3.5.4.3 Overview of the Permit / No-Discharge Permits / Facility Description / Average and Design Flows

Applicability:

Average and Design flows are applicable to all no-discharge permits.

Content:

10 CSR 20-6.010(2)(A) states that an application for, or for renewal of, a construction or operating permit shall be made on forms provided by the department. Further, 10 CSR 20-6.015(4)(A) indicates that no-discharge permits shall be issued in accord with permit application and processing procedures contained in 10 CSR 20-6.010.

No-discharge Permits include three flow parameters in the Facility Description:

- Design Flow in gallons per day, including 1-in-10 year design precipitation minus evaporation, recorded as an overall average annual measure and a seasonal (April through October) average measure;
- Average Design Flow in gallons per day for dry weather periods, recorded as an average annual measure and a seasonal (April through October) average measure; and
- Actual Flow in gallons per day.
- Permit Applications for No-discharge facilities include eight flow parameters:
- Total Design Flow (Design Flow) for all outfalls with units not being specified but applied in terms of gallons per day (see new Form B Section 7.35);
- Actual Flow presumably for all outfalls with units not specified (see new Form B Section 7.35);
- An estimate of the Average Flow in gallons per day attributed to inflow and infiltration (I&I) (see new Form B, Part B, Section 12.00; corresponds to Form B2, Part B, Section 11.00 soon to be replaced);
- Average Daily Flow Rate in million gallons per day on an outfall by outfall basis (see new Form B, Part B Section 12.40 E; Corresponds to old Form B, Part B, Section 11.40 E.);
- Average Flow per Discharge in million gallons per day per outfall if the outfall has an intermittent or periodic discharge (see new Form B, Part B, Section 12.40 F; corresponds to old Form B, Part B, Section 11.40 F)
- Average Annual Dry Weather Flow in gallons per day (see Form I, Section 3.20);
- Seasonal Dry Weather Flow in gallons per day (see Form I, Section 3.20); and
- Off-Season Dry Weather Flow in gallons per day (see Form I, Section 3.20)

NOTE: Form I, section 3.20 does require provision of “months of seasonal flow”, but does not indicate whether that is to be the number of months or a listing of names of the months.

Neither the Missouri Clean Water Law nor any of the regulations provide definitions for the various flow parameters required on the permit applications or contained in the Facility Descriptions on the permits. The terms are not defined in the instructions for completing the permit applications. Therefore, staff needs to seek other sources to describe the terms when assisting permit applicants, reviewing applications and drafting permits. Several sources of information follow.

Domestic dry weather design flows have been established in 10 CSR 20-8. The majority of the design flows per capita are listed in 10 CSR 20-8.020(11)(B) 3, Table I for small sewage works, and in 10 CSR 20-8.140(5)(C) for large sewage works.

A design flow for a no-discharge system is the total flow, including all dry weather flows per day plus the all wet weather flows received in the design year divided by 365 days. The design year is the wettest precipitation expected once every 10 years for a 365-day period based on at least 30 years of records from the National Climatic Data Center, adjusted to account for evaporation. This description reflects 10 CSR 2-6.015(1)(B) 8. However, the design flow for facilities having critical seasonal high hydraulic loading periods should be based on daily average flow during the seasonal period. This flow description reflects guidance for determining permit fees and the definitions in the "10-States Standards". The design flow is used as the basis for determining construction and operating permit fees.

The average design flow (or average annual design flow) for dry weather periods is the flow expected during the last year, or during a continuous 12 month maximum dry weather flow period, in the typical 20-year design life of a treatment facility. However, the average design flow for facilities having critical seasonal high hydraulic loading periods should be based on daily average flow during the seasonal period. The "off-season" dry weather flow needs to be based on daily average flows during the off-season period, or the other method of determination needs to be specified. This flow description reflects guidance for determining permit fees and the definitions in the "10-States Standards".

The actual flow should be interpreted as total dry weather and wet weather flow for a continuous 12-month period, adjusted to account for evaporation, divided by 365 days. However, in the absence of sufficient or reliable flow data, the actual flow may be based on estimation methods, which should be specified. This flow description reflects the design concept specified in 10 CSR 20-6.015(1)(B) 7.A.

Legal References:

Code of State Regulations

10 CSR 20-6.010	Construction and Operating Permits
10 CSR 20-6.015	No-Discharge Permits
10 CSR 20-8	Design Guides

Other Links:

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"Recommended Standards for Wastewater Facilities", A Report of the Wastewater Committee of the Great Lakes-Upper Mississippi River Board of State and Provincial Public health and Environmental Managers, 1997 Edition (i.e. "10_States Standards")

Key Words:

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