

Saturn Separator™ Inspection and Maintenance Guide



Maintenance

The Saturn Separator™ should be inspected at regular intervals and maintained when necessary to ensure optimum performance. The rate at which the system collects sediment and debris will depend upon on-site activities and site specific pollutant characteristics. For example, unstable soils or heavy winter sanding will cause the sediment storage sump to fill more quickly but regular sweeping of paved surfaces will slow accumulation.

Inspection

Inspection is the key to effective maintenance and is easily performed. Pollutant transport and deposition may vary from year to year and regular inspections will help ensure that the system is cleaned out at the appropriate time. At a minimum, inspections should be performed twice per year (i.e. spring and fall). However, more frequent inspections may be necessary in climates where winter sanding operations may lead to rapid accumulations, or in equipment wash-down areas. Installations should also be inspected more frequently where excessive amounts of trash are expected.

A visual inspection should ascertain that the system components are in working order and that there are no blockages or obstructions in the inlet chamber, rings, or outlet trough. The inspection should also quantify the accumulation of hydrocarbons, trash, and sediment in the system. Measuring pollutant accumulation can be done with a calibrated dipstick, tape measure, or other measuring instrument. If absorbent material is used for enhanced removal of hydrocarbons, the level of discoloration of the sorbent material should also be identified during inspection. It is useful and often required as part of an operating permit to keep a record of each inspection. A simple form for doing so is provided in this Inspection and Maintenance Guide.

Access to the Saturn Separator is typically achieved through one manhole access cover. The opening allows for inspection and cleanout of the center chamber (cylinder) and sediment storage sump, as well as inspection of the inlet chamber and rings. For large units, multiple manhole openings allow access to the chambers and sump.

The Saturn Separator should be cleaned before the level of sediment in the sump reaches the NJDEP 50% maximum sediment depth (9 in.) and/or when an appreciable level of hydrocarbons and trash has accumulated. If sorbent material is used, it must be replaced when significant discoloration has occurred. Performance may be impacted if maximum sediment storage capacity is exceeded. Contech recommends maintaining the system when sediment level reaches 50% of maximum storage volume (9 in. depth). The level of sediment is easily determined by measuring the distance from the system outlet invert (standing water level) to the top of the sediment pile. To avoid underestimating the level of sediment in the chamber, the measuring device must be lowered to the top of the sediment pile carefully. Finer, silty particles at the top of the pile typically offer less resistance to the end of the rod than larger particles toward the bottom of the pile. Once this measurement is recorded, it should be compared to the chart in this document to determine if the height of the sediment pile off the bottom of the sump floor exceeds 50% of the maximum sediment storage.

Cleaning

Cleaning of a Saturn Separator should be done during dry weather conditions when no flow is entering the system. The use of a vacuum truck is generally the most effective and convenient method of removing pollutants from the system. Simply remove the manhole cover and insert the vacuum tube down through the center chamber and into the sump. The system should be completely drained down and the sump fully evacuated of sediment. The areas outside the center chamber and the rings should also be washed off if pollutant buildup exists in these areas. Sediment or debris that has accumulated on or between the rings can be washed toward the outside of the manhole and into the sump for removal by vacuum truck or similar.

In installations where the risk of petroleum spills is small, liquid contaminants may not accumulate as quickly as sediment. However, the system should be cleaned out immediately in the event of an oil or gasoline spill. Motor oil and other hydrocarbons that accumulate on a more routine basis should be removed when an appreciable layer has been captured. To remove these pollutants, it may be preferable to use absorbent pads since they are usually less expensive to dispose than the oil/water emulsion that may be created by vacuuming the oily layer. Trash and debris can be netted out to separate it from the other pollutants. Then the system should be power washed to ensure it is free of trash and debris.

Manhole covers should be securely seated following cleaning activities to prevent leakage of runoff into the system from above and to ensure proper safety precautions. Confined space entry procedures need to be followed if physical access is required. Disposal of all material removed from the Saturn Separator must be done in accordance with local regulations. In many locations, disposal of evacuated sediments may be handled in the same manner as disposal of sediments removed from catch basins or deep sump manholes. Check your local regulations for specific requirements on disposal. If any components are damaged, replacement parts can be ordered from the manufacturer.

Maintenance Indicators and Sediment Storage Capacities

Model Number	Diameter		Distance from Water Surface to Top of Sediment Pile (50% full)		Sediment Storage Capacity	
	ft	m	ft	m	y ³	m ³
SAT-4	4	1.2	3.8	1.1	0.7	0.5
SAT-5	5	1.5	5.4	1.7	1.1	0.8
SAT-6	6	1.8	5.4	1.7	1.6	1.2
SAT-8	8	2.4	7.4	2.3	2.8	2.1
SAT-10	10	3.0	9.3	2.8	4.4	3.3

Note: The information in the chart is for standard units. Units may have been designed with non-standard sediment storage depth.



A Saturn Separator can be easily cleaned in less than 30 minutes.



A vacuum truck excavates pollutants from the systems.

