



Large Separator at Ottawa, Canada Airport

**As Green, Green, Green as  
It Gets!™**

**MSR COALESCING MEDIA HAS NO MOVING PARTS, NEEDS NO  
CONSUMABLES, AND THE RECOVERED OIL IS RECYCLABLE!**

Equipment for Separation of Oil and Water at  
Military and Civilian Aviation Facilities

# MSR Separators are for Use in Many Applications at Aviation Facilities

Runways      Aircraft Service Aprons   Hangar Facilities  
Fueling Areas      Tank Farms      Vehicle service Areas



Most aviation facility oil-water separators are sized to process the amount of water expected from a two or five year return period storm and produce an effluent suitable to meet the requirements of the US Clean Water Act or equivalent local regulation. Fifteen mg/l of oil in the effluent would meet this requirement but some jurisdictions require 10 mg/l to be even safer, Some systems are sized for a longer return (and therefore larger) storm. They should be designed to not be damaged during larger storms.

Spills *DO* happen as pictured above - that spill occurred several years ago at a major European airport. In general it is suggested that separator systems be designed to capture the expected size of spill and leave enough flow capacity to handle the flow from one or two fire hoses being used to wash the spill into the separator. MSR will be glad to help with any such design.



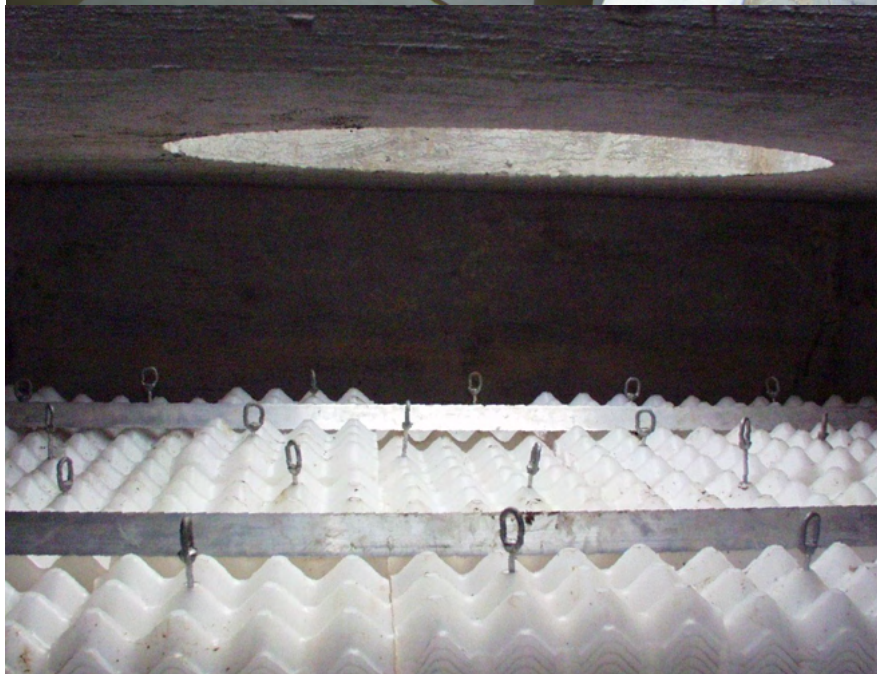


Some MSR  
Typical  
Aviation  
Applications

Coalescing media  
installed in metal  
frames for use at  
the airport at  
Doha Qatar  
2010



One of nine sys-  
tems installed in  
maintenance  
facilities at 29  
palms Marine  
base in  
California 2010



Stormwater  
treatment system  
at the Comox BC,  
airport, Canada  
2003

# Case Study: US Army Facility Byrd Field, VA

Oil is present in the water discharged from vehicle maintenance facilities, which are present on most aviation related sites. Most of this oil comes from the vehicles that are washed prior to their being serviced and some comes from washing work areas, including from washing floors. It is necessary to remove this oil that is present in water before it may be discharged. In some cases, facilities will have dedicated wastewater treatment equipment, but most wastewater from vehicle maintenance facilities is directed to the local sanitary sewers. The requirements for wastewater discharge are set either directly according to the *Clean Water Act* requirement for “no sheen” (15 mg/l or less) or, if there is a treatment entity down-stream, by the water treatment facility requirements. Permissible levels of oil discharged into sanitary sewer can range from 75 to 200-mg/l. Analyses are generally conducted using the EPA-1664 method, which can be done by most laboratories and are accepted by most authorities.

In 2012, MSR was chosen to provide the separation equipment for the maintenance activity at the US Army facility at Byrd Field in Virginia. This system was designed for a maximum flow rate of 1 cfs (448.8 gpm) and an effluent of less than 10 mg/l. The system (shown installed below) was tested as part of the approval process; the results of which are shown in the table below.



MSR enhanced gravity separators are ideal for use at airports and military aviation facilities because there are no moving parts, no consumables, require no utilities and minimal maintenance. The recovered hydrocarbons are recyclable. They provide better separation quality than is possible with simple gravity separators while maintaining the low capital and maintenance cost benefits. Enhanced gravity separation systems have similarities to API separators but include coalescing media that enhance the separation of oil and water. These internal features act as a substitute for the additional residence time provided by the API separators.

Performance Test Results - Byrd Field, VA.			
Sample No.	Inlet oil content	Sample No.	Outlet Oil content
2	10.7	1	Non-detect
6	41.4	4	Non-detect
14	721	12	Non-detect
10	804	8	Non-detect
11	1200	13	Non-detect
18	2430	6	Non-detect
7	4100	9	Non-detect
15	18000	17	330
19	25000	21	Non-detect

Notes:  
 1. Testing performed on rainwater with corn oil as test contaminant.  
 2. Corn oil has a specific gravity higher than jet fuel and therefore corn oil is a more stringent test media. More importantly, it is more environmentally safe.  
 3. Oil content analyses conducted using EPA-1664 method.

MSR Multiple angle plate separators were developed to take advantage of gravity’s effects to the fullest and optimize oil removal. The plates are corrugated in both directions, making an “egg-carton” shape. This is done so that all of the underside surfaces slope upward, encouraging captured oil to move toward the surface. Spacers are built into the plates for two or more vertical spacings (often 8-mm and 16-mm). Narrower spacing is more efficient while the wider spacing is more solids-tolerant.

Performance testing was conducted on the Byrd Field system as part of the approval process. Photo and test results courtesy Mr. Jim Mabry, Pond Constructors

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