

DTS and Tri Nuclear offer a revolutionary new filter to collect and dispose of solids from tori, suppression and fuel pools, sumps, and tanks.

By collecting solids right in the disposal container, our Solids Collection Filter (SCF™) eliminates costly steps for solids separation, and reduces waste handling, contamination, and personnel exposure. By eliminating the need for secondary processing such as drying or solidification of solids, it saves money and manpower.

The Canister Concept

The main components of the SCF™ system are special filter canisters. When dose is not a major concern or solids volumes are small, these canisters can be used as “stand-alone” units, without a High-Integrity Container (HIC) or fill-head. When a large volume of solids is expected or several cleanings are planned, the canisters may be contained in a HIC.

Each canister contains from one to seven filter elements. As these elements capture solids, excess solids fall from the elements and collect in the bottom of the canisters. Clean filtrate is produced for recycle or discharge.

Packaging and Disposal

The SCF™ is operated until the filter banks are fully loaded with solids, or administrative dose limits are reached. If the canisters are in a HIC, spent resin can be sluiced to the HIC to fill the voids around the canisters and maximize packaging efficiency.

The canisters or HICs are dewatered using a DTS dewatering procedure approved by the South Carolina Department of Health and Environmental Control (DHEC). This assures compliance with the 0.5% Free-Standing Water (FSW) disposal requirement.



SCF-7 Canister Holds 7 Filter Elements



SCF-7 Canister with Top Removed

Filter Elements

SCF™ canisters hold dual-ply pleated paper filter elements from 1 to 70 microns. The pleats provide large filter area, high solids loading, and long run times. Outside loading ensures that solids are trapped between the element and the canister.

Fillhead

When canisters are mounted in a HIC, the SCF™ fillhead distributes influent to individual canisters. Instrumentation includes high-level auto-shutdown and CCTV. The fillhead forms a tight seal to the HIC, preventing leakage.

Control Skid

A control skid holds all pumps and controls for canister/HIC filling, sluicing and dewatering. A centrifugal pump supplies filtration pressure or supplements plant supply pumps. When a HIC is used, a second submersible pump maintains a constant water level in the HIC.

SCF™ Sizes and Applications

For uses that involve small volumes of solids or low flow rates (10-50 gpm for maximum loading or 200 gpm for clarification), individual canisters of various sizes may be used, and disposed of in a drum overpack or HIC.

The SCF-35 HIC is recommended when there will be large volumes of solids or when several

The control skid can be operated unattended under the supervision of the Programmable Logic Controller (PLC). Sensors and interlocks prevent over-pressurization of the canisters and over-filling of the HIC.

A low-flow (50 gpm) or a high-flow (300 gpm) control skid is used with the SCF-35. The low-flow skid is used when flow rates are under 50 gpm (e.g., tank/sump desludging), or there is high solids loading. High-flow applications typically have low solids loading, but need high flow to maintain clarity or to process large volumes of water.

ALARA Operation

A control skid allows remote operation. The fill-head used with a HIC can be remotely connected/disconnected to keep personnel exposure ALARA. When canisters are in a HIC, the water around them provides self-shielding. Standard casks or process shields can be used for external shielding.

cleanings will be conducted and the HIC can be stored between uses. This unit consists of five 7-element canisters in a TFC136 HIC.

Both this HIC and its dewatering procedure have been approved by the South Carolina DHEC for disposal at Barnwell.

	SCF-1	SCF-3	SCF-7	SCF-35
Number of Filter Elements	1	3	7	35
Number of Canisters	1	1	1	5 in HIC
Maximum Flow Rate (gpm)	40	150	250	600
Est. Loading (# dry wt) @ 10 gpm/element	45	135	315	1600
Est. Loading (# dry wt.) @ 3 gpm/element	65	200	470	2400
Resin Fill Volume (cf)	N/A	N/A	N/A	76
Disposal Volume (cf)	1.25	4	8	136

