

CHOOSE YOUR OWN ADVENTURE #3

YOU'RE THE STAR OF THE STORY!
CHOOSE FROM 6 POSSIBLE ENDINGS.

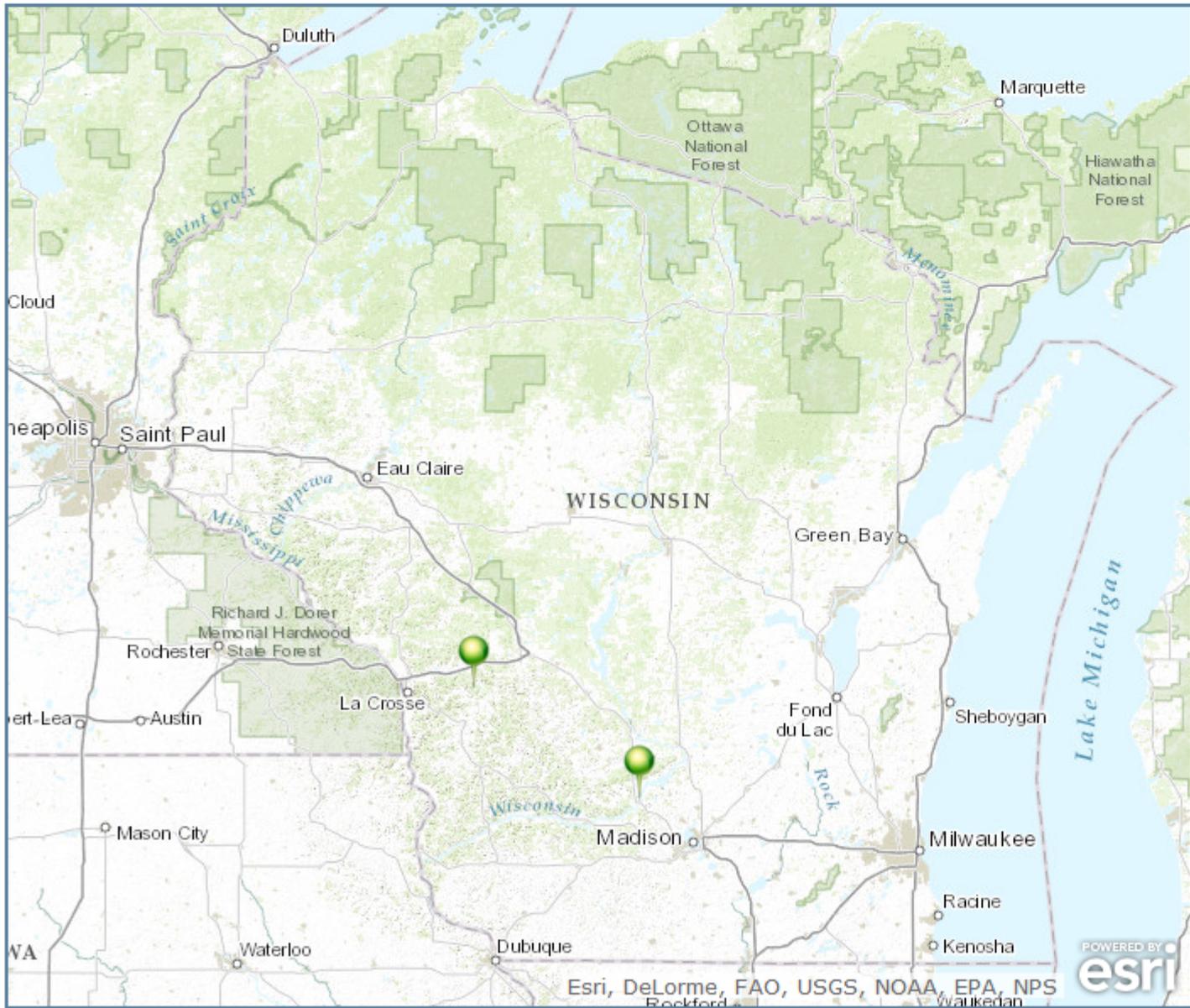
COMPLIANCE WITH THE PERMIT

BY AMY GARBE AND AMANDA MINKS



Compliance Options

- Water Quality Trading
- Adaptive Management
- Plant Upgrade
- Variance



The DNR has given your facility a new permit that includes water quality based phosphorus limits.

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Step #1: Optimization

You begin to optimize your plant.

- Talk to industries
- Up the chemical dosage
- Multiple addition points

Results?

Biological Phosphorus Removal: 0.2 - 0.09 mg/L

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Are you able to get your phosphorus low enough to meet your limits?

Yes, I can meet my limits with optimization. Turn to [slide 33](#).

No, my final limits are too restrictive to meet by optimization. Turn to [slide 7](#).

You tried to optimize your plant, and yet you were unsuccessful in meeting your final phosphorus limits.

You are interested in working within your watershed, turn to [slide 8](#).

Spending money outside of your municipality is not an option, turn to [slide 28](#).

Step #2: Loading



Dodgeville WWTP: 657 lbs/yr – 206 lbs/yr = 451 lbs/yr

Barneveld WWTP: 2084 lbs/yr – 40 lbs/yr = 2044 lbs/yr

Deerfield WWTP: 610 lbs/yr – 90 lbs/yr = 520 lbs/yr

Waterloo WWTP: 613 lbs/yr – 369 lbs/yr = 244 lbs/yr

Go on to the next slide.

Calculations

Dodgeville WWTP: $657 \text{ lbs/yr} - 206 \text{ lbs/yr} = 451 \text{ lbs/yr}$

$0.574 \text{ MGD} \times 0.376 \text{ mg/L} \times 8.34 = 1.80 \text{ lbs/day}$

$1.80 \text{ lbs/day} \times 365 \text{ days/yr} = 657 \text{ lbs/yr}$

Meet 217.13 final phosphorus limits

$0.9 \text{ MGD} \times 0.075 \text{ mg/L} \times 8.34 = 0.56 \text{ lbs/day}$

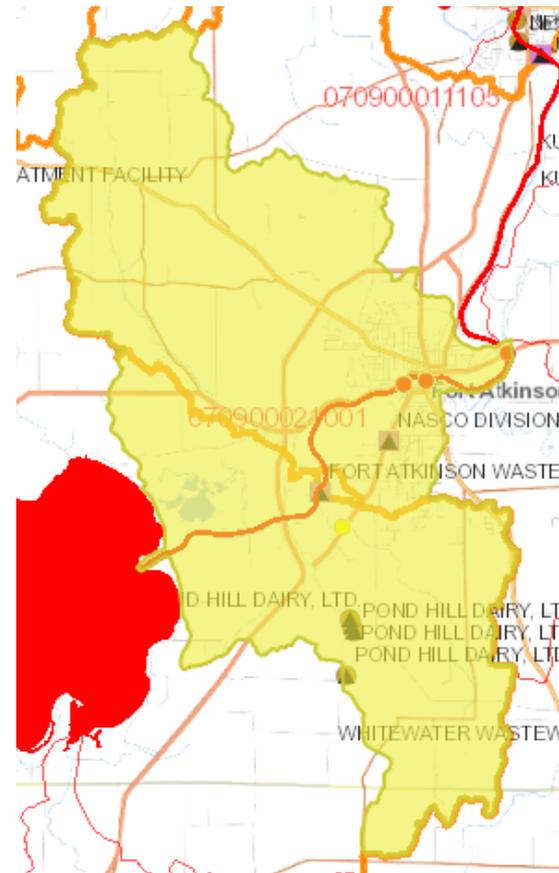
$0.56 \text{ lbs/day} \times 365 \text{ days/yr} = 206 \text{ lbs/yr}$

Dodgeville WWTP: $657 \text{ lbs/yr} - 206 \text{ lbs/yr} = 451 \text{ lbs/yr}$

Go on to the next slide.

Step #3: Watershed

- HUC-12
- PRESTO Results
- Other Point Sources
- Land cover
- Phosphorus Results



Go on to the next slide.

Step #2: Loading



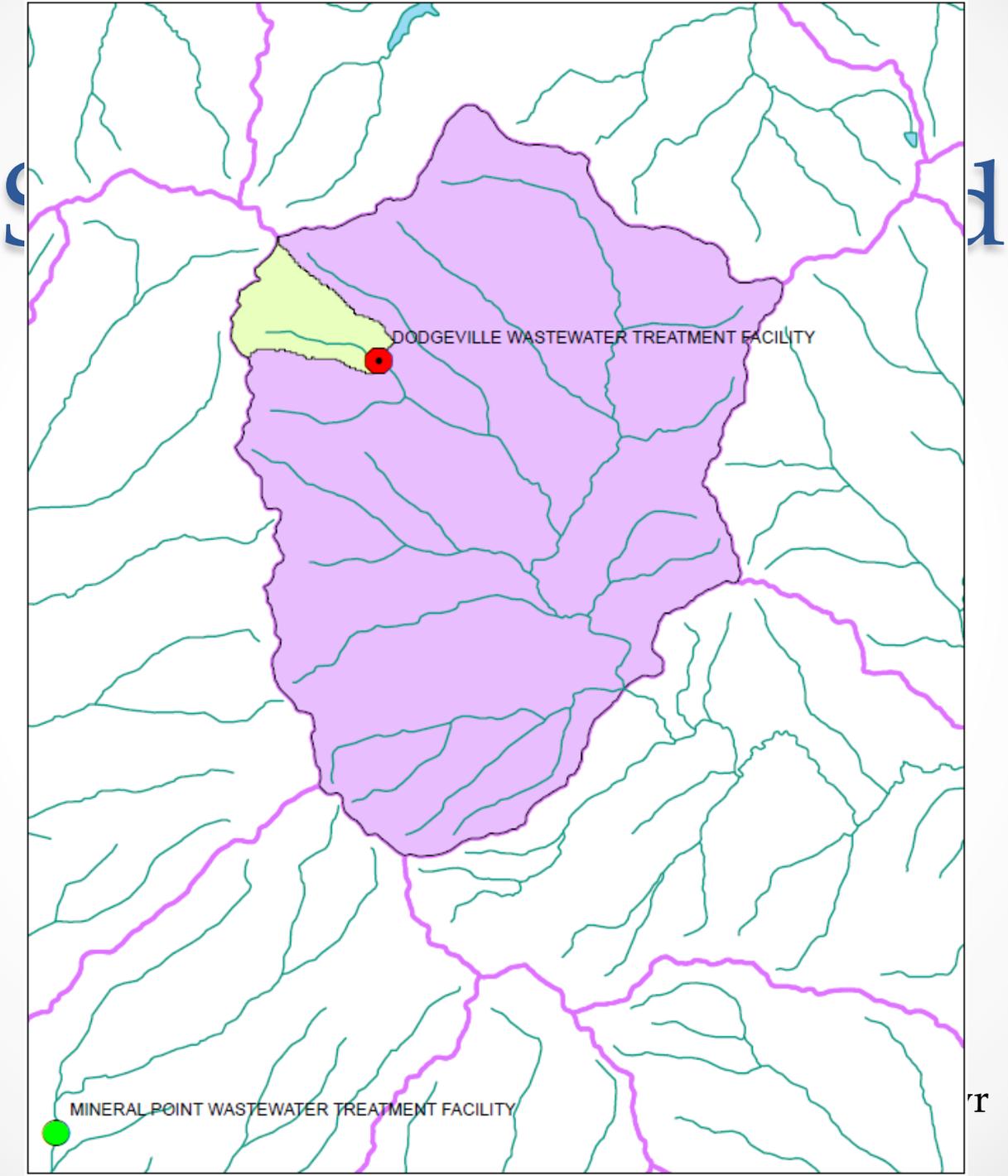
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Waterloo WWTP: 613 lbs/yr – 369 lbs/yr = 244 lbs/yr

Go on to the next slide.



Step #4: Compare

Water Quality Trading

- Trade Ratio (assume 2:1)
- Total credits: 902 lbs/yr

Adaptive Management

- In-Stream: 0.106 mg/L
- PRESTO- 77:23
- Total Reductions Needed: 658 lbs/yr
- Minimum Reductions: 654 lbs/yr

Dodgeville WWTP: $657 \text{ lbs/yr} - 206 \text{ lbs/yr} = 451 \text{ lbs/yr}$

Congratulations! You have selected Water Quality Trading as your compliance option. Your permit will now include a compliance schedule for BMPs to become effective.

The End.

Step #2: Loading



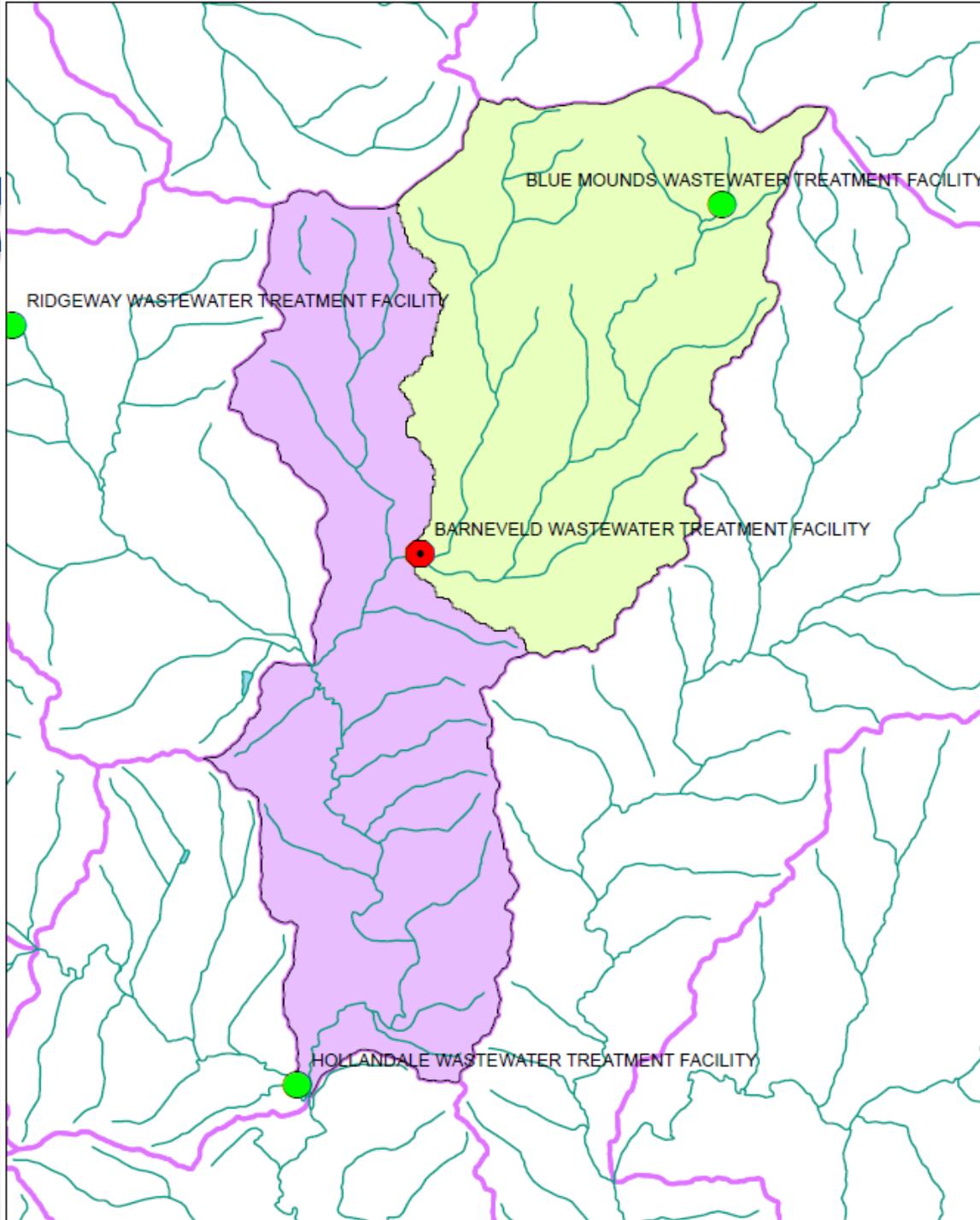
Dodgeville WWTP: 657 lbs/yr – 206 lbs/yr = 451 lbs/yr

Barneveld WWTP: 2084 lbs/yr – 40 lbs/yr = 2044 lbs/yr

Deerfield WWTP: 610 lbs/yr – 90 lbs/yr = 520 lbs/yr

Waterloo WWTP: 613 lbs/yr – 369 lbs/yr = 244 lbs/yr

Go on to the next slide.



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Step #4: Compare

Water Quality Trading

- Trade Ratio (assume 2:1)
- Total credits: 4088 lbs/yr

Adaptive Management

- In-Stream: 0.173 mg/L
- PRESTO – 5:95
- Total Reductions Needed: 3068 lbs/yr
- Minimum Reductions: 1674 lbs/yr

Barneveld WWTP: $2084 \text{ lbs/yr} - 40 \text{ lbs/yr} = 2044 \text{ lbs/yr}$

Step #4: Compare

Water Quality Trading

- Trade Ratio (assume 2:1)
- Total credits: 556 lbs/yr

Water Quality Trading for Interim

- Trade Ratio (assume 2:1)
- Total credits: 3540 lbs/yr

Adaptive Management

- In-Stream: 0.173 mg/L
- PRESTO – 5:95
- Total Reductions Needed: 1301 lbs/yr
- Minimum Reductions: 201 lbs/yr

• Barneveld WWTP: $318 \text{ lbs/yr} - 40 \text{ lbs/yr} = 278 \text{ lbs/yr}$

Congratulations! You have selected Adaptive Management as your compliance option. You now have 20 years to implement BMPs and have your receiving water meet water quality criteria.

The End.

Step #2: Loading



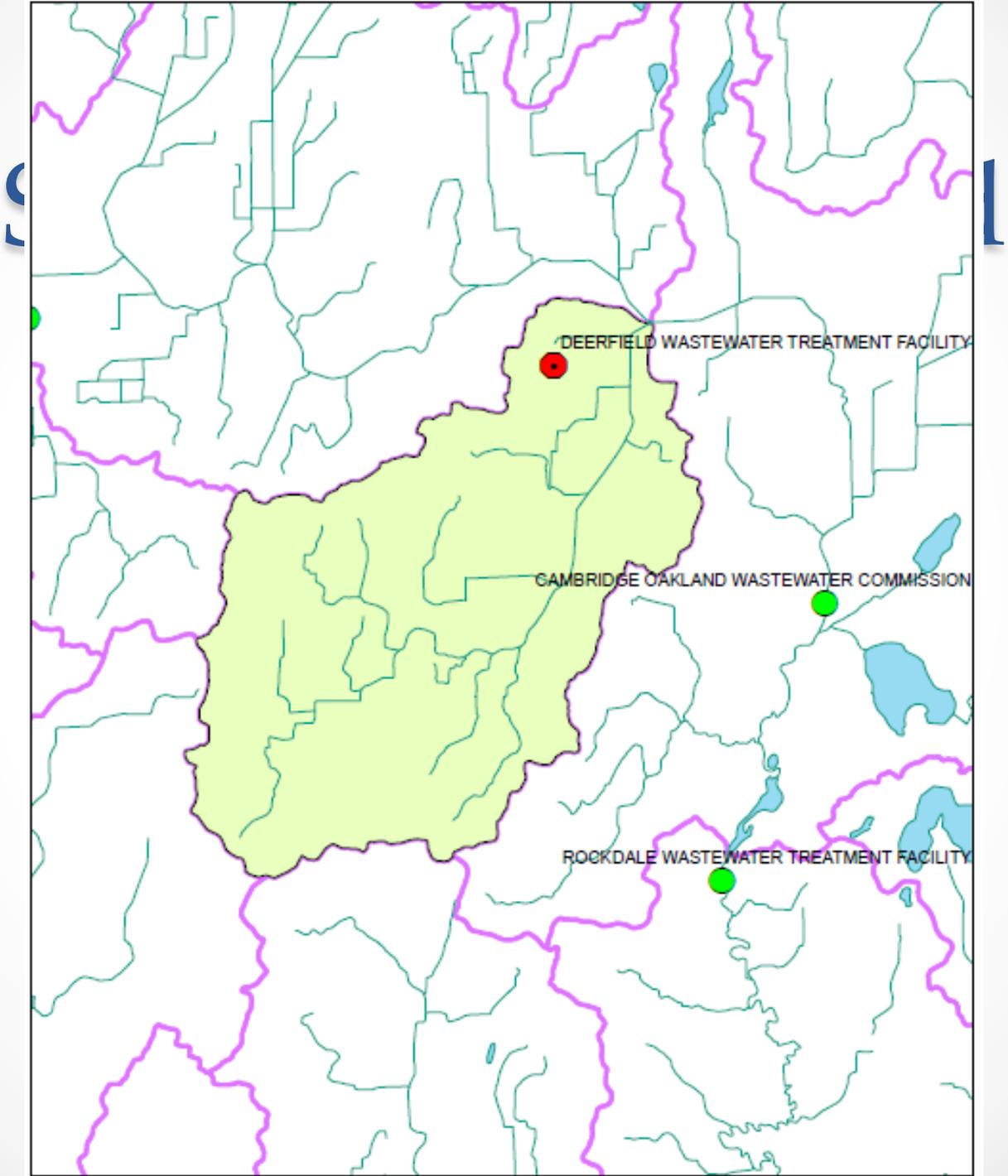
Dodgeville WWTP: 657 lbs/yr – 206 lbs/yr = 451 lbs/yr

Barneveld WWTP: 2084 lbs/yr – 40 lbs/yr = 2044 lbs/yr

Deerfield WWTP: 610 lbs/yr – 90 lbs/yr = 520 lbs/yr

Waterloo WWTP: 613 lbs/yr – 369 lbs/yr = 244 lbs/yr

Go on to the next slide.



Step #4: Compare

Water Quality Trading

- Trade Ratio (assume 2:1)
- Total credits: 1040 lbs/yr

Adaptive Management

- In-Stream: 0.09 mg/L
- Total Reductions Needed: 680 lbs/yr
- Minimum Reductions Needed: 401 lbs/yr
- Can meet interim limit

Deerfield WWTP: $610 \text{ lbs/yr} - 90 \text{ lbs/yr} = 520 \text{ lbs/yr}$

Congratulations! You have selected Adaptive Management as your compliance option. You now have 20 years to implement BMPs and have your receiving water meet water quality criteria.

The End.

Step #2: Loading



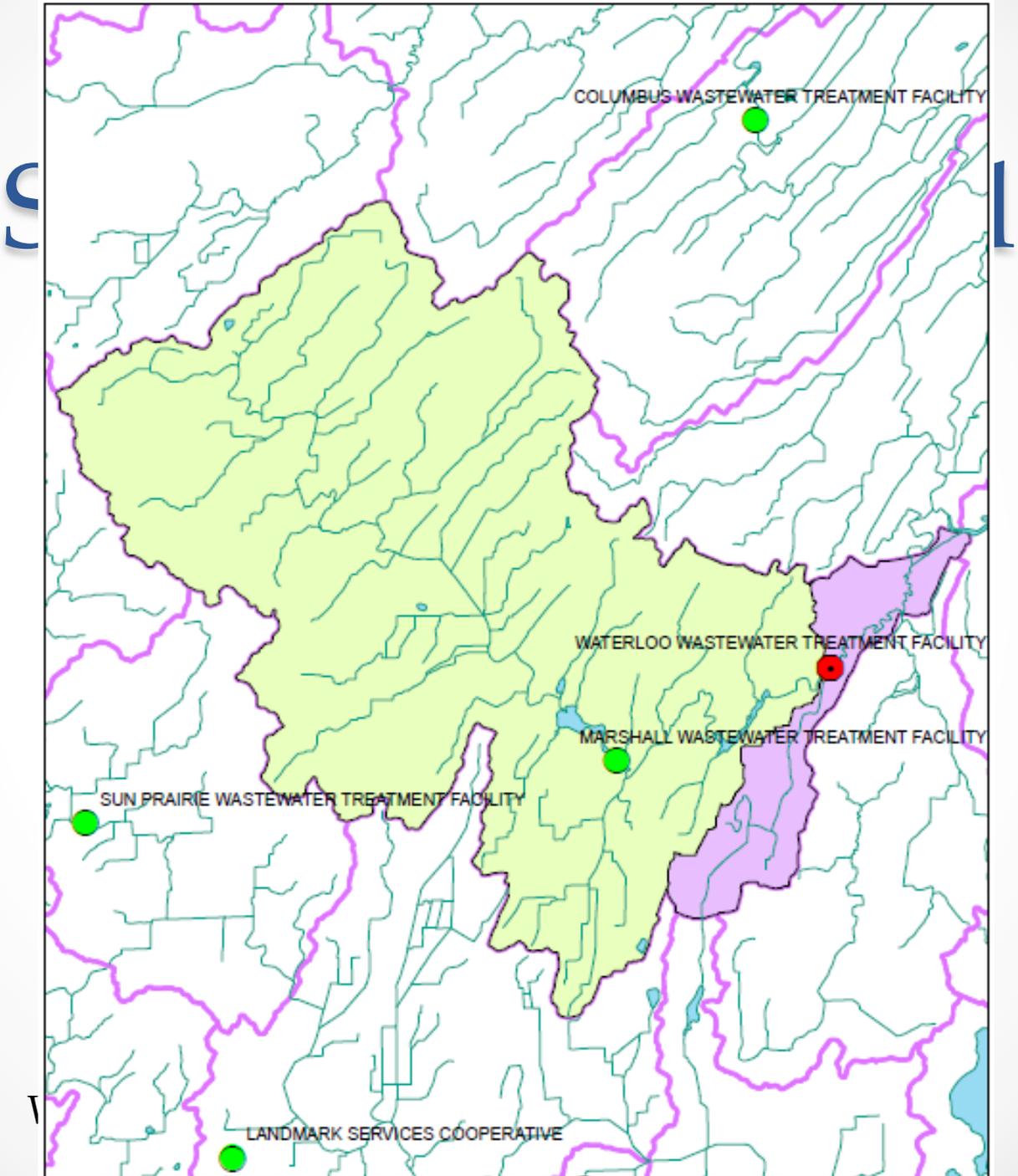
Dodgeville WWTP: 657 lbs/yr – 206 lbs/yr = 451 lbs/yr

Barneveld WWTP: 2084 lbs/yr – 40 lbs/yr = 2044 lbs/yr

Deerfield WWTP: 610 lbs/yr – 90 lbs/yr = 520 lbs/yr

Waterloo WWTP: 613 lbs/yr – 369 lbs/yr = 244 lbs/yr

Go on to the next slide.



Step #4: Compare

Water Quality Trading

- Trade Ratio (assume 2:1)
- Total credits: 488 lbs/yr

Adaptive Management

- In-Stream: 0.234 mg/L
- Total Reductions Needed: 2460 lbs/yr
- Minimum Reductions Needed: 450 lbs/yr

Waterloo WWTP: $613 \text{ lbs/yr} - 369 \text{ lbs/yr} = 244 \text{ lbs/yr}$

Congratulations! You have selected Water Quality Trading as your compliance option. Your permit will now include a compliance schedule for BMPs to become effective.

The End.

Go to [slide #7.](#)

Upgrade

1. Your facility wants to make sure final limits are met. No issues.
2. Compared WQT, AM, and Upgrade

Go to [slide #33.](#)

Individual Variance

283.15(4)(a)1

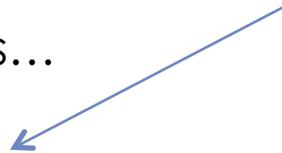
- a. Naturally occurring pollutant
- b. Water levels prevent
- c. Human caused conditions
- d. Dams
- e. Physical conditions
- f. Economic impacts*

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Update- Possible Statewide Variance

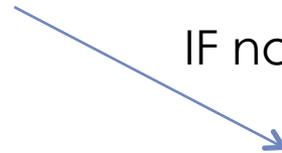
- Anyone can apply for an individual TP variance per. 283.15
- Act 378 was passed April 2014 to investigate a statewide TP variance
- Current status:
 1. Two consulting firms retained to evaluate fiscal and economic impacts statewide and across various point source categories
 2. Public comment period forthcoming

IF yes...



Act 378 goes to EPA for review and approval

IF no...



Continue to use the individual TP variance process or pick a different option

If Act 378 Variance becomes available...

- Interested point sources must certify that they cannot achieve compliance without a major facility upgrade, and that they agree to the following:
 1. Interim TP limits
 - First permit- 0.8 mg/L
 - Second permit- 0.6 mg/L
 - Third permit- 0.5 mg/L
 - Fourth permit- WQBEL
 2. Implement a watershed project within the HUC 8 watershed:
 - Enter into an agreement with DNR to achieve a specified annual reduction target
 - Enter into an agreement with a third party to achieve a specified annual reduction target (DNR approval required)
 - Make a payment to participating County LCDs at \$50/lb of TP to achieve a specified annual reduction target

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Annual Reduction Target Calculator

- If TMDL-derived limit...

Current TP Effluent Concentration – Wasteload Allocation = Annual Reduction Target

- If NR 217.13 limit.....

Current TP Effluent Concentration – 0.2 mg/L = Annual Reduction Target

Go on to next slide.

Congratulations! You are in compliance with your final phosphorus limits. Rejoice in your victory!

The End.

Go back to [slide #6.](#)

Go back to [slide #29.](#)