

## 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

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

### Application & Process Expertise

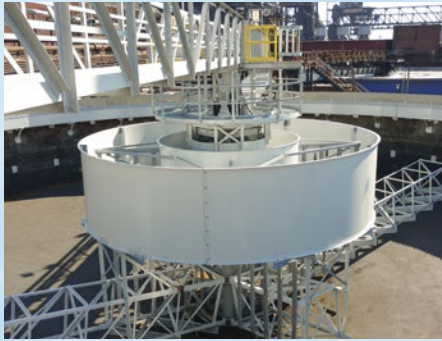
#### Air Pollution Control

- 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

# Representative Monroe Projects



**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 a 15 mg/l effluent TSS and 5% solids underflow performance guarantee.



**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.



**Steel coil cleaning line replacement and waste-water treatment upgrade for galvanizing plant.** Steel quality has greatly increased and the plant is now able to meet customer specifications and demand, and recycle more water which reduces operating costs and waste.



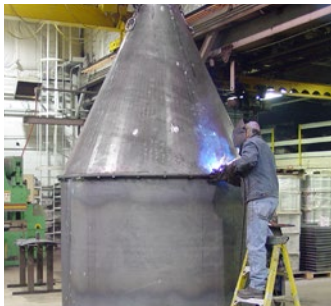
**Monroe Multi-Stage Mist Collector captures oil mist, PM, and fumes** from rolling mill exhaust. The system is capable of continuous performance with long filter life and minimal maintenance.



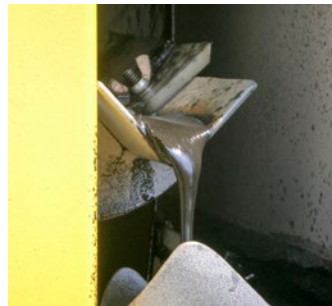
**Lamella Plate Vertical Clarifier to remove iron and nickel hydroxides** from metal finishing wastewater. The 1,533 GPM unit was constructed of 304 SS, equipped with flash mixing and flocculation tanks, and provided over 3,900 ft<sup>2</sup> of settling area.



**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.



**10,000 CFM Dust Collector Cyclone** to remove scale and steel fines from grinding operations at a steel plant. System design included ceramic lining for abrasion resistance, 90% alumina ceramic tiles, and cone hopper w/ rotary airlock.



**Monroe 8A Belt Skimmers for oil recovery** from wastewater tanks at a steel mill. The custom thermoplastic belts are 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.



**Multi-Stage Mist Collector** for a stainless steel producer's eight grinding polishing stations expansion. The 35,000 ACFM system provides source capture and filtration of oil and submicron mist from the grinding stations and oil filter pit.

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