

**Ecosep. Technology
that puts you
clean ahead
of the rest.**



Fritz Aigner: The sleeper and the ear-blower (detail)

ecoSep™

**Below Grade Oil/Water Separator
The clear idea**



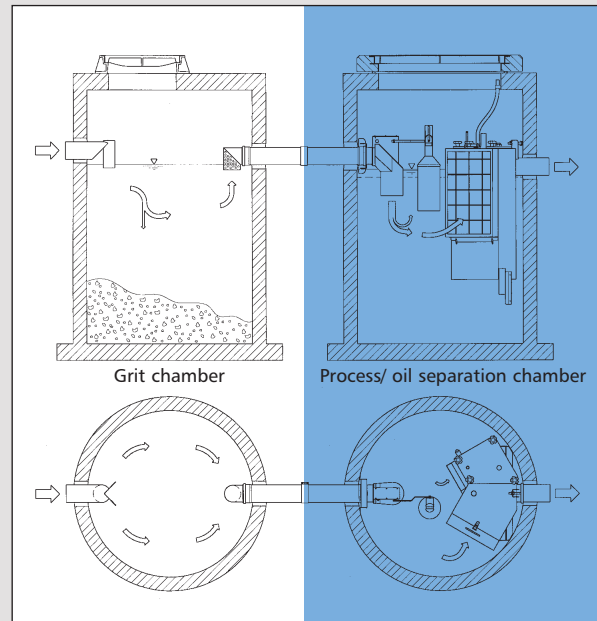
Below Grade Oil/Water Separator The clear idea.

The goal is protecting our clean water supply!

With Ecosep, get high efficiency water separation that is cost effective.

In ancient times, turning water into wine was the miracle. Present day, however, mandates the miracle of turning polluted water into clean water again. Water needs to be

separated from light fluids with a high degree of separation, the Ecosep accomplishes this miracle at an unbeatable low cost.



Ecosep standard design up to 320 gpm

**Today's environmental legislation is hard to comply with.
Ecosep meets tomorrow's standards today.**

It's not just the Ecosep's long maintenance intervals and low waste-disposal costs that make it such a good investment, but also the fact that it is designed with future standards in mind. Ecosep permanently separates oil from water and allows virtually no oil emulsion formations to develop. The Ecosep far exceeds the strict European standards (DIN 1999 and EN 858) for performance. The outstanding independent testing

certificates (available upon request) demonstrate that Ecosep will provide clean water that exceeds today's environmental standards. Ecosep also allows for tighter, future environmental discharge compliance guidelines to be met with little or no modifications to the system. Standard Ecosep units are available up to 320gpm, custom units available up to 1600gpm.

**Stop throwing your money down the black hole of conventional oil/water separators.
Put it where you can access it!**

A standard 30" x 48" HS-20 traffic loading aluminum hatch provides full access to all basic elements of the Ecosep system. This minimizes confined entry requirements for routine cleaning and maintenance. Annual maintenance cost savings range from 30% to 50% lower than that of conventional separator systems. All

internal stainless steel components are factory installed in a 5000 psi precast concrete structure, which accelerates the installation of the Ecosep Oil/Water Separator. This provides the first substantial cost saving in the form of reduced construction site labor.

Purification Step 1: Grit Chamber

The upstream grit chamber removes solids from the influent, thus ensuring unimpeded functioning of the oil separator itself. The grit trap is the first concrete tank of a standard two-tank design. The inlet apron guarantees an optimum usage of the retention time in the system. It works against the formation of so called "Eddy-currents" and thus enables maximum solids separation. The grit chamber also compensates for influent temperature

fluctuations, influent oil concentration influxes and initializes the separation of light fluids. A perforated 90-degree outlet tube retains floating solids from entering the separation chamber.



Full access to all major elements makes Ecosep easy to operate and maintain.

Purification Step 2: Gravity Separation

The water is then admitted to the gravity separator via a float-actuated shut-off valve in the inlet. Being lighter than water, the oil floats on the surface. Ecosep can separate light liquids that have a specific gravity below 0.95.

Oil Spill Control:

The automatic shut-off valve stops the flow from the grit chamber either when the maximum oil storage capacity is reached or when a certain liquid level in the separation chamber is exceeded. In its closed position, the valve is tight up to 0,5 bar (5m-water column) or 16 feet of total dynamic head pressure. This makes the Ecosep the only

separation system to provide maximum security for the facility owner against unexpected, unpredictable and catastrophic petroleum spills.



Ecosep's oil-spill control Ecotop (patent pending).

Purification Step 3: Coalescing Media

In the residual oil media, fine droplets that are too small to be separated by gravity alone are accumulated into bigger drops that rise to the surface. This coalescing media is made of reticular (i.e. "net-like") soft polyurethane foam. The media-cartridge is very easy to lift out and reinstall once it is cleaned/rinsed with a garden hose. The outlet structure features a venting pipe that

provides an effluent sampling port. The separated water that leaves the Ecosep has a residual contamination of free petroleum content of less than 5 mg/liter.



Ecosep's compact outlet structure with easy to clean coalescing filter and oil recipient.

Manual or Automatic Oil Draw-off Device:

Separators without an oil draw-off accumulate light fluids in direct contact to the water surface. Increasing emulsification at the oil/water interface is the result. Those stable emulsions which can no longer be separated by a physical method would leave the separator. Ecosep solves that problem. A standard version of Ecosep is equipped with a manual oil drawoff, a valve that can be opened and closed from grade to collect oil in the independent oil recipient. As an option, the patented automatic oil draw-off device (ADD) can be installed (US-Patent No.: 5,622,619). This ADD constantly removes accumulated

light fluids from the water surface and stores them in the oil recipient. The collected oil, which is free of any water, can be pumped through a standpipe and disposed of. The costly disposal of large quantities of oil and water mixtures is then eliminated. Facilities that have the ADD actually are paid by waste oil companies that service their Ecosep systems.

All clear?



Ecosep at a glance:

- **30% to 50% annual maintenance cost savings**
Due to full access to all major elements and reduced or no confined space entry requirements for cleaning and maintenance.
- **High operational reliability**
No external energy supply is needed. No electrical parts, and only mechanical, stainless steel components.
- **Automatic oil-drawoff device**
This prevents emulsion from being formed and allows >99% concentrations of light liquids to be collected.
- **Catastrophic oil spill control**
A shut-off valve (patent pending) in the Ecosep's inlet provides an environmental safety factor, which every facility can afford to have.
- **Specified by NYSDOT & NYSTA**
- **Low disposal cost**
Only the oil is disposed of, not an oil-water mixture.
- **An investment that is built to last**
Thanks to the use of stainless steel and high strength precast concrete containers.
- **5 ppm separation**
The outstanding test results achieved at noted testing institutions show that Ecosep will be able to meet even tougher future standards.

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represented by: