



SHIP & SHORE
ENVIRONMENTAL, INC.
Clean Air Solutions for Industry

Combustion Equipment

Pollution Control for the Oil & Gas Sector



Due to technological advancements and the increasing demand for energy - the exploration and production of oil and natural gas have substantially increased. As a result, environmental compliance regulations have become more stringent when pertaining to pollution and toxic waste streams of the industry.

Ship & Shore Environmental provides innovative solutions for the most challenging processes and air quality regulations. Our combustion equipment and treatment systems are customizable to treat any midstream and downstream applications for the oil and gas sector. Each system is engineered and designed to consider worst case scenarios plus moisture loading and corrosive emission stream conditions specific to each process.

WASTE HEAT & ENERGY RECOVERY



Ship & Shore has the technology and capabilities to implement waste heat recovery solutions for any oil and gas process. Heat exchangers, waste heat boilers, economizers, and condensing economizers are all designed to capture and utilize waste heat and reduce natural gas consumption. Depending on process conditions, energy requirements, and fuel costs, payback to your bottom line may be realized in as little as one year.

Heat exchangers and waste heat boilers are able to re-direct hot exhaust gases and produce excess heat, air, or steam to be used in other process areas. Economizers utilize hot flue gases to preheat boiler feed water, recovering otherwise wasted heat from escaping to the atmosphere. Raising the temperature of the feed water entering the boiler reduces natural gas consumption and helps to improve boiler operation with quicker response to steam demands.

Condensing economizer units capture and use sensible waste heat. By cooling exhaust gases below the dew point with a condensing heat exchanger, a significant amount of energy can be recovered. The bulk of this otherwise wasted energy can add up to significant savings in natural gas.

Products & Services

- Direct-Fired Thermal Oxidizers
- Regenerative Thermal Oxidizers
- Recuperative Thermal Oxidizers
- Steam Generating Thermal Oxidizers
- Catalytic Oxidizers
- Scrubbers
- Low NOx Flares
- Low NOx Burners
- Soil Vapor Extraction (SVE)
- Soil & Groundwater Treatment
- Oil Water Separators
- Carbon/Zeolite Concentrators
- Waste Heat Recovery Systems
- Waste Heat Boilers
- Hot Oil Heaters
- Custom Design & Engineering
- Aftermarket Services
- Maintenance & Troubleshooting

Industries Served

Ship & Shore provides pollution abatement equipment and quality services to many industries in the Oil & Gas sector including:

- Barge Degassing
- Bulk Solvent & Gasoline Terminals
- Hydraulic Fracturing
- Chemical & Petrochemical
- Landfill Biogas
- Soil Remediation
- Wastewater Treatment



FLARES



A flare is the simplest type of enclosed combustor technology and is mainly used for treating landfill and biogas applications. Enclosed flares typically operate at 98% destruction efficiency (DRE). Ship & Shore flares can be designed for greater than 98% DRE if needed. Other flare applications include petrochemical and chemical plants, oil and gas drilling operations, biogas treatment, tank loading terminals, and barge degassing.

DIRECT-FIRED T.O.



Direct-Fired Thermal Oxidizers (DFTO) operate through the use of a burner to heat up the combustion chamber to proper oxidation temperatures for the required destruction efficiency, which can reach high levels of up to 99.9% DRE. If the process emission contains high levels of Volatile Organic Compounds and heat content, it can be used as fuel gas for the burner. DFTOs can be combined with a waste heat boiler or hot oil heater for process efficiency.

CORROSION RESISTANT Systems & Solutions

Quite often, air and water emission streams are laden with particulates that can corrode equipment that come in contact with the process. We offer solutions for control, collection, ventilation, and handling of corrosive air streams, including corrosive gases, vapors, and particulates. We design our systems for ease-of-maintenance and optimum performance.

Corrosion resistant equipment can involve the implementation of wet scrubbers, mist eliminators, degassifiers, and thermal oxidizers. Wet scrubbers use water to scrub and absorb water soluble organic pollutants and are effective in controlling particulate matter. Since wet scrubbers tend to not readily absorb organic compounds with high vapor pressures, they are best used in conjunction with a thermal oxidizer that has Volatile Organic Compound (VOC) or Hazardous Air Pollutant (HAP) emission control.

For greater corrosion resistance, Ship & Shore thermal oxidizers can be manufactured from stainless steel. Associated oxidizer components, such as ductwork and exhaust fans, can also be custom engineered and designed with corrosion resistance in mind. Ship & Shore also has the expertise and trained service technicians to clean and maintain any existing scrubbers and systems.

STEAM GENERATING T.O.



A Steam Generating Thermal Oxidizer (SGTO) combines a boiler with a thermal oxidizer and may be useful for manufacturing plants that use steam, hot water, or oil for process heating. SGTOs use Volatile Organic Compound (VOC) emissions as fuel for the burner and pollution abatement, reducing overall fuel consumption and carbon footprint of the facility. It can process large air flows due to Ship & Shore's unique design and construction of the burner package.

REGENERATIVE T.O.



Regenerative Thermal Oxidizers (RTOs) are most efficient for processes that have high volumes of air streams which contain low to medium VOC concentrations. RTOs will significantly reduce operating costs and energy consumption by re-directing thermal energy generated during manufacturing, which can result in a self-sustaining operation. RTOs can be combined with scrubbers and other treatment systems, depending on the application.

RECUPERATIVE T.O.



Recuperative Thermal Oxidizers are designed based on VOC concentration, volume of airflow, and desired destruction efficiency. With the use of a heat exchanger, the VOC-laden process stream is preheated to its combustion temperature and converted to carbon dioxide, water vapor, and heat. This pre-heating allows the system to operate with minimal fuel consumption and can be relatively self-sustaining at moderate Lower Explosive Limit (LEL).

VAPOR COMBUSTORS



Vapor combustors are systems designed to safely control & burn vapor mixtures from applications dealing with volatile liquid hydrocarbons or other compounds. These high-efficiency units operate with no smoke or visible flame and have relatively high destruction rate efficiencies (DRE) dependent on compliance regulations. The main components of a vapor combustor are the exhaust stack, burner, air-assist blowers, and flame or deflagration arrestors.

