



# AUTOFLOT®

Induced Gas Flotation Separation System  
for Treating Produced Water

**C. Emery Nelson, Inc.**  
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The logo for C. Emery Nelson, Inc. features a stylized 'ENI' monogram in a red and white box, with a circular seal below it that says 'ESTABLISHED 1924'. The company name and contact details are listed to the right of the logo.

**WATER TECHNOLOGIES**

# Induced Gas Flotation Separation System

Veolia offers complete deoiling solutions for produced water treatment plus numerous other water treatment technologies for upstream processing facilities. Veolia's global experience in the Oil & Gas industry operating water and wastewater facilities, coupled with the expertise we gain through our continued research and development, allows Veolia to create innovative technologies. These innovations evolve into greater efficiencies that enhance resource management and improve customer satisfaction.



## Proven Performance for Removal of Oil from Water

Veolia's engineers effectively integrate process criteria to design a high performance method for the removal of oil from water with the Autoflot®. The Autoflot ASF series is a hydraulic induced gas/static flotation system. Standard models incorporate our extensive experience and expertise, translating to a cost effective and broad product offering. We are also able to modularize or combine our treatment packages to offer custom engineered solutions.

*“A Cost Effective and Broad Product Offering.”*

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## AUTOFLOT® Static Flotation Separator



### Hydraulic Pressurized Tank Design

Horizontal Induced Static Flotation systems are designed to effectively remove free and emulsified oil and suspended solids from water. Each ASF unit consists of a horizontal cylindrical vessel that is divided into four in-line flotation cells, an inlet box and an outlet box. Our hydraulic design is for gas-tight applications where a pressurized system is desired. Optimum performance is obtained with proper chemical mixing.



# Induced Gas Flotation Deoiling Process

Chemicals are added to produced water sent flowing through the flotation vessel which is divided into four sequential chambers. Small bubbles are dispersed into each chamber induced by a recycled stream pressurizing proprietary eductors. The small bubbles entrained attract and adhere to hydrophobic particles as the bubbles expand in size and rise in the chamber. These bubbles take particles and coalesced oil droplets to the surface. Turbulence in the chamber and a sweeping motion from the tangential flow permits the resultant oily froth to be skimmed from the surface. A constant supply of bubbles averts the froth from settling, avoiding recontamination of the water. Each chamber successively removes the oily froth resulting in a clean effluent typically providing greater than 95% oil removal.

## Applications

- Oil production
- Enhanced oil recovery
- Refinery wastewater
- Metals refining wastewater

## Design Factors

- Position of eductors
- Flowrate, residence time
- Bubble size and gas volume
- Water trajectory

### Design considerations include:


- Temperature
- API of oil
- Analysis of raw water
- Gas tight requirements
- Maintenance practices

## Cylindrical Hydraulic Design 4 Cell

Cylindrical pressurized vessel partitioned into four chambers with a recirculating flow that powers eductors in each chamber to create the proper bubble size and volume.

- Energy efficient
- Minimal moving parts
- No hazardous gas emissions
- Low maintenance
- Pressurized design
- Single units up to 280,000 barrels per day

Resourcing the world



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