



Reno-Stead Water Reclamation Facility (RSWRF)

# POTW Design Flow

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## Defining Design Flow/Applying Appropriate Permit Limits



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# Outline

- **Nevada Regulations & Permitting Framework**
- **Defining Design Flow**
- **Previous permit parameters & approach**
- **Current permit approach**



# Nevada Regulations & Permitting Framework

## Nevada Revised Statutes (NRS):

**NRS 445A.500 Permits: Conditions; notice of application.**

2. Each permit must specify average and maximum daily or other appropriate quantitative limitations for the level of pollutants or contaminants in the authorized discharge or injection.

## Nevada Administrative Code (NAC):

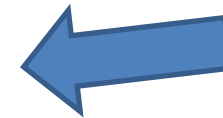
**NAC 445A.284 Design and construction of treatment works. ([NRS 445A.425](#), [445A.445](#))**

1. In reviewing the design of treatment works, the Department shall use as guidelines the applicable requirements of *Ten State Standards*, appropriate *American Society of Civil Engineers Manual of Engineering Practice* or federal or other accepted engineering guidelines.

## Ten States Standards:

### **53.412 Treatment Plant Design Capacity**

The treatment plant design capacity shall be as described in Chapter 10. The plant design flow selected shall meet the appropriate effluent and water quality standards that are set forth in the discharge permit. The design of treatment units that are not subject to peak hourly flow requirements shall be based on the design average flow. For plants subject to high wet weather flows or overflow detention pumpback flows, the design maximum day flows that the plant is to treat on a sustained basis should be specified.



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# Nevada Regulations & Permitting Framework

## Nevada Administrative Code (NAC):

### **NAC 445A.250 Monitoring.** ([NRS 445A.425](#), [445A.465](#))

4. Each effluent flow or pollutant required to be monitored pursuant to this subsection must be monitored at intervals sufficiently frequent to yield data which reasonably characterize the nature of the discharge of the monitored effluent flow or pollutant. Variable effluent flows and pollutant levels may be monitored at more frequent intervals than relatively constant effluent flows and pollutant levels.

## How do we decide how to define design flow and how do we translate that into meaningful permit limits?

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## Defining Design Flow

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**Nevada follows the guidelines in the *Ten States Standards* for design review of POTWs.**

- Design flow is considered annual average flow (AAF)
- Peaking factors are derived from AAF
- Design flow is also the basis for capacity (total will-serves)

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## Previous Approach

**Individual discharge permits in Nevada, however, have historically considered the 30-day average value as the design treatment capacity and was the basis for triggering plant expansion (85%).**

**Language from previous permit:**

“B.TF.8. Flow Rate Notification: The Permittee shall notify the Administrator, by letter, not later than ninety (90) days after the 30-day average daily influent flow rate first equals or exceeds 85% of the design treatment capacity of the Permittee’s facility given in Section A. above. The letter shall include:”

### **Problem:**

**This parameter is a derived value and, due to seasonal and wet weather variations, not controllable by Permittee.**

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# Current Permit Approach

Flow Parameter	Previous Permit Limit*	New Permit Limit
Influent Flow Rate- Daily Maximum (PDF)	None	4.78 MGD
Influent Flow Rate- 30 day Average	None	Monitor & Report (M&R)
Effluent Flow Rate- Daily Maximum (PDF)	M&R	4.78 MGD
Effluent Flow Rate- 30 day Average	M&R	M&R
Effluent Flow Rate- Annual Average (AAF)	None	2.01 MGD

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\*RSWRF (Reno-Stead Water Reclamation Facility) was previously considered to have a design treatment capacity of 2.35 MGD in terms of a 30-day average.



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# Current Permit Approach

- **Added Peak Daily Flow (PDF) as derived from Annual Average Flow (AAF)**
  - Takes into account critical organic loading & hydraulic capacity
  - Nevada bases fees on the maximum daily discharge rate
- **30 day average flow- no requirement to limit since no mass loading concerns (non-NPDES)**
- **Annual Average Flow (AAF)**
  - The only flow limit that the Permittee can control (limiting committed capacity)
  - Will be evaluated during permit renewals





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# Questions?

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