids
- Metals precipitation and reduction
- Oil separation and recovery
- Ammonia and VOC stripping
- Mobile water treatment and rentals



# Recent Monroe Projects



**20,000 ACFM Multi-Stage Scrubbing System** for waste incineration at 2,000°F including: ceramic-lined ductwork, Quench Tower, Venturi Scrubber, Packed Tower Scrubber, carbon filter, fan, and discharge stack. Regulations met included SO<sub>2</sub>, HCl, PM, mercury, metals, PCDD/PCDF, etc.



**Vertical Plate Clarifier** to remove mercury and humic acid from incoming groundwater. FRP construction was selected to withstand corrosion from the highly acidic water, and a conservative hydraulic loading rate was selected to allow for proper settling of the tricky solids.

## Rental Air Stripper

removes ammonia from landfill leachate prior to discharge to the local POTW. The pilot system collected trial data about operating parameters and life cycle costs. In the trial, ammonia removal efficiencies of over 97% were achieved.



**140 GPM Vertical Clarifier** to treat leachate at a retired landfill. Monroe custom-designed a low-profile clarifier to meet the limited height requirement of the existing building.



**H<sub>2</sub>S Scrubber** for syngas conversion using an amine scavenger scrubbing liquor with irrigated packing. The required H<sub>2</sub>S removal was over 99.98% to ensure a high-purity, low-sulfur final product. The unit was designed for 1,500 SCFM @ 120°F.



**X-Flo Mobile Clarifier™** for treatment of hydraulic fracturing water (produced water, drilling mud, etc.) in the Marcellus Shale Formation. The 300 GPM system provided high capacity TSS and oil/water separation.





**Packed Tower Scrubber** to absorb H<sub>2</sub>S fumes and other odors from an industrial waste treatment process. The Scrubber exhausts the storage tanks and a Monroe Vertical Plate Clarifier that is part of the site's PFAS treatment system.



**Vertical Plate Clarifier** to remove heavy metals and TSS in PFAS treatment process. The 500 GPM Clarifier is equipped with a pyramid sludge hopper, flash mix and flocculation tanks, and chemical mixers.



**70 GPM Vertical Clarifier** with flash and flocculation tanks, thickener, and FRP cover for landfill leachate treatment.



**Air Stripper** to remove ammonia from ethylene glycol for an industrial solvents facility. To increase the purity of recycled ethylene glycol, it was heated to 150°F prior to the stripper. This is favorable for ammonia stripping due to its increased vapor pressure at the higher temperature.



**50 ft. diameter Circular Clarifier** for leachate treatment at a superfund remediation site. The tank, mechanism, and internals were constructed from 316SS and the unit was designed to treat 1,600 GPM.



**X-Flo Mobile Clarifier™** to provide TSS and oil removal at a frac water treatment facility.



**Vertical Plate Clarifier** for leachate treatment at a landfill. The tank and plates were constructed from 316SS and the system was designed to treat 210 GPM.



# ABOUT MONROE ENVIRONMENTAL

## Unsurpassed Experience and Reputation

Monroe Environmental is a premier provider of air pollution control and water/wastewater treatment systems and services. For over 50 years, Monroe has provided thousands of systems for industrial, municipal, institutional, commercial, and government facilities. We have installations throughout North America, from northern Canada to southern Mexico, and around the globe. As a testament to our outstanding reputation, some of the largest and most prestigious manufacturing companies in the world routinely turn to Monroe to solve their most challenging environmental problems.

## One-Stop Shopping – Systems, Services, and Solutions

Monroe is a full-service company offering a complete line of pollution control equipment that is designed, engineered, and manufactured for the needs of each customer and application on an individual basis. We have complete in-house fabrication and shop assembly capabilities that serve to reduce project costs, provide superior quality control, and expedite project completion times. We also have the experience and capabilities to provide turnkey installations along with a wide array of related services ranging from engineering and design through permitting, project management, and commissioning.

Monroe's staff of engineers, technicians, and project managers is highly experienced at evaluating, custom-designing, fabricating, installing, and commissioning cost-effective, durable, and reliable systems. In addition, in order to help ensure continued successful system operations with minimal downtimes and peak efficiencies, we offer a complete menu of support options that include extensive spare and replacement part inventories, as well as annual, as-needed, and emergency services.



## Experience the Monroe Difference

The foundation of Monroe's success, reputation for excellence, and continued growth is our commitment to providing each customer the highest levels of service and support in combination with the best, highest quality, and most cost-effective systems for ensuring long-term successful operations. This, combined with our top-notch staff, in-house capabilities, and wide array of offerings distinguish Monroe Environmental as one of the finest environmental equipment providers.

Contact us today and let us help determine the best solution to your air and water pollution control needs. Join the ranks of countless satisfied customers who have experienced the Monroe difference.

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