



ENVIRONMENTAL TECHNOLOGIES

PCE Monarch has a strong history in upgrading VOC abatement systems throughout North America with tasks ranging from complete mechanical and electrical control system rework to renovating and moving systems to facilities in another state. PCE Monarch has expanded the scope of our environmental technology practice to include system integration and new pollution control technology development.

ROTARY CONCENTRATORS

Rotary concentrators have traditionally proven to be the best solution for adsorbing dilute VOC emissions from process air exhausts. In partnership with Mead WestVaco Corporation, PCE Monarch has developed the next generation of the rotary concentrator. This improved rotary concentrator handles twice the air volume of the prior generation concentrator, has twice the concentration ratio, and the media never needs to be replaced. Applications include streams with dilute hydrocarbon content, including components with boiling points up to 500°F. Legacy rotary concentrators can be upgraded to next generation performance levels at a fraction of the cost of a new pollution control system.



DYNAMOMETER EMISSIONS CONTROL SYSTEMS

Uncontrolled engine dynamometers emit substantial hydrocarbon and carbon monoxide emissions to the atmosphere. The historical brute force approach to abating these emissions has been to duct the emissions to large recuperative or regenerative thermal oxidizers, at the cost of pressure cross-talk from one test cell to another, huge energy consumption rates, and in the case of regenerative thermal oxidizers, substantial equipment footprints and structural loading. In cooperation with a forward-thinking race engine development company, PCE Monarch has designed a modular dynamometer emissions control system (ECS) with the following features:



- sophisticated fluid dynamics design provides no effect on engine exhaust pressures in transient, power check, or steady state modes
- utilizes an established metal foil catalyst bed designed for stationary engine applications
- 98% minimum destruction efficiency at any engine speed
- initial catalyst heating by an electric duct heater and powered by dynamometer eddy current generators
- vertical design with a 5' x 5' footprint - ideal for retrofit installation where mezzanine floor space is at a premium
- each ECS is dedicated to a dynamometer - no incurred energy costs with idle test cells



Process Control & Engineering, Inc.
Monarch Design Company

COGENERATION SYSTEMS

Historically, the last process stage in VOC abatement systems has been an oxidizer that burns VOCs, creating NOx and hothouse gas emissions. Recent enlightened approaches to VOC emissions abatement have focused on utilizing the intrinsic fuel value of recovered solvents to generate electricity, returning the electrical power to a facility's electrical grid. PCE Monarch's contribution to this effort leverages our understanding of plant processes to develop robust, process friendly cogeneration systems that are economical to own and operate. We have developed a robust and practical system design providing the lowest capital and operating costs in the industry.



SYSTEM INTEGRATION



PCE Monarch's system integration process is limited only by our client's requirements. Breaking the mold of the end-of-pipe mentality, our process control and design experience allows us a broad perspective on feasible solutions to seamlessly integrate plant processes with environmental control technologies. PCE Monarch's scopes typically include HVAC, fluid transfer, and electrical control systems as well as project management, bid package engineering and design and build.