

Operations and Maintenance Guidelines for

Jensen Deflective Separator (JDS) Units

SWTU: *Jensen Deflective Separator (JDS)*

INTRODUCTION

The *Jensen Deflective Separator (JDS)* Stormwater Treatment unit (**SWTU**) is an important and effective component of the stormwater management program and proper operation and maintenance of the unit are essential to demonstrate project's compliance with local, state and/or federal water pollution control requirements.

The *JDS* SWTU features the Continuous deflective separation non-blocking, indirect screening technique to treat Stormwater runoff and is highly effective in capturing floatables, suspended solids, large particles and even fine sediments. Because of its non-blocking screening capacity, the *JDS* unit is un-matched in its ability to capture and retain gross pollutants such as trash and debris that are greater than 0.05 inch. In addition, it is also very effective in capturing at least 50% of fine sand particles and other storm water pollutants to such as free oil and grease when sorbents are placed in the separation chamber.

OPERATIONS

The *JDS* unit is a non-mechanical self-operating system and will function any time there is flow in the storm drainage system. The unit will continue to effectively capture pollutants even during extreme rainfall events when the influent flow exceeds the design flow. The pollutants captured previously in the *JDS* unit's separation chamber and sump will be retained even when the units design capacity is exceeded.

JDS UNIT CLEANOUT

The frequency of cleaning the *JDS* unit will depend upon the accumulation of trash, debris and sediments based on the application and the land use activity in the drainage watershed. Cleanout and preventive maintenance schedules shall be determined based on operating experience unless precise pollutant loadings have been determined. The unit should be periodically inspected to determine the amount of accumulated pollutants and to ensure that the cleanout frequency is adequate to handle the predicted pollutant

load being processed by the **JDS** unit. The recommended cleanout of solids within the **JDS** unit's sump should be done at 50% to 75% (50% for NJDEP) of the sump capacity.

Access to the **JDS** unit is typically achieved through the manhole access cover. The access cover allows for the inspection and cleanout of the separation chamber (screen/cylinder) & sump.

Recommendations for Achieving Optimal Performance from **JDS SWTU:**

NEW INSTALLATIONS – The condition of the unit should be checked after every runoff event for the first 30 days. The visual inspection should ascertain that the unit is functioning properly (no blockages or obstructions to inlet and/or separation screen), measuring the amount of solid materials that have accumulated in the sump, the amount of fine sediment accumulated behind the screen, and determining the amount floating trash and debris in the separation chamber. This can be done with a calibrated “dip stick” so that the depth of deposition can be tracked. Schedules for inspections and cleanout should be based on storm events and pollutant accumulation.

ONGOING OPERATION – During the rainfall season, the unit should be inspected at least once every 30 days. The floatables should be removed and the sump cleaned when it is 50-75% full (50% for NJDEP). If floatables accumulate more rapidly than the settleable solids, the floatables should be removed using a vactor truck or dip net before the layer thickness exceeds one to two feet.

Cleanout of the **JDS** unit at the end of a rainfall season is recommended because of the nature of pollutants collected and the potential for odor generation from the decomposition of material collected and retained. This end of season cleanout will assist in preventing the discharge of pore water from the **JDS** unit during summer months.

USE OF SORBENTS – It needs to be emphasized that the addition of sorbents is not a requirement for the **JDS** units to effectively control oil and grease from storm water. The conventional oil baffle within the unit assures satisfactory oil and grease removal. However, the addition of sorbents will enhance the capacity to capture oil and grease beyond that attainable by conventional oil baffle systems.

Under normal operations, **JDS** units will provide effluent concentrations of oil and grease that are less than 15 parts per million (ppm) for all dry weather spills where the volume is

less than or equal to the spill capture volume of the **JDS** unit. During wet weather flows, the oil baffle system can be expected to remove between 40 and 70% of the free oil and grease from the storm water runoff.

Jensen only recommends the addition of sorbents to the separation chamber if there are specific land use activities in the catchment watershed that could produce exceptionally large concentrations of oil and grease in the runoff; concentration levels well above typical amounts. If site evaluations merit an increased control of free oil and grease then oil sorbents can be added to the **JDS** unit to thoroughly address these particular pollutants of concern.

Recommended Oil Sorbents

ClearTec™ Rubberizer® products sorb and transform into a rubber-like material many petroleum products to include typical oil and greases in stormwater runoff. **Jensen** recommends Rubberizer® Particulate 8-4 mesh Particulate for Filtration, HPT4100 or equal. Rubberizer® is supplied by Haz-Mat Response Technologies, Inc. 4626 Santa Fe Street, San Diego, CA 92109 (800) 618-13856, www.rubberizer.com.

The amount of sorbent to be added to the **JDS** separation chamber can be determined if sufficient information is known about the concentration of oil and grease in the runoff. Frequently the actual concentrations of oil and grease are too variable and the amount to be added and frequency of cleaning will be determined by periodic observation of the sorbents.

As an initial application, it is recommended that approximately 4 to 8 pounds of sorbent material be added to the separation chamber of the **JDS** units per acre of parking lot or road surface per year. Typically this amount of sorbent results in a ½ inch to one (1") inch depth of sorbent material on the liquid surface of the separation chamber. The oil and grease loading of the sorbent material should be observed after major storm events. Oil Sorbent material may also be furnished in pillow or boom configurations.

The sorbent material should be replaced when it is fully discolored by skimming the sorbent from the surface. The sorbent may require disposal as a special or hazardous waste, but will depend on local and state regulatory requirements.

CLEANOUT AND DISPOSAL

A vactor truck is recommended for cleanout of the **JDS** unit and can be easily accomplished in less than 30-40 minutes for most installations. Standard vactor operations should be employed in the cleanout of the unit. Disposal of material from the **JDS** unit should be in accordance with the local municipality's requirements.

Disposal of the decant liquid/material to a Publically Operated Waste Water Treatment Plant is recommended. Field decanting to the storm drainage system is not recommended, unless through a proven fine filtration process.

Solids can be disposed of in a similar fashion as those materials collected from street sweeping operations and catch-basin cleanouts.

MAINTENANCE

The **JDS** unit should be pumped down at least once a year and a thorough inspection of the separation chamber (inlet/cylinder and separation screen) and oil baffle should be performed. The unit's internal components should not show any signs of damage or any loosening of the bolts used to fasten the various components to the manhole structure and to each other. Ideally, the screen should be power washed for the inspection. If any of the internal components are damaged or if any fasteners appear to be damaged or missing, please contact **Jensen** Precast (**Jensen Stormwater Systems**) to make arrangements to have the damaged items repaired or replaced:

Jensen Stormwater Systems (**Jensen** Precast)

521 Dunn Circle

Sparks, NV 89431

Toll Free: (877) 649-0095

Fax: (775) 440-2013

The screen assembly is fabricated from ASTM Type 316 stainless steel and fastened with Type 316 stainless steel fasteners that are easily removed and/or replaced with conventional hand tools. Damaged screen assembly should be replaced with the new expanded metal screen assembly placing the expanded apertures in the same orientation as existing screen section that was removed.

CONFINED SPACE

The **JDS** unit is a confined space environment and only properly trained personnel possessing the necessary safety equipment should enter the unit to perform maintenance or inspection procedures. Inspections of the internal components can, in most cases, be accomplished through observations from the ground surface.

RECORDS OF OPERATION AND MAINTENANCE

JDS recommends that the owner maintain annual records of the operation and maintenance of the **JDS** unit to document the effective maintenance of this important component of your storm water management program. The attached **Annual Record of Operations and Maintenance** form (see **Appendix A**) is suggested and should be retained for a minimum period of three years.

Appendix A
Annual Record of
Operations & Maintenance

Jensen Deflective Separator (JDS) ANNUAL RECORD OF OPERATION AND MAINTENANCE

OWNER _____

ADDRESS _____

OWNER REPRESENTATIVE _____ PHONE _____

JDS INSTALLATION:

MODEL DESIGNATION _____ DATE _____

SITE LOCATION _____

DEPTH FROM COVER TO BOTTOM OF SUMP _____

VOLUME OF SUMP _____ CUYD VOLUME/INCH DEPTH _____ CUYD

INSPECTIONS:

DATE/INSPECTOR	SCREEN INTEGRITY	FLOATABLES DEPTH	SEDIMENT VOLUME	SORBENT DISCOLORATION

OBSERVATIONS OF FUNCTION: _____

CLEANOUT:

DATE	VOLUME FLOATABLES	VOLUME SEDIMENTS	METHOD OF DISPOSAL OF FLOATABLES, SEDIMENTS, DECANT AND SORBENTS

OBSERVATIONS OF FUNCTION: _____

SCREEN MAINTENANCE:
DATE OF POWER WASHING, INSPECTION AND OBSERVATIONS: _____

CERTIFICATION: _____ **TITLE:** _____ **DATE:** _____