

### Capacity Of The MSD

The regulations let the manufacturer determine MSD capacity. As a result, MSD manufacturers have used widely varying per capita sewage estimates in calculating the capacity of their equipment, from 35 liters per day to 35 gallons per day. In a proposed new installation, verify that the unit is large enough, based on hydraulics and waste load, not numbers of people, to process the wastewater expected to be generated on board the vessel. Installing too small an MSD may allow the discharge of partially treated sewage, which violates the Act.

These calculations shall be used as guidelines, as 33 CFR 159 does not mandate capacities. Each MSD should be evaluated in terms of the vessel's size, route, service, and particular circumstances. These capacities consider only "black-water" toilet drains (on the average, each person will produce 1.5 liters of waste per day).

#### APPROXIMATE FLUSH CAPACITIES FOR VESSEL TOILETS DRAINING TO MARINE SANITATION DEVICES

<u>System Type</u>	<u>Liters per flush</u>
Conventional (Flushometer)	18.9
Recirculating	0.38
Vacuum	1.1
Hand Pump	1.9
Electric Pump	3.8

#### LITERS OF WASTEWATER PER PERSON PER DAY BASED ON PLUMBING TYPE

<u>Trip Length</u>	<u>User</u>	<u>Plumbing System Type</u>				
		<u>Conven.</u>	<u>Recirc.</u>	<u>Vacuum</u>	<u>Hand Pump</u>	<u>Electric</u>
LONG	Crew	96.1	1.9	7.2	11.0	20.4
(Note 1)	Psgr	96.1	1.9	7.2	11.0	20.4
MEDIUM	Crew	96.1	1.9	7.2	11.0	20.4
(Note 2)	Psgr	31.4	0.64	7.2	3.8	6.8
SHORT	Crew	48.1	0.95	3.6	7.4	10.2
(Note 3)	Psgr	24.0	0.95	1.9	2.7	5.1

Note 1: Crew and passengers aboard 24-hour/day.

Note 2: Crew aboard 24-hour/day; 2 groups of passengers aboard for 4 hours each (2 trips/day), each passenger using facilities once.

Note 3: All crew aboard 12 hr/day; 6 groups of passengers aboard for 2 hours (6 trips per day), one fourth of passengers using facilities once.