

**Secondary Treatment/Nutrient Information Questionnaire**

**1 Name of Entity (e.g. city department, district, agency)**

**2 Name of Treatment Plant (for which survey responses will be provided)**  
**\*If your agency has multiple plants, please complete a new survey for each plant.**

**3 Location of Treatment Plant**

**4 Contact Name and Phone Number**

**5 Email Address**

**6 Are you willing to share your facility-specific information with EPA?**

 

**7 Do you wish to keep your facility information confidential?**  
If you select yes, your information will only be provided in summary form, aggregated with data from other respondents.

 

**Secondary Treatment/Nutrient Information Questionnaire**

**Treatment Plant Flow (in MGD):**

**8 Design Flow (answer i and ii OR iii and iv)**i. Average Day ii. Peak Hour 

iii. Permitted

Design Flow

(reported on

Discharge

Monitoring Report)

iv. Basis for

Permitted Design

Flow Figure

(maximum

monthly, annual

average, etc)

**9 Current Flow (most recent 12 months)**i. Average Day ii. Peak Hour 

Survey Page 2

**Secondary Treatment/Nutrient Information Questionnaire**

**Type of Secondary Treatment-** Please send any treatment plant design information you would be willing to share, including flow diagrams, plant schematics and/or design details to Chris Hornback at [chornback@nacwa.org](mailto:chornback@nacwa.org). If possible, include design and actual flows and operating parameters, e.g. F:M ratios, aeration rates, organic loading rates, MLVSS, HRT, SRT, etc.

Check the appropriate boxes below.

**10 Type of Secondary Treatment: Activated Sludge Process and its Modifications**

(check any that apply)



i. High Rate (SRT&lt;3 days)

- ☐ ii. Conventional (SRT 6-10 days)
- ☐ iii. Extended Aeration (SRT > 10 days)
- ☐ iv. Sequencing Batch Reactor
- ☐ v. Step feed aeration activated sludge (for BOD removal, included contact stabilization)
- ☐ vi. Pure Oxygen
- ☐ vii. Membrane Bioreactor
- ☐ Other, please specify

---

**11 Type of Secondary Treatment: Attached Growth**  
(check any that apply)

- ☐ i. Trickling Filters
- ☐ ii. MBBR
- ☐ iii. Sand Filters
- ☐ iv. Packed Bed
- ☐ v. Rotating Biological Contactors
- ☐ vi. Bio Towers
- ☐ Other, please specify

---

**12 Type of Secondary Treatment: Does your facility have a Combined Biological Treatment Process (e.g. Integrated Fixed Film/Activated Sludge, IFAS)**

- ☐ Yes
- ☐ No

---

**13** If you checked yes to the previous question, please describe this process in the space provided below.

---

**14 Types of Secondary Treatment: Oxidation/Stabilization (unaerated) Ponds**

- i. Total Residence Time

**15 Types of Secondary Treatment: Aerated Lagoon/Ponds**

- i. Residence Time   
in Aerated
- ii. Remaining  
Residence Time

**16 Other Types of Secondary Treatment Not Included Above  
(please describe)**

Survey Page 3

**Secondary Treatment/Nutrient Information Questionnaire****Type of Advanced/Tertiary Treatment****17 Type of Advanced/Tertiary Treatment:  
Ammonia Removal**

- ☐ i. Suspended growth nitrification only
- ☐ ii. Attached growth nitrification only
- ☐ iii. Other Ammonia removal or recovery (describe)

**18 Type of Advanced/Tertiary Treatment :  
Biological Nitrogen Removal (please mark all that apply)**

- ☐ i. Johannesburg Process
- ☐ ii. Step Feed (for Nitrogen removal)
- ☐ iii. SBR
- ☐ iv. Modified Ludzack-Ettinger (MLE) Process
- ☐ v. Westbank Process

- ☐ vi. Biological Up-flow Filter
- ☐ vii. Cyclically Aerated Activated Sludge
- ☐ viii. Oxidation Ditch (for nitrogen removal)
- ☐ ix. Integrated Fixed-Film Activated Sludge (IFAS)
- ☐ x. Membrane Bioreactor (MBR) Process
- ☐ xi. Moving Bed Biofilm Reactor (MBBR) Process
- ☐ xii. 4-Stage Bardenpho
- ☐ xiii. Denitrification Filters
- ☐ xiv. Other Nitrogen Removal Process (describe)

---

**19 Type of Advanced/Tertiary Treatment: Biological Phosphorus Removal**

- ☐ i. Modified University of Cape Town (UCT) Process
- ☐ ii. Phostrip Process
- ☐ iii. 5-Stage Bardenpho
- ☐ iv. Membrane Biological Reactor
- ☐ v. Other (please describe)



Survey Page 4

---

**Secondary Treatment/Nutrient Information Questionnaire**

---

**Type of Advanced/Tertiary Treatment: Chemical Phosphorus Removal**  
Please fill in appropriate boxes below.

---

**20 Type of Advanced/Tertiary Treatment: Chemical Phosphorus Removal**

- i. Chemical Addition to Primary  
(please describe chemical added and rate)


---

**21 Type of Advanced/Tertiary Treatment: Chemical Phosphorus Removal**

ii. Chemical Addition to Secondary  
(please describe chemical added and rate)


---

**22 Type of Advanced/Tertiary Treatment: Chemical Phosphorus Removal**

iii. Chemical Addition to Tertiary  
(please describe chemical added and rate)


---

**23 Type of Advanced/Tertiary Treatment: Chemical Phosphorus Removal**

iv. Tertiary Clarifier  
(please describe type of clarifier)


---

**24 Type of Advanced/Tertiary Treatment: Chemical Phosphorus Removal**

v. Filtration  
(please describe type of filter)


---

**25 Type of Advanced/Tertiary Treatment: Chemical Phosphorus Removal**

vi. Membranes  
(please describe)


---

**26 Type of Advanced/Tertiary Treatment: Chemical Phosphorus Removal**

vii. Other  
(please describe)

**27 Other Advanced/Tertiary Treatment**  
(please describe)



Survey Page 5

**Secondary Treatment/Nutrient Information Questionnaire**

**For Plants with Nutrient Removal Capacity**

**28 Was the plant's existing treatment system:**

- ☐ i. Originally designed to remove total N
- ☐ ii. Originally designed to remove total N and P
- ☐ iii. Modified to remove total N
- ☐ iv. Modified to remove total N and P
- ☐ v. Seasonal nutrient removal only (describe)

**29 Why was nutrient treatment added or designed into your plant (i.e. permit limit, TMDL, voluntary)?**

**30 Is the facility subject to any state or federal requirement (in addition to and/or other than a specific permit limit) for nutrients (e.g., a nutrient management system, etc)?**  
If yes, please specify.

- 31 Please provide cost per gallon (capital cost of project divided by design flow) for original construction or modifications (relating to the liquid and/or solid treatment for nutrient control.**


- 32 What are the current annual incremental operating costs per 1000 gallons for nutrient removal (pumping, mixing, chemicals, aeration including oxygen credit for denitrification, sludge handling, other)? Please also identify operating year and list costs related to Nitrogen and Phosphorus removal separately where applicable.**


- 33 If possible, please itemize incremental costs detailed in previous question:**

Labor:	<input type="text"/>
Energy:	<input type="text"/>
Percent of energy from methane reuse to other onsite generation:	<input type="text"/>
O&M:	<input type="text"/>
Training:	<input type="text"/>
Testing:	<input type="text"/>
Solids Handling:	<input type="text"/>

- 34 Please also itemize incremental costs of chemicals for your plant (coagulants, polymers, etc.)**


- 35 Please give the year construction/modification was completed.**

<input type="text"/>
----------------------

- 36 Is the plant currently planning or constructing a nutrient removal facility?**



YES NO

- 37** If yes, please describe if this is a new facility or a retrofit of an existing facility.

- 38** Did your agency gain any offsetting cost benefits as a result of installing nutrient control technology?

YES NO

- 39** If yes, please list (e.g. water reuse sales, heat or energy recovery, decreasing energy consumption.)



Survey Page 6

### Secondary Treatment/Nutrient Information Questionnaire

For plants without Nutrient Removal Capacity

- 40** If available, please provide cost estimates (capital and O&M) to achieve nutrient removal at your facility for the following nutrient levels:

i. 8mg/l TN, 1 mg/l TP

ii. 5mg/l TN, 0.5 mg/l TP

iii. 3mg/l TN, 0.3 mg/l TP

iv. Other levels (N&P, only N, only P)

- 41** Are these upgrades feasible given your current plant configuration?

**42 Have nutrient controls at your facility negatively affected hydraulics?**

**43** If yes, please describe in the space provided.



Survey Page 7

### Secondary Treatment/Nutrient Information Questionnaire

#### Solids Processing

**44 What type of solids are produced at the plant?**

- ☐ i. Primary
- ☐ ii. Chemical due to chemical phosphorus removal
- ☐ iii. Waste activated (and other secondary solids)

**45 What is the quantity (in pounds or kg/day) of solids produced daily in each of the following catagories?**

- i. Primary
- ii. Chemical due to chemical phosphorus removal \_\_\_\_\_
- iii. Waste Activated \_\_\_\_\_

**46 What percent of your total influent nutrient load is from sidestreams (e.g anarobic digester decant, centrate, or filtrate) within the plant?**

**47 Is there any type of sidestream treatment?**

**48 If yes, please describe treatment in the space provided.**

**49 Have modifications to control nutrients (nitrogen and/or phosphorus) resulted in change in sludge production quantity or quality?**

**50 If yes, please explain in the space provided.**



Survey Page 8

### Secondary Treatment/Nutrient Information Questionnaire

**51 If you have any additional comments, please use the space provided.**



Survey Page 9

**Secondary Treatment/Nutrient Information Questionnaire**

- 52** Influent/Effluent Data - Please provide as much detailed data and supporting information as possible. Individual data points (e.g., daily, weekly, monthly values, depending on how you currently monitor) for at least one representative year, identifying any upset or anomalous periods.

Existing data reports can be submitted. Please ensure that the data that are submitted include the following: form of data (daily value, monthly average, daily max, etc.); describe any methods used that are not from Standard Methods; type of sample (grab, composite); and actual analytical parameter / method for nutrients.

Please include influent and effluent values for the following parameters, as well as any applicable federal or state permit limits:

BOD<sub>5</sub>, COD, TSS, Total P, TN, TKN, Nitrate, Ammonia, Other nutrient related parameters (please specify).

**Please direct this information to Chris Hornback**  
([chornback@nacwa.org](mailto:chornback@nacwa.org).)

- ☐ Yes, we have this information and will submit via email.
- ☐ We have data for some, but not all of the parameters.
- ☐ No, we do not have any data that we can provide.

