

Setting Effluent Phosphorus Goals for Multiple Industrial, Commercial and Institutional Users

You set an influent phosphorus goal for your wastewater treatment facility (WWTF) as part of your Phosphorus Management Plan (PMP) that you believe will allow your facility to achieve its effluent phosphorus goal. Now, work with your business users—industrial, commercial and institutional operations—that have phosphorus sources to evaluate and implement suitable strategies for them to reduce their phosphorus discharge.

Business users can be significant contributors to your WWTF's phosphorus levels. The portion of your WWTF's influent originating from businesses is referred to as the total allowable phosphorus. To help your WWTF meet its effluent goal, you should allocate portions of your WWTF's influent reduction goal to your business users. Recommend a business effluent goal for each business, reflecting its fair share of the total allowable phosphorus. Work with them to select numeric phosphorus reduction goals for their facilities to help meet your WWTF's effluent goal. Selecting a business effluent goal can be difficult because of the many variables in business and WWTF operations.

Effluent Goal for Multiple Business Users

The calculations in this worksheet only yield estimates. When establishing business effluent goals, you and your businesses should use the calculation results to support the other information you have gathered. Using this systematic approach, you and your businesses will have greater confidence in decisions regarding the desired results and implementation of phosphorus reduction strategies.

1. Domestic Total Phosphorus

Measure the actual domestic total phosphorus or calculate an estimate. To calculate domestic total phosphorus multiply your municipal population by 0.8 kilograms (kg) per year per person then divide by 365 days.

$$\text{Domestic total phosphorus (kg/day)} = \frac{\text{Municipal population} \times (0.8 \text{ kg/year/person})}{365 \text{ days}}$$

2. Total Allowable Phosphorus

To calculate total allowable phosphorus subtract the domestic total phosphorus (determined above) from your WWTF's influent goal (determined in Step 4 of the *PMP Guide*).

$$\text{Total allowable phosphorus} = \text{WWTF's influent goal (kg/day)} - \text{domestic total phosphorus (kg/day)}$$

Share the Phosphorus Reduction Responsibility

If you have multiple business users, the procedure outlined in this worksheet for portioning out responsibility to reduce phosphorus can help you meet your WWTF's influent goal.

1. Determine domestic total phosphorus.
2. Calculate total allowable phosphorus.
3. Allocate fair share to businesses.
4. Record your results in your PMP.

3. Allocate Fair Share

Allocate a fair share of the total allowable phosphorus to each industrial, commercial and institutional contributor. To select the business effluent goals consider whether your phosphorus contributors have significant differences in concentration or flow.

No significant differences. If allocating between multiple business users that have no significant differences in concentration or flow, divide the total allowable phosphorus equally between all users.

Significant differences. Evaluating all businesses using the same scale is not always appropriate. Size does not always indicate the ability to reduce. In many situations only certain businesses are able to achieve significant reduction. Some businesses inherently discharge more phosphorus than others.



Complete the Effluent Goal for Multiple Business Users on page 10 of the PMP Guide using the steps below.

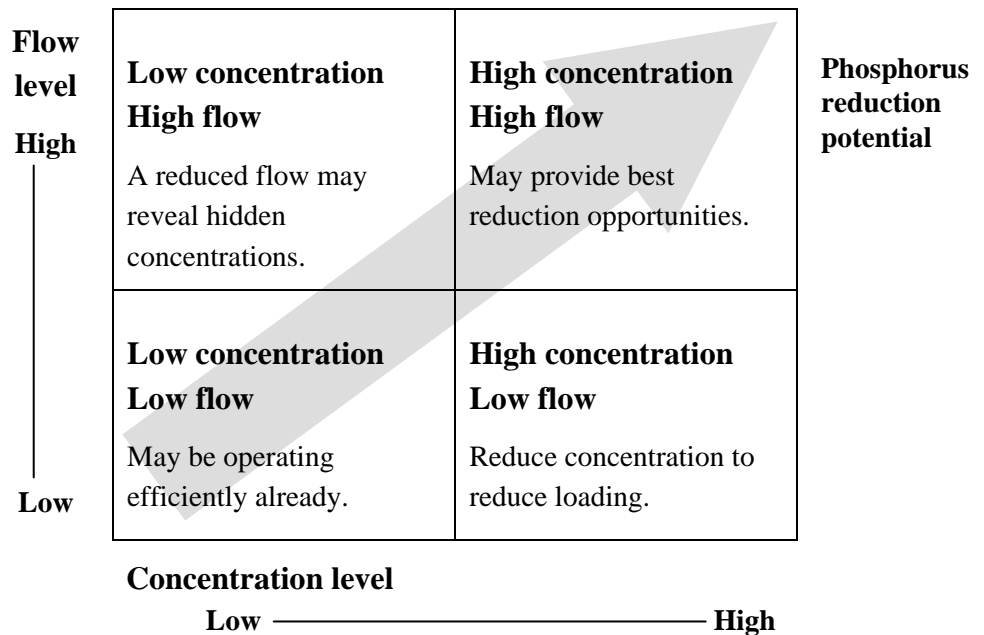
Greatest Potential for Phosphorus Reduction

Use the chart at the right along with business phosphorus data recorded in Table 3: Summary of Phosphorus Sources in the *PMP Guide* to identify the business users with the greatest potential for phosphorus reduction.

When comparing the relative performance of each business, remember to account for how varying production rates and the business's specific processes affect phosphorus levels. Comparisons between similar production levels and processes are the strongest. Evaluate the potential for phosphorus reduction at a business based on the ability to achieve the least expensive and easiest reductions first.

Prioritizing Business Users for Effluent Reduction Goals

The higher the concentration and flow of the business's effluent, the greater the potential for phosphorus reduction



Rate business phosphorus reduction potential as high, medium or low in Table 3 on page 10 of the PMP Guide.