



# MONROE ENVIRONMENTAL

Water & Wastewater Treatment | Air Pollution Control

## ENVIRONMENTAL SOLUTIONS FOR THE STEEL INDUSTRY



ENGINEER | DESIGN | BUILD | INSTALL

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

Monroe Environmental® has decades of experience working with plants and engineers in the steel industry. 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, and acid gas
- 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



**Drag tank for mill scale separation for steel tube mill.** Chain and flight drag conveyor to capture and remove solids from mill water and a tube skimmer to remove floating oil. The system is rated for 660 GPM.



**95,000 ACFM Monroe Multi-Stage Mist Collectors** capture oil mist, PM, and fumes from rolling mill exhaust. The systems was capable of removing filterable and condensable PM with high-efficiency filters and a cooling coil/heat exchanger with chiller.



**Circular Oil/Water Separator** for primary treatment of waste oils and solids at a steel mill. The 50 ft. diameter clarifier was designed with low sidewater depth, inlet diffusion, and multiple skimming arms and collection troughs for enhanced oil removal.



**Circular Clarifier to remove TSS/fines from blast furnace scrubber wastewater.** The 46 ft. diameter clarifier was elevated on legs for ease of access to sludge piping, and was designed to handle a 2,000 GPM max flow.



**25,000 CFM Venturi Scrubber** to capture and remove lubricant mist, particulate, and fumes from aluminum die casting operation. System included scrubber, fan, oil recovery unit, insulated liquid sump, and controls.

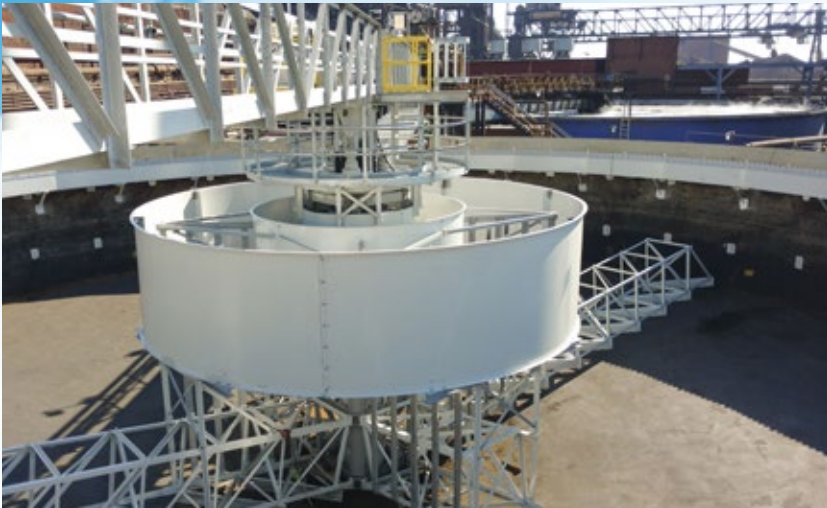


**Monroe 8A Belt Skimmers for oil recovery** from wastewater tanks at a steel mill. The custom thermoplastic belt was rated to withstand 180°F liquid temperatures.



**40 GPM Horizontal Plate Clarifier to remove TSS** from pickling wastewater prior to membrane filtration. The polypropylene clarifier was equipped with chemical mixers, HDPE separation plates, and surface oil skimmer.





**100 ft. diameter high-torque Thickener Clarifier treating blast furnace scrubber blowdown.** The system included an inlet well flocculator, 500,000 ft-lbs drive torque rating, PLC controls, redundant sludge pumps, and met 15 mg/L effluent and 5% solids underflow performance.



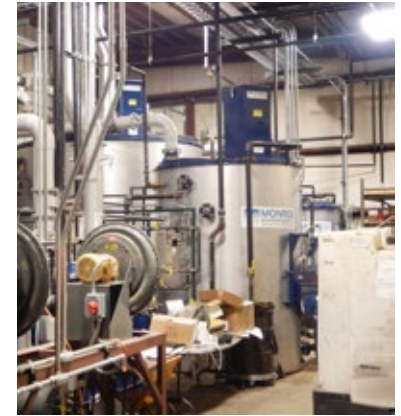
**5,000 ACFM Packed Tower Scrubbing System** to control HCl fumes from the pickling acid storage tank farm at a steel plant. Scrubber, fan, and discharge stack were constructed from FRP. Monroe also designed the tank farm ductwork and provided instrumentation and controls.



**Lamella Plate Vertical Clarifier to remove iron and nickel hydroxides** from metal finishing wastewater. The 1,533 GPM unit was constructed of 304SS, equipped with flash mixing and flocculation tanks, and provided over 3,900 ft<sup>2</sup> of settling area.



**Wastewater treatment and steel coil line upgrade** for a galvanizing plant. Monroe provided engineering, integration, and oversight for the redesign, retrofit, and installation of the multi-million dollar upgrade. New equipment included insulated and heated oil separation and recovery tanks, steel coil quench tank, liquid filters, system sumps, purge tanks, transfer pumps, piping, valves, controls, and a new fume exhaust system.



**900 GPM API Separator for free oil separation prior to a DAF.** The system featured inlet diffusion reaction jet baffles, chain and flight conveyor, and customized oil skimming system with collection beach and auger trough.



**35,000 ACFM Multi-Stage Mist Collection system** for production expansion at stainless steel finishing plant. The system included a high-efficiency collector, ID fan, ductwork, controls, and a 145 ft. free standing stack.



# 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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