

## National Topic: Permit Controls for Nutrients in non-TMDL Waters

The PQR National Topic Area review of Permit Controls for Nutrients in non-TMDL Waters should be conducted for at least three permits, including:

- 1 major POTW
- 1 major or minor industrial facility that is likely to discharge nutrients. As a starting point, Table 1 below identifies industries likely to discharge nutrients, although you may consider any appropriate industrial sector.
- 1 other facility (either industrial or POTW, major or minor)

When identifying permits to review for the nutrients checklist, you may use the same permits used in your core review, or you may want to consider focusing on permits from the following groups listed below. It is recommended that you provide an explanation of why you chose to focus on a specific group or watershed in the PQR report.

- Permits discharging directly to waters listed on the state's 303(d) list as impaired for nutrients, excess algal growth, chlorophyll-a, low dissolved oxygen, or any other designation related to nutrient impairment.
- Permits discharging upstream of a waterbody impaired by nutrient pollution, but without an active TMDL related to nutrient impairment.
- Permits in watersheds not yet listed as impaired but for which nutrient pollution is a concern.

Once identified, you will need all three permits, fact sheets, and applications, as well as the applicable state water quality standards, to conduct the desktop review and complete the nutrients checklist for each permit. The "Program Review" checklist should be completed once, and the "Permit Review" checklist should be completed individually for each permit reviewed as part of this National Topic Area review.

To assist reviewers in completing the checklist, several terms used in the checklist are defined below.

**Numeric Response Criteria** relates to numeric criteria for response variables such as dissolved oxygen, chlorophyll-a, biological oxygen demand, algal biomass, etc.

**Numeric Causal Criteria** relates to numeric criteria for phosphorus and/or nitrogen. Numeric criteria related to phosphorus include: Phosphorus (total, elemental, dissolved, ortho-), or Phosphate (total, elemental, dissolved, ortho-). Numeric criteria related to nitrogen include: Total Nitrogen (TN), Total Kjeldahl Nitrogen (TKN), Dissolved Inorganic Nitrogen (DIN), Nitrates, or Nitrites.

**Combined Criteria** refers to a numeric nutrient criterion that integrates causal (nitrogen and phosphorus) and response parameters into one water quality standard (WQS). Guiding principles on this subject are found at: <https://www.epa.gov/sites/production/files/2013-09/documents/guiding-principles.pdf>.

Table 1: Top 10 industrial sectors likely to discharge nutrients, based on average loadings (calculated and estimated) from 2010-2015\*

Nitrogen	Phosphorus
Mineral mining and processing [1422,1423,1442,1455,1459,3291]	Iron, steel, and ferroalloy manufacturing [3312,3313,3315,3316,3317]
Pulp, paper, and paperboard [2611,2621,2631,2653,2655,2656,2671,2672,2679]	Steam electric power generating [4911,4931,4961,4939]
Canned and preserved seafood processing [2091,2092]	Pulp, paper, and paperboard [2611,2621,2631,2653,2655,2656,2671,2672,2679]
Steam electric power generating [4911,4931,4961,4939]	Inorganic chemicals manufacturing [2812,2813,2816,2819]
Organic chemicals, plastics, and synthetic fibers [2821,2823,2824,2842,2844,2865,2869,2891,2899]	Canned and preserved seafood processing [2091,2092]
Textile mills**	Paving and roofing materials (tars and asphalts) [2951,2952,3996]
Petroleum refining [2911,2992,2999,4612,5171]	Organic chemicals, plastics, and synthetic fibers [2821,2823,2824,2842,2844,2865,2869,2891,2899,5169]
Meat and poultry products [2011,2013,2015,2077]	Pesticide chemicals [2821,2823,2824,2865,2869,2879,2899]
Pesticide chemicals [2821,2823,2824,2865,2869,2879,2899,5169]	Petroleum refining [2911,2992,2999,4612,5171]
Pharmaceutical manufacturing [2833,2834,2835,2836]	Meat and poultry products [2011,2013,2015,2077]

\*The tables above were compiled from OECA's DMR Loading Tool. The top sectors were identified as those with the greatest nitrogen or phosphorus loadings between 2010 and 2015. EPA acknowledges that the data behind this list may not be completely accurate; a percentage of each sector's loadings are directly related to DMRs, varying from category to category, while the remainder is modeled and estimated. However, it provides a summary level estimate to work with for purposes of identifying permits for this nutrients review.

\*\*The textile mills group includes over 15 SIC codes, all from the two-digit SIC code major group "textile mill products" (SIC codes beginning with 22--).

**NPDES PQR for Nutrients Checklist—Program Review**

**Program Description (Optional)**

1. Characterize the type(s) of nutrient criteria that have been established for the state.

- 1a. Are the criteria expressed as:
- Narrative
  - Numeric Response
  - Numeric Causal
  - Combined
  - Other (describe)

1b. If applicable, list the specific parameters and the corresponding criteria (including magnitude, duration, and frequency), in the table below:

Parameter	Criteria

- 1c. Has the state established combined criteria? Choose an item.
- i. If so, how are they interpreted for permitting?

If so, how are they interpreted for permitting? Choose an item.

- i. For site-specific criteria, what types of waterbodies does the criteria apply to (e.g., warm water lakes, specific waterbody, etc.)?
- ii. For state-wide criteria, what types of waterbodies does the criteria apply to (e.g., warm water lakes, specific waterbody, etc.)?

2. Does the state have implementation rules, policies, or practices specific for nutrients? Choose an item.

- i. If so, which apply?
- Translators for narrative or response criteria
  - Permitting implementation procedures for combined criteria
  - Permitting implementation rules for nutrient criteria
  - Other general nutrient permitting policies (describe)

Comments:

*(Additional space on page 6)*

**NPDES PQR for Nutrients Checklist—Permit Review**

**Facility and Permit Information**

1. Facility Name: \_\_\_\_\_

2. Facility NPDES permit number: \_\_\_\_\_

3. Permit Issuance Date: \_\_\_\_\_

4. Permit Expiration Date: \_\_\_\_\_

Comments: \_\_\_\_\_

*(Additional space on page 6)*

**Permit**

1. What nutrient criteria apply to the waterbody of concern?

Narrative  Numeric Causal  Numeric Response

Combined  Other (describe)

Please list specific parameters and the corresponding criteria applicable to the waterbody of concern, in the table below:

Parameter	Criteria

1a. Is the waterbody of concern:

Listed as impaired for nutrients, excess algal growth, chlorophyll-a, low dissolved oxygen, or any other designation related to nutrient impairment?

Upstream of a waterbody impaired by nutrient pollution, but without an active TMDL related to nutrient impairment?

Not yet listed as impaired but identified as a waterbody for which nutrient pollution is a concern?

i. If yes, list parameters.

2. Does the application indicate that the facility discharges nitrogen or phosphorus (in any form)? Choose an item.

i. If no, was there any other information indicating that nutrients were being discharged? (e.g., inspection sampling, effluent limitation guidelines (ELGs), previous permits, etc.)? Choose an item.

3. Does the permit or fact sheet contain any discussion indicating that a reasonable potential analysis (RPA) was performed for nutrient discharges from the facility? Choose an item.

3a. If yes, did the RPA conclude there is reasonable potential? Choose an item.

i. If yes, does the permit include WQBELs for nutrients? Choose an item.

3b. If no, does the permit or fact sheet explain why no RPA was necessary? Choose an item.

4a. Does the permit establish effluent limitations for nutrients? Choose an item.

i. If yes, list parameters and how they are expressed, in the table below:

Parameter (e.g., TN)	Limit and Expression (e.g., 8 mg/L monthly limit from April to October)

4b. Does the permit establish compliance periods for nutrients? Choose an item.

ii. If yes, list parameters.

5. Did the permit or fact sheet clearly indicate if the final effluent limitation was technology-based, water quality-based, or something else, such as performance-based?<sup>1</sup> Choose an item.

i. If so, which apply?

- |  |  |
|--|--|
| <input type="checkbox"/> Technology-based effluent limitation (TBEL) | <input type="checkbox"/> Water quality-based effluent limitation (WQBEL) |
| <input type="checkbox"/> Performance-based effluent limitation       | <input type="checkbox"/> Other (describe)                                |

6. What monitoring requirements does the permit establish for nutrient discharges?

- Effluent      Describe: \_\_\_\_\_
- Ambient        Describe: \_\_\_\_\_

7. Does the permit contain any of the following novel/innovative approaches or provisions for controlling nutrient pollution:

- |   |                 |
|---|-----------------|
| <input type="checkbox"/> Plant Optimization         | Describe: _____ |
| <input type="checkbox"/> Adaptive Management        | Describe: _____ |
| <input type="checkbox"/> Water Quality Trading      | Describe: _____ |
| <input type="checkbox"/> Watershed-based Permitting | Describe: _____ |
| <input type="checkbox"/> Other                      | Describe: _____ |

(Additional space on page 6)

<sup>1</sup> Some states have adopted performance standards for nutrients that apply to certain categories or classes of facilities, for example, POTWs, or that apply to facilities discharging to a certain waterbody, or statewide. These state performance standards are similar to, and supplement the minimum technology-based requirements of the Clean Water Act. They often are associated with protection of specific waterbodies or types of waterbodies, yet separate from the state's water quality standards.

**Additional comments:**