3745-42-05 **Design flow requirements for treatment works sized for one hundred thousand gallons per day or less.**

(A) Except as provided in paragraphs (A)(1) to (A)(5) of this rule, the minimum design flows and waste strengths in table A-1 of this rule shall be used to design a treatment works sized for one hundred thousand gallons per day or less. The design flow and the waste strength shall be based on the existing and proposed services at the facility, and the justification for the proposed design flow and the proposed waste strength shall be submitted with the permit to install application. In addition to table A-1 of this rule, the director may also consider additional relevant engineering data, including flow monitoring data, computer flow modeling data, flow equalization facilities, potential impacts to upstream sewers and sampling data for waste strength characterization.

(1) Flow monitoring. The director may consider flow monitoring data in addition to the minimum design flow requirements in table A-1 of this rule when evaluating the design of a treatment works sized for one hundred thousand gallons per day or less, provided that the flow monitoring data is obtainable and documented on a daily basis.

(a) The flow monitoring data shall be submitted with the permit to install application and shall:

(i) Be from the facility for which the treatment works is being designed, and be representative of the range of operating conditions that are expected to occur, which includes considering the months, days and hours of operation; or

(ii) Be from a place of like kind, like usage, and located in a similar climate, and be representative of the range of operating conditions that are expected to occur, which includes considering the months, days and hours of operation.

(b) For facilities that operate year-round, at least twelve months of flow monitoring data shall be provided. For seasonal facilities, flow monitoring data shall be provided for the entire operational period within a calendar year.

(2) Computer flow modeling. The director may consider computer flow modeling data in addition to the design flow requirements in table A-1 of this rule when evaluating the design of a treatment works sized for one hundred thousand gallons per day or less. The computer flow modeling data shall be submitted with the permit to install application.

(3) Flow equalization facilities. The director may consider flow equalization facilities at the treatment works or upstream of the treatment works in addition to the design flow requirements in table A-1 of this rule, when evaluating the design of a treatment works sized for one hundred thousand gallons per day or less. The flow equalization data shall be submitted with the permit to install application.

(4) Potential impacts to upstream sewers. The director may consider potential impacts to upstream sewers in addition to the design flow requirements in table A-1 of this rule when evaluating the design of a treatment works sized for one hundred thousand gallons per day or less. Any information regarding the potential impacts to upstream sewers shall be submitted with the permit to install application.

(5) Sampling data for waste strength characterization. The director may consider sampling data in addition to the five day minimum biochemical oxygen demand (BOD_5) loading rates in table A-1 when evaluating the design of a treatment works sized for one hundred thousand gallons per day or less, provided that the sampling data is collected daily and that the daily raw data, the seven-day averages (otherwise referred to as average-weekly limits) and thirty-day averages (otherwise referred to as average-monthly limits) are submitted with the permit to install application. The sampling data shall also:

(a) Be from the facility for which the treatment works is being designed, and be representative of the range of operating conditions that are expected to occur; or

(b) Be from a place of like kind, like usage, and located in a similar climate, and be representative of the range of operating conditions that are expected to occur.

[Comment: The NPDES regulations at paragraph (d) of 40 CFR 122.45 (effective July 1, 2005) require that all permit limits be expressed, unless impracticable, as both average-monthly limits (AMLs) and maximum-daily limits (MDLs) for all discharges other than publicly owned treatment works (POTWs), and as average weekly limits (AWLs) and AMLs for POTWs. The MDL is the highest allowable discharge measured during a calendar day or twenty-four-hour period representing a calendar day. The AML is the highest allowable value for the average of daily discharges obtained over a calendar month. The AWL is the highest allowable value for the average of daily discharges obtained over a calendar week.]

[Comment: "C.F.R" refers to the federal "Code of Federal Regulations," which can generally be found in public libraries and electronically online, and can be purchased from "U.S. Government Printing, Superintendent of Documents, Mail Stop: SSOP, Washington, DC 20402-9328."]

Comment: To convert milligrams per liter to pounds per day the following formula can be used: Pounds per day = [(concentration) x (flow) x (conversion factor)] Pounds per day = [(mg/L) x (MGD) x (8.34)] Note: MGD means the flow expressed in million gallons per day.

Table A-1 for Design Flow Requirements [g]			
Place	**Notes**	**Design Flow (gallons per day)**	**Waste Strength Range BOD_5 (mg/l)**
Airport	b, i,,j,p,r,t	15 per employee plus 4 per parking space	200 to 280 [r, s, t]
Apartment	b, l	120 per bedroom	200 to 280 [r, s, t]
Assembly hall	a, i, j	3 per seat without kitchen facilities 7 per seat with kitchen facilities 15 per employee	200 to 280 [r, s, t]
Banquet hall	b, i, j	3 per seat without kitchen facilities 7 per seat with kitchen facilities 15 per employee	400 ppm BOD
Barber shop	i, j	80 per basin	200 to 280 [s]
Beauty shop, styling salon	i, j	200 per basin	200 to 280 [s]
Bowling alley	a, i, j,p	75 per lane	200 to 280 [r, s, t]
Car wash	i, q	Sewer Connection Required/Contact District Office	
Campground or recreational park	a, i, j, m, n,p	30 per primitive camp site (w/o showers) 60 per primitive camp site (w/showers) 60 per site without water hook-up 90 per site with water hook-up	200 to 280 [r, s, t]
Church (less than 200 sanctuary seats)	a, h, j, k, o,p	3 per sanctuary seat without kitchen 5 per sanctuary seat with kitchen	200 to 280 [r, s, t]
Church (greater than 200 sanctuary seats)	b, h, j, k, o,p	5 per sanctuary seat without kitchen 7 per sanctuary seat with kitchen	200 to 280 [r, s]
Coffee shop	a, i, j	5 per seat plus 15 per employee	200 to 280 [r, s, t]
Convenience store (A convenience store with gas sales must be designed for a minimum of 500 gpd.)	a, d, i, j, p, q	15 per employee 5 per parking space If gas sales, 500 per pump island	200 to 280 [r, s, t]
Country club, sportsman club or gun Club	b, i, j, m, n, o,p	50 per member	200 to 280 [r, s, t]
Dance hall	a, i, j,p	3 per patron without kitchen facilities 7 per patron with kitchen facilities 15 per employee	200 to 280 [r, s, t]

Table A-1 for Design Flow Requirements [g]			
Place	**Notes**	**Design Flow (gallons per day)**	**Waste Strength Range BOD_5 (mg/l)**
Daycare facility	a, i, j,p	35 per employee plus 10 per student	200 to 280 [r, s, t]
Dentist office	i	35 per employee plus 10 per patient plus 75 per dentist	200 to 280 [s]
Doctor office	i	35 per employee plus 10 per patient plus 75 per doctor	200 to 280 [s]
Dry cleaner	i	Consult Local District Office [1]	200 to 280 [s]
Factory	i, q	25 per employee without showers 35 per employee with showers	200 to 280 [r, s, t]
Food-Service Operation/Restaurant 1. ordinary restaurant (not 24 hours) 2. 24-hour restaurant 3. restaurant along freeway 4. tavern (very little food service) or bar (full food service) 5. curb service (drive-in) 6. vending machine	 c, i, j, p c, i, j, p c, i, j, p c, i, j, p c, i, j, p c, i, j, p	 1.) 35 per seat 2.) 60 per seat 3.) 100 per seat 4.) 35 per seat 5.) 40 per car space 6.) 100 per machine	400 to 600
Homes in subdivision	b,l	120 per bedroom	200 to 280 [r, s]
Hospital	b, i, j, p	300 per bed plus 35 per employee	200 to 280 [r, s, t]
Hotel or motel	a, i, j,p	100 per room	200 to 280 [r, s, t]
Institution (such as psychiatric hospitals or prisons)	b,i, j, p	100 per bed plus 35 per employee	300
Laundromat	i, q	15 per employee plus 400 per machine	200 to 280 [s]
Marina (restrooms and showers only)	a, i	20 per boat mooring or slip	200 to 280 [r, s, t]
Migrant labor camp	e, i, j, p	50 per employee	200 to 280 [r, s, t]

Table A-1 for Design Flow Requirements [g]			
Place	**Notes**	**Design Flow (gallons per day)**	**Waste Strength Range BOD_5 (mg/l)**
Mobile home park	b, i, j, p	300 per mobile home space	200 to 280 [r, s, t]
Nursing and rest homes	b, i, j, p	200 per bed plus 100 per resident employee plus 50 per non-resident employee	300
Office building	a, i, j, k	20 per employee	200 to 280 [r, s, t]
Playground or day park	a, i, k, p	15 per employee plus 12 per parking space	200 to 280 [s]
Retail store	a, i, j, p	15 per employee plus 12 per parking space	200 to 280 [r, s, t]
School	b, i, j, k, p,t	15 per employee plus 15 per pupil for elementary schools 20 per pupil for junior & high schools 85 per pupil for boarding schools	200 to 280 [r, s, t]
Service station or gas station	a, d, i, q	500 per pump island 500 per service bay minimum of 750	200 to 280 [r, s, t]
Shopping center	a, f, l,p,q	15 per employee plus 2 per parking space without food service 5 per parking with food service	200 to 280 [r, s, t]
Swimming pool	a, i, m, n	5 per swimmer without hot showers 10 per swimmer with hot showers	200 to 280 [r, s, t]
Theater	a, i, j,p	5 per seat for indoor auditorium 10 per car for drive-in	200 to 280 [r, s, t]
Vacation cottage	b, i, j, p	50 per person without kitchen 75 per person with kitchen	200 to 280 [r, s, t]
Veterinarian office and animal hospital	f, i, j	20 per run & cage plus 15 per employee plus 100 per doctor	200 to 280 [r, s, t]
Youth and recreation camps	b, i, j, p	15 per employee for day camp plus 50 per employee for overnight camp 50 per camper for overnight stay 15 per camper for day camp w/ food service 10 per person for day camp w/o food service	200 to 280 [r, s, t]

Notes for Table A-1

Note a: Food service waste not included.

Note b: Food service waste included, but without garbage grinders.

Note c: Aeration tanks for these require forty-eight-hour detention periods. Garbage grinders not permitted.

Note d: Truck parking areas will require consideration for treatment of runoff at large truck stops.

Note e: Twenty g.p.d. if a vault latrine is used for toilet wastes.

Note f: Assume manual hosing of dog runs and solids (food droppings, etc.) removal prior to hosing.

Note g: Year around disinfection of all wastewater may be required before discharge to waters of the state or to any other surface or subsurface disposal systems.

Note h: Lower per-seat estimate assumes a maximum of one church service per day, higher per-seat estimate assumes a maximum of three church services per day. Weddings and funerals shall be counted as services.

Note i: Non-domestic or industrial wastes are prohibited from being discharged to soil based treatment systems.

Note j: Total capacity for number of persons should be confirmed by occupancy license or total occupancy capacity.

Note k: Higher flows shall be estimated when showers are available.

Note l: Deviating from this estimated design flow will require the director's approval, prior to applicant submitting the permit to install.

Note m: Pools cannot discharge pool filter backwash into soil based treatment systems.

Note n: Pool de-watering is prohibited from discharging to soil based treatment systems.

Note o: Flow estimates do not consider daycare facilities. If a daycare is present, the flow requirements for a daycare facility must be included.

Note p: An external grease trap is required for facilities with food service for soil based treatment systems.

Note q: Assume one working shift of not more than eight hours. Assume higher flows for two or three-shift operations.

Note r: Assumes no garbage grinders and normal domestic waste. If garbage grinders are present, the waste strength should be increased from twenty to sixty-five per cent.

Note s: Data for regular strength waste range of 200 to 280 mg/l obtained from U.S. EPA (EPA Manual EPA/625/R-00/008). This manual, titled "Onsite Wastewater Treatment Systems Manual, February 2002" is available on the U.S. EPA website (http://www.epa.gov/ncepihom/), and can be ordered by calling (800) 490-9198.

Note t: Waste strength should be twenty to sixty-five per cent higher for facilities that include food service operations, such as cafeterias, facilities that may handle pet wastes.

Effective: 11/1/2006

R.C. 119.032 review date: 11/1/2011

Promulgated Under: R.C. 119.03
Statutory Authority: R.C. 6111.03, 6111.04, 6111.44, 6111.45, 6111.46
Rule Amplifies: R.C. 6111.03, 6111.04, 6111.44, 6111.45, 6111.46
Prior Effective Dates: None