1st Triennial Review of Base Numeric Nutrient Standards and Nutrient Standards Variances

Presenter:
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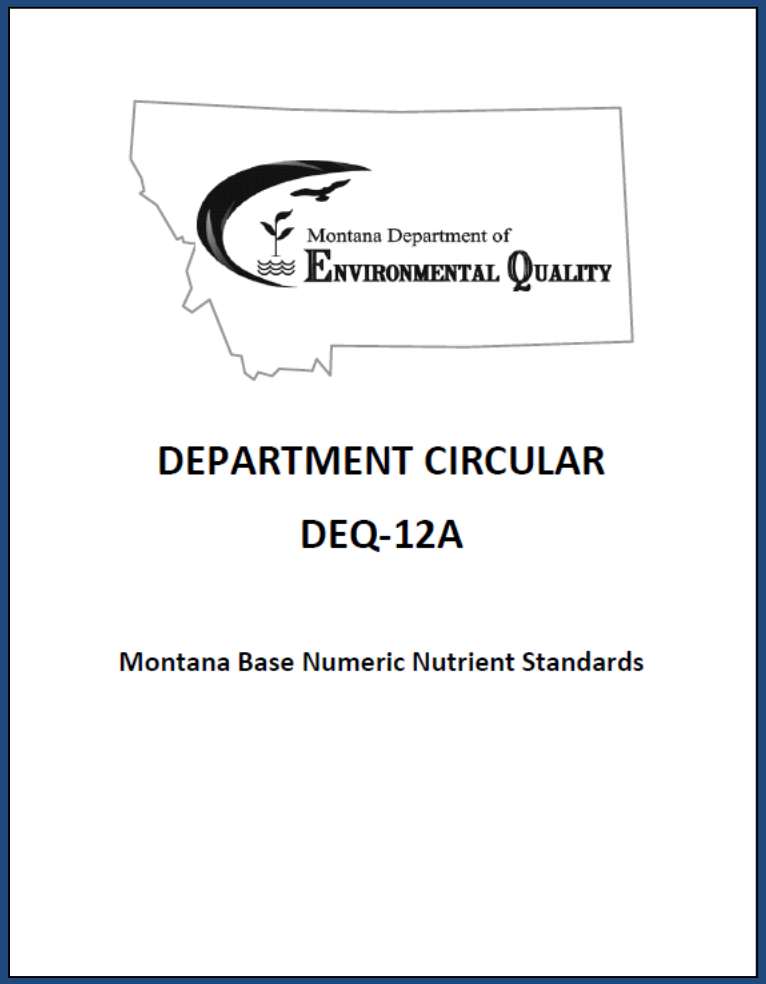
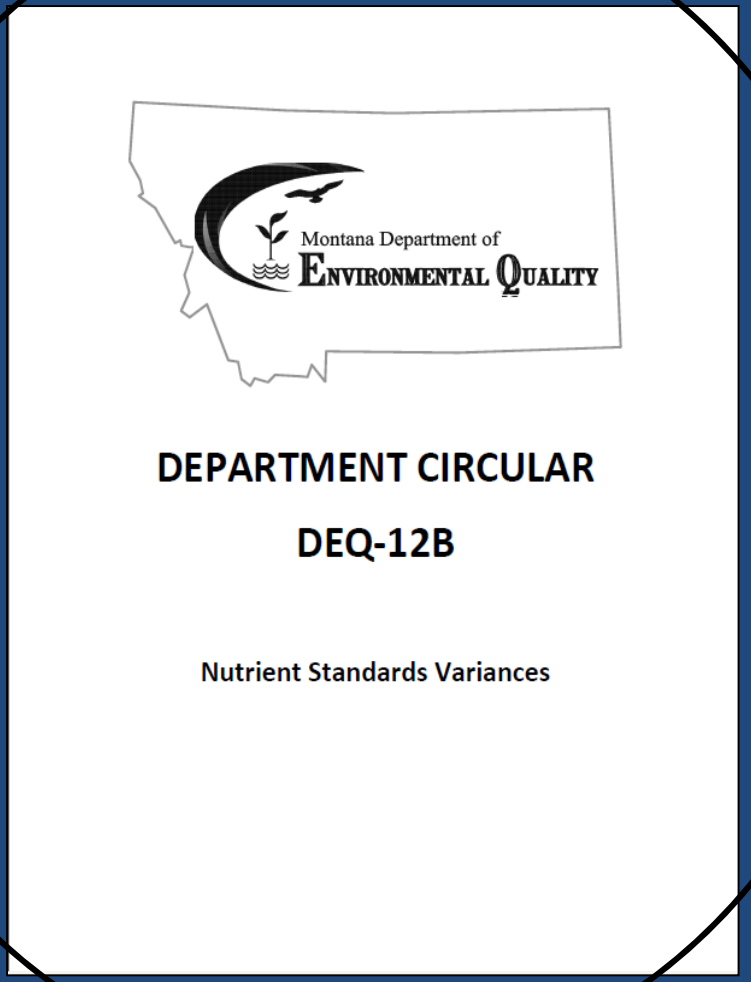
MT Dept. of Environmental Quality

May 25, 2017





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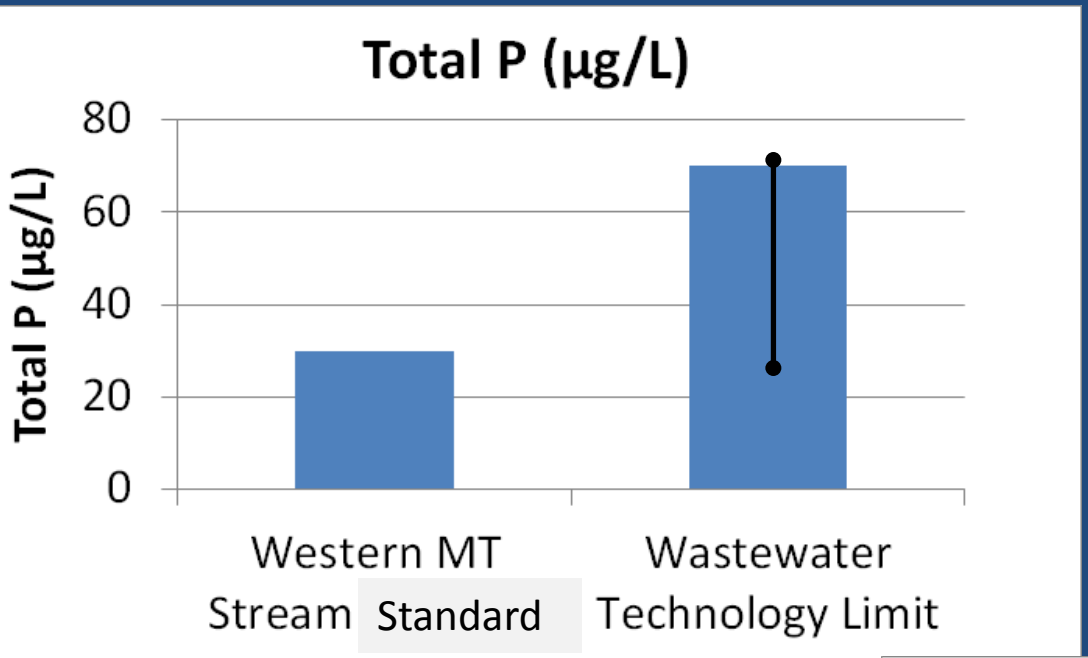
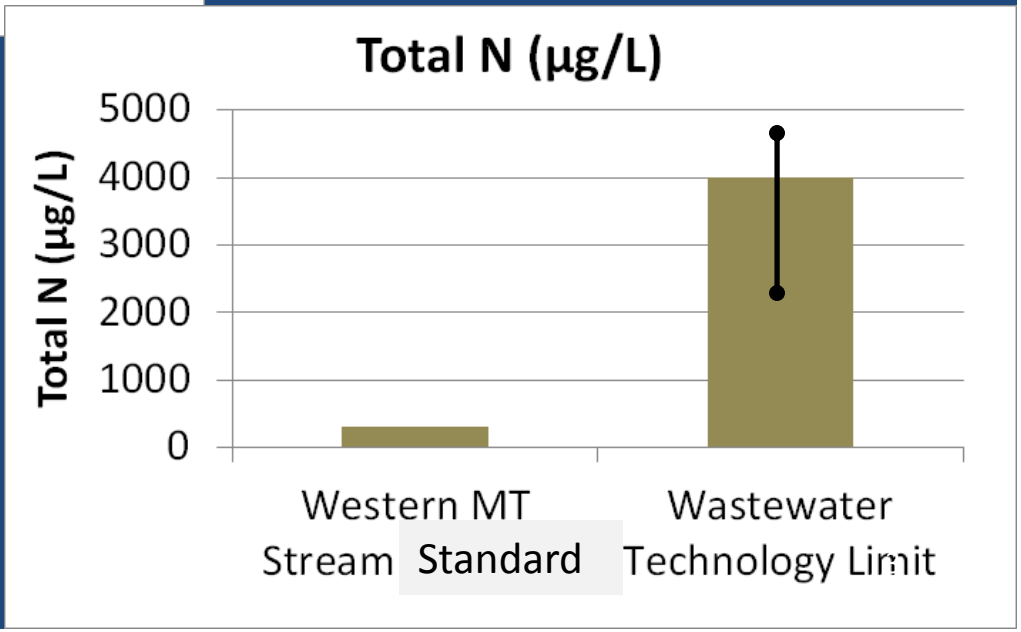


Implementation of nutrient standards:

difference between standards and current LOT



1st Triennial Review of Nutrient Standards

- Timeline
  - 2014: DEQ and Board adopt nutrient standards and variances
  - 2015: EPA updated its rules regarding variances
- Federal updates affecting DEQ's triennial review
  - Highest Attainable Condition (HAC)
  - Time to achieve HAC
  - Pollutant minimization program (PMP)
- WQ standards changes must be approved by EPA
  - Must conform with federal requirements
  - Must conform with CWA

1st Triennial Review of Nutrient Standards

- DEQ engaged stakeholders since September 2016
  - Nutrient Work Group
  - Multiple meetings, regular and technical
- Current nutrient variance rules expire 7/1/2017
- IF DEQ did not update nutrient variance rules:
  - would result in
    - (a) no variances available; in turn
    - (b) numeric nutrient standards voided, and
    - (c) DEQ would implement narrative nutrient standard in permits
  - Given state of science, (c) equates to numeric standards without a variance process

What is the Highest Attainable Condition?

Where the nutrient standards can't be attained:

- The best level of wastewater treatment that can be achieved affordably
- It is not reverse osmosis: EPA, DEQ have stated that treatment to RO is not expected for the purpose of meeting nutrient standards or HAC

Updated Process Differs from 2014

- Original (2014) rules
  - 20 years to achieve numeric nutrient standards, which are the permitting endpoint
    - Nutrient standards to be achieved in 20 years
  - Guidance on how wastewater upgrades occur over time
    - Best professional judgment at time standards were adopted

- Updated (2017) rules
  - Up to ~20 years to achieve highest attainable condition, which is the permitting endpoint
    - Where standards are unattainable, e.g., no dilution available
  - Nine defined actions that establish process for attaining highest attainable condition
    - Less actions needed, less time needed

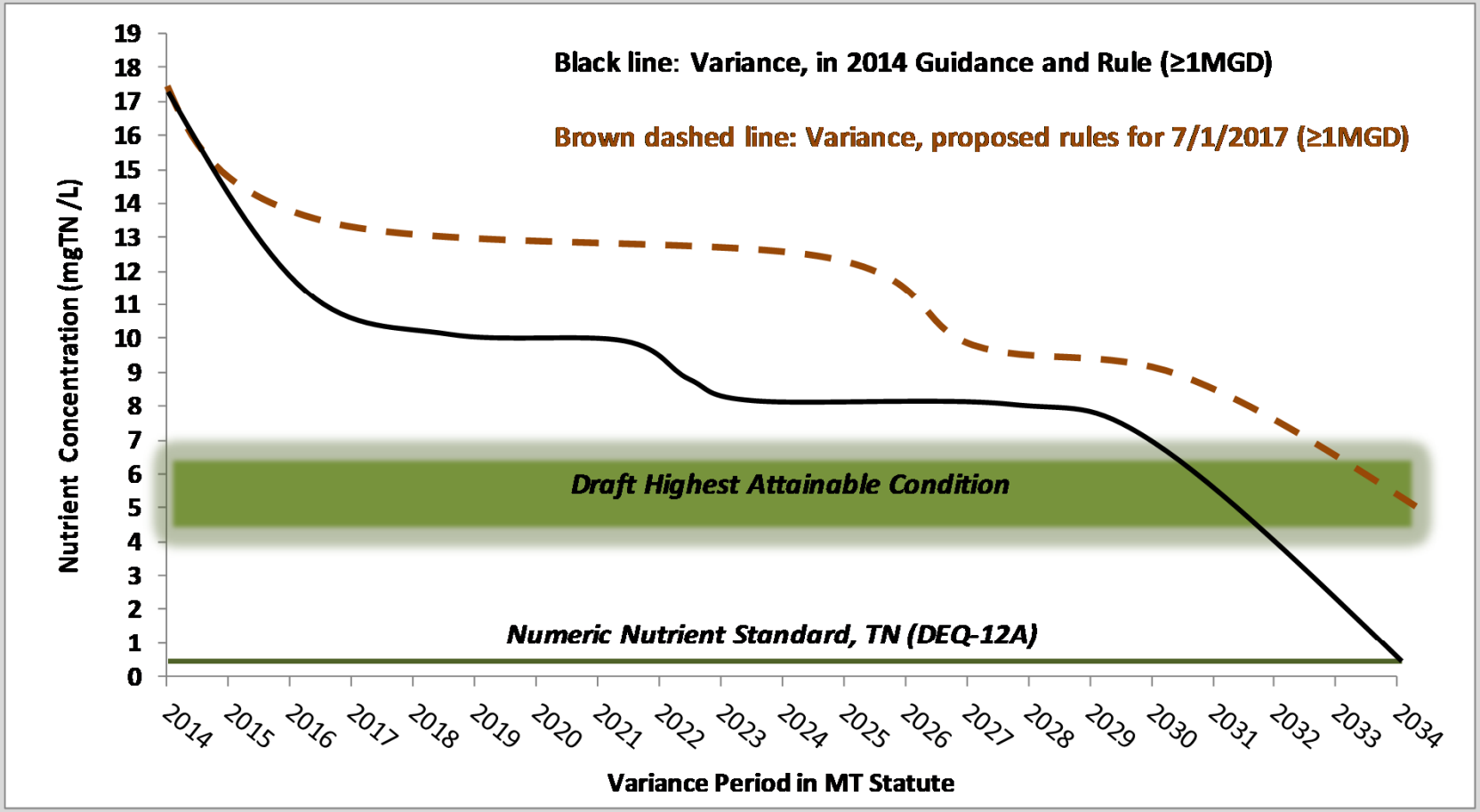


Illustration of variance process over 20 years, as currently adopted and as proposed. Example is for TN for the ≥1MGD group. Currently, the numeric nutrient standards are the highest attainable condition (HAC). Going forward, *where the nutrient standards are unattainable* , the HAC would be in Circular DEQ-12B. HAC may change in the future. The longest time to achieve HAC is illustrated; it may take less time.

And if Group HAC is too Expensive for a Community?

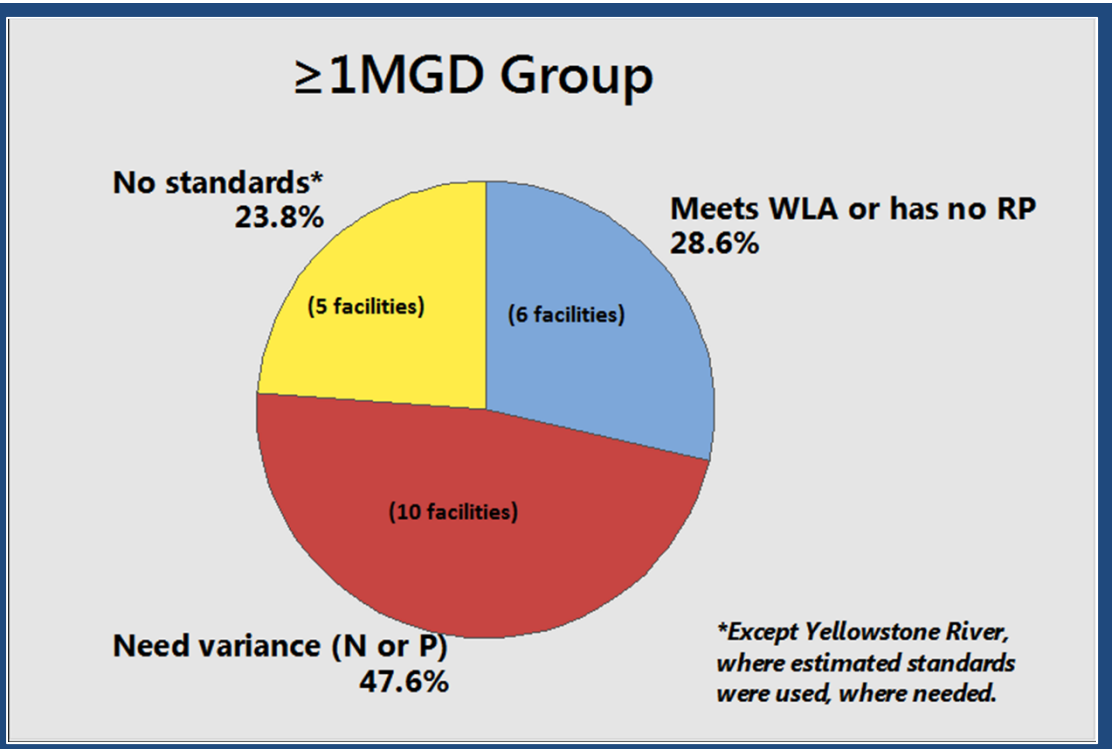
- Individual variance are, will be available to all
- Based on specific economic characteristics of community, and cost of meeting nutrient standards, not the cost to meet group HAC

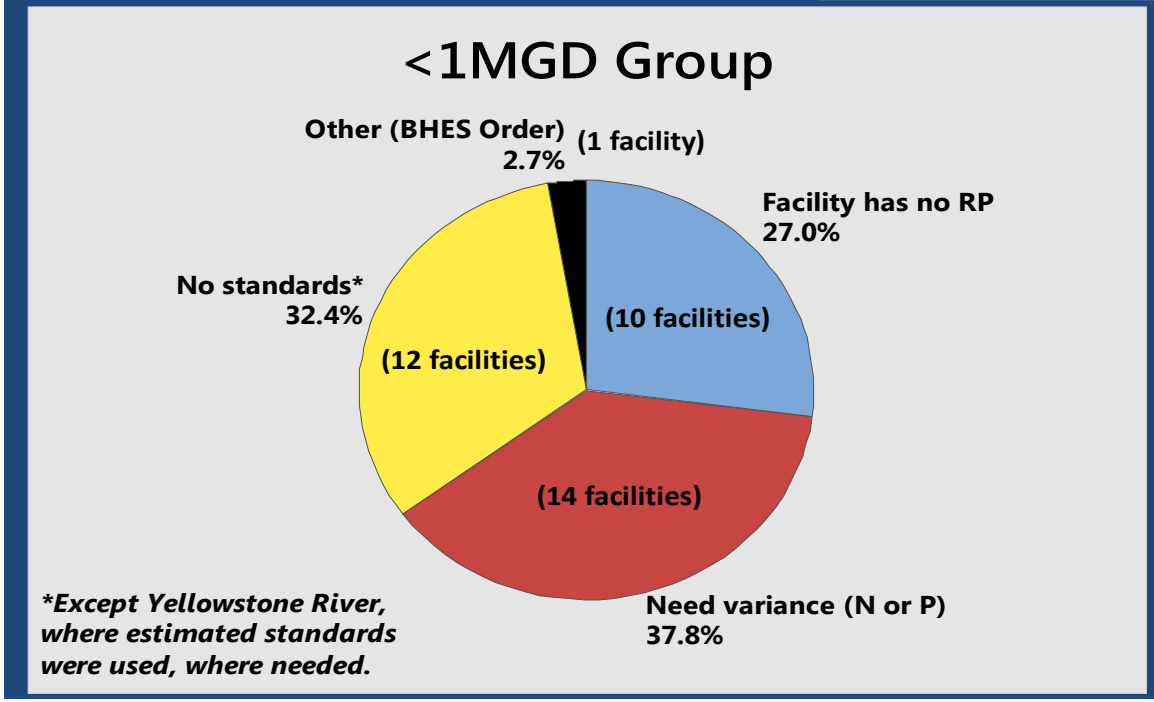
Communities/Companies Likely to Need a Variance (n≤24)

Other communities in the ≥, <1MGD groups don't need variance because they already meet the standards or discharge to waterbodies that don't have nutrient standards

Permit Name	Size	Facility Type (M-mechanical O-other)	Receiving Waterbody
MONTANA BEHAVIORAL HEALTH	< 1 MGD	M	Unnamed field irrigation ditch, tributary to the Clark Fork River
BONNER PROPERTY DEVELOPMENT	UNK	M	Blackfoot River
COUNTY SEWER AND WATER DIST OF ROCKER	< 1 MGD	M	Silver Bow Creek
APPLE REHAB WEST LLC	< 1 MGD	M	Prickly Pear Cr.
TOWN OF STEVENSVILLE	< 1 MGD	M	Side channel of Bitterroot River
STILLWATER MINING COMPANY	UNK	M	Stillwater River
CITY OF EAST HELENA	< 1 MGD	M	Prickly Pear Cr.
CITY OF MANHATTAN	< 1 MGD	M	Dita Ditch
CITY OF CONRAD	< 1 MGD	M	Unnamed tributary to Dry Fork of the Marias River
STILLWATER MINING CO. (E.B.P.)	UNK	M	East Boulder River
BARRETTS MINERALS INC	UNK	O	Left Fork Stone Creek
CITY OF CHINOOK	< 1 MGD	M	Milk River
DRUMLUMMON GOLD CORP	< 1 MGD	M	Silver Creek
REC ADVANCED SILICON MATERIALS LLC	UNK	M	Sheep Gulch and Silver Bow Creek
CITY OF WHITEFISH	> 1 MGD	M	Whitefish River
CITY OF BILLINGS	> 1 MGD	M	Yellowstone River
CITY OF KALISPELL	> 1 MGD	M	Ashley Creek
CITY OF HAVRE	> 1 MGD	M	Milk River
CITY OF HELENA	> 1 MGD	M	Prickley Pear Cr.
CITY OF BOZEMAN	> 1 MGD	M	East Gallatin River
CITY OF HAMILTON	> 1 MGD	M	Bitterroot River
BUTTE SILVER BOW CITY AND COUNTY	> 1 MGD	M	Silver Bow Creek
PHILLIPS 66 BILLINGS REFINERY	UNK	M	Yegan Drain and Yellowstone River (held permit; actual to Billings WWTP)
BUTTE HIGHLANDS JV LLC	UNK	M	Basin Cr., trib to Fish Cr., MF Moose Cr., and trib to MF Moose Cr.

Another way to Look at this….





Wastewater Treatment Cost as Basis for Identifying Highest Attainable Condition (HAC)

- Fall 2016: EPA consultant calculated costs for MT communities to meet 6 wastewater treatment levels
  - DEQ and Nutrient Work Group reviewed, identified issues
    - Accuracy of information used, spreadsheet errors

- Further Analyses Coordinated with Nutrient Work Group
  - 5 technical subcommittee mtngs Feb-March 2017
  - MT wastewater engineers provided community-specific cost analysis for nearly all ≥1MGD members, several <1MGD members

- DEQ applied its MT-specific economic affordability process to each community

Identifying HAC

Lagoons:

- ✓ Cost for a sample of communities with lagoons to meet different wastewater treatments

≥1MGD:

- ✓ Group cost to meet different treatment levels
- ✓ NWG input
- ✓ Draft HAC compared to facilities nationwide

≤1MGD:

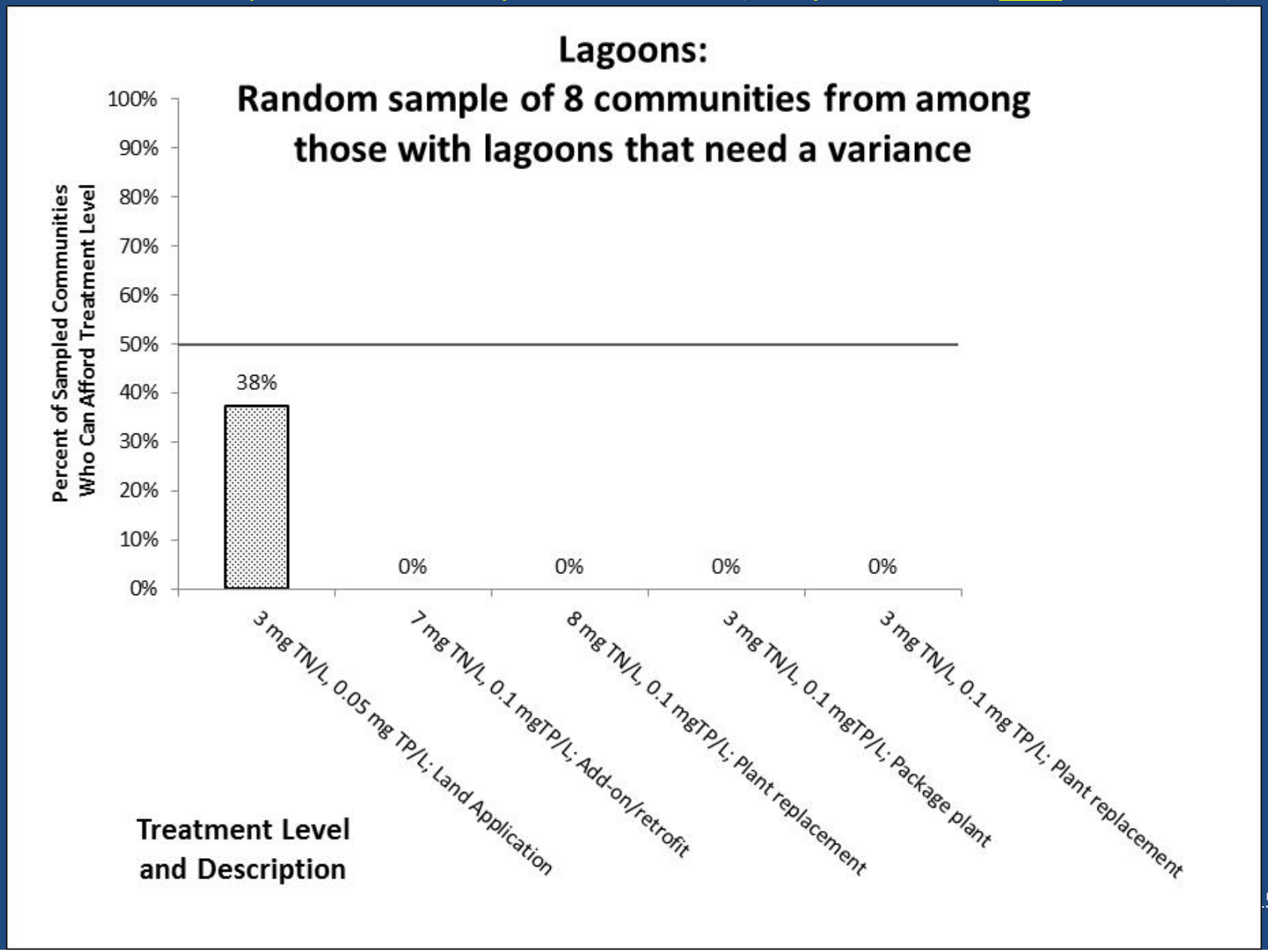
- ✓ Group cost to meet different treatment levels
- ✓ NWG input
- ✓ Engineers' judgements as to what advanced operational strategies can achieve

HAC Ranges, by Category, Based on Work Reviewed by the NWG Subcommittee

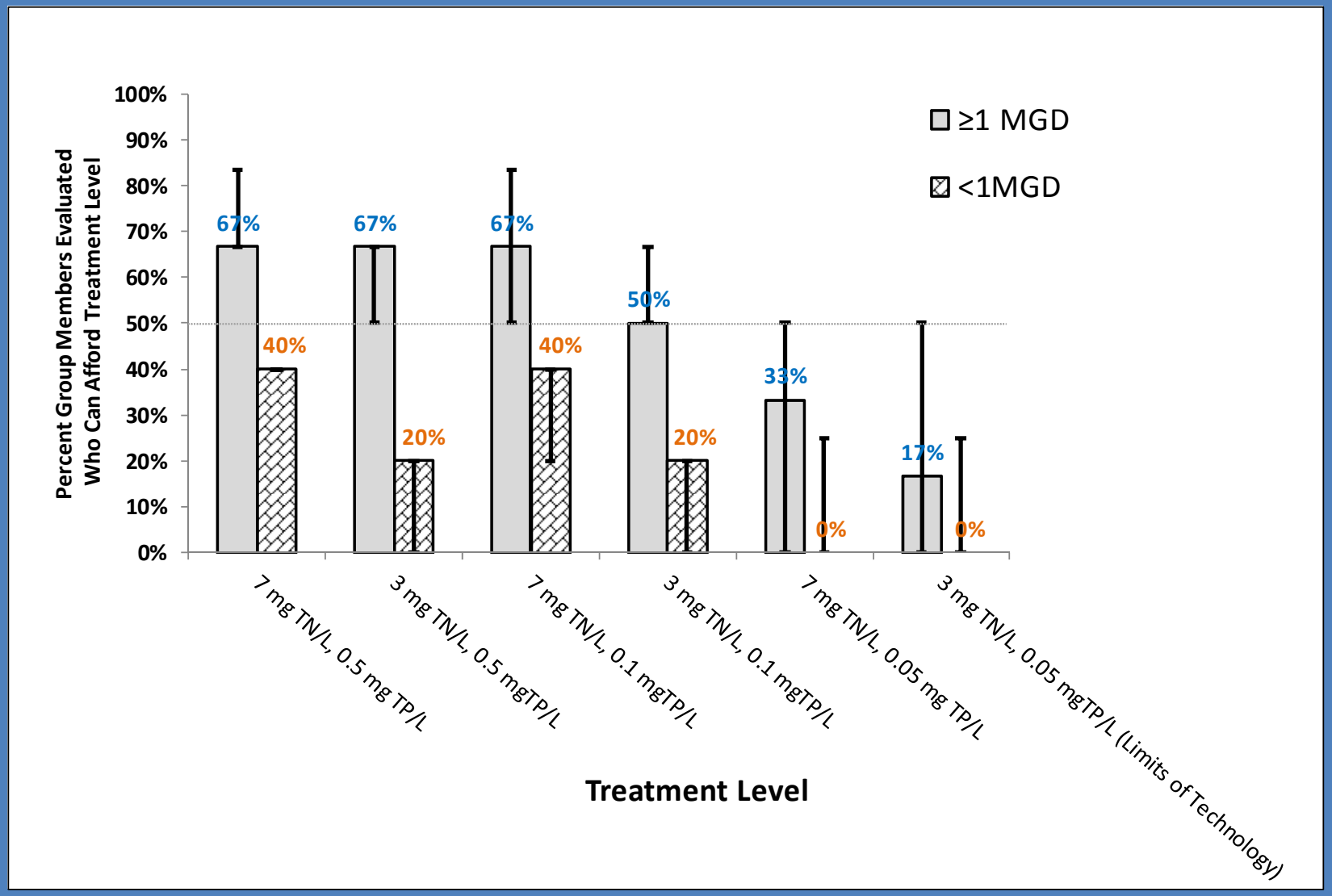
- Lagoons: No change to current method of implementing general variances for communities with wastewater lagoons
- ≥1MGD: 4 to 7 mg TN/L, and >0.1 to 0.4 mg TP/L
- <1MGD: >>7 to 10 mg TN/L, and 1.0 mg TP/L

Lagoon Category

65 individual permits, ≤40 likely need variance (analysis below is only for POTWs)



≥1MGD, <1MGD Mechanical Categories



Percent of Members in a Discharger Group (≥ 1MGD, <1MGD) Who Can Affordably Meet (Per DEQ Methods) a Specified Wastewater Treatment Level. Only POTW group members are shown, and, among them, only those that will probably need a variance. Error bars are the % of members who can afford a treatment level, based on a range of cost estimates for the facility upgrades (per class 5 engineering planning estimates).

Future Collection System Costs

- Significant future costs for most communities
- DEQ used 10% overage in all cost estimates to address collection system repairs etc.
  - Probably a low estimate
  - Further consideration for small towns (<1MGD)
    - Could be 0.2 -0.4% of median household income
    - Led DEQ to select HAC at higher end of range

Current and Proposed Treatment Requirements in DEQ-12B

Lagoons:

- No major changes
  - Department, permittees implementing Pollutant Minimization Program

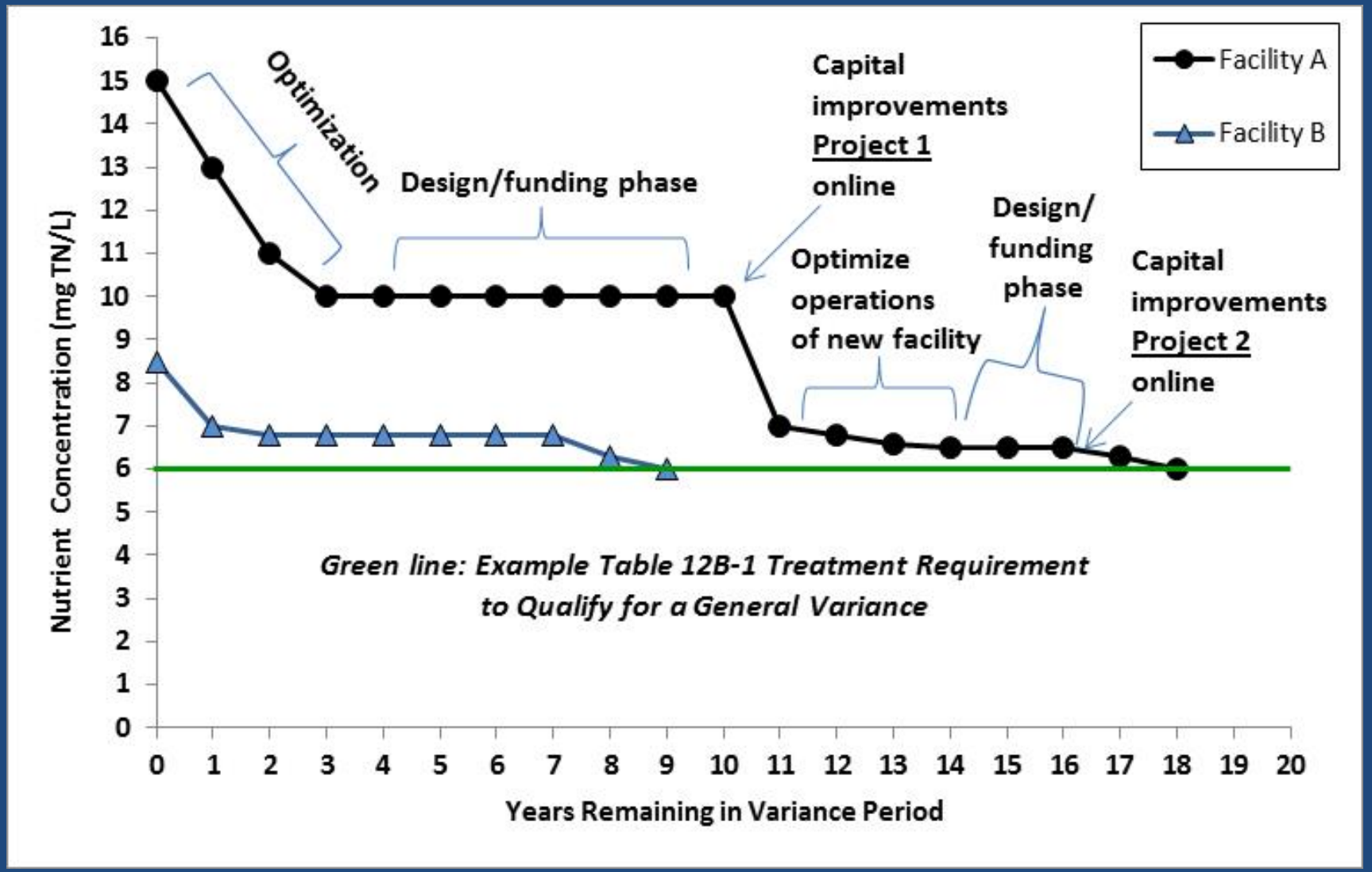
≥1MGD Category:

- Current: 10 mg TN/L and 1.0 mg TP/L
- Proposed: 6 mg TN/L and 0.3 mg TP/L

<1MGD Category:

- Current: 15 mg TN/L and 2.0 mg TP/L
- Proposed: 10 mg TN/L and 1.0 mg TP/L

Time to Achieve HAC



Pollution Minimization Program (PMP)

- PMP: Required by those under a variance when they achieve treatment requirements Circular DEQ-12B
  - If one nutrient achieved first, PMP required for it
- PMP: a structured set of activities to improve processes and pollutant controls that will prevent & reduce pollutant loading
- PMP is not intended to be capital improvements

Flexibilities in Permit Implementation of Nutrient Variances

- Applied as a load only, based on design flow
  - Most facilities are well below design flow
- Modified permit calculation, accounting for tighter treatment and movement towards design flow
  - Coefficient of variation (CV) of 0.6
- Up to ~17 years to reach HAC, if needed

Nutrient Variances Compared

- Montana's Proposed Variance for Total Phosphorus
  - 0.3 mg/L (≥1MGD), 1.0 mg/L (<1MGD), maintain (lagoons)
  - To be achieved in up to 17 years
  - MT statute allows variance to be in place 20 yrs

- Wisconsin's Variance for Total Phosphorus (Section 283.16)
  - Same for ≥1MGD, <1MGD, and lagoons
    - Permit One: 0.8 mg TP/L
    - Permit Two: 0.6 mg TP/L
    - Permit Three: 0.5 mg TP/L
    - Permit Four: Meet numeric TP standards (2027)
  - Must implement watershed cleanup projects with county, DNR, or third party

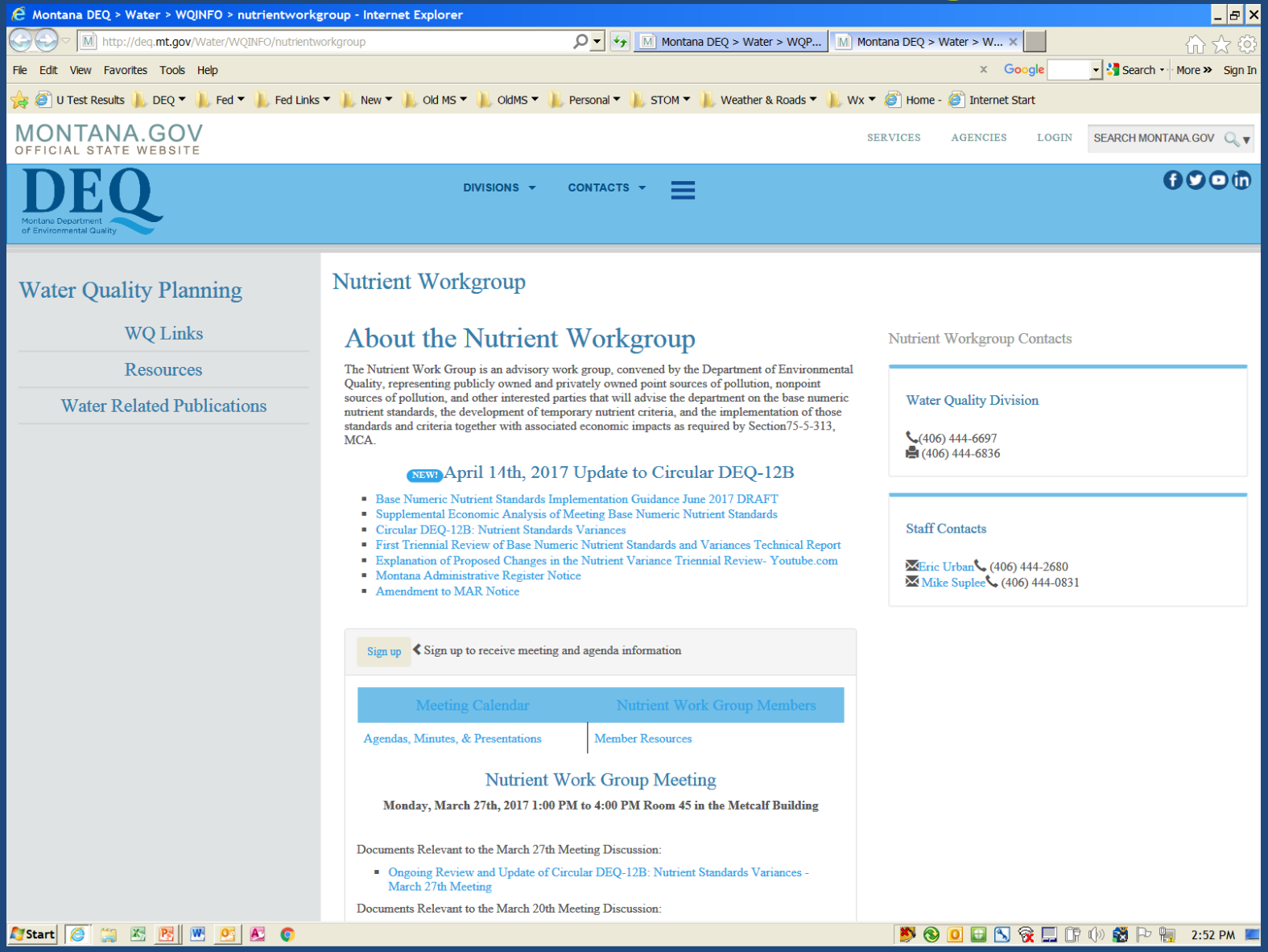
2017 Nutrient Standards Variances Triennial Review

- **May 31st:** Public hearing. DEQ, Room 111, 9am-12, Helena

- **June 23rd:** MAR publication date for the adopted rules (June 2017 DEQ-12B)
  - New circular in effect June 24th

- **July 1st, 2017**: Current DEQ-12B (July 2014 version) expires

Where to Find Things



http://deq.mt.gov/Water/WQINFO/nutrientworkgroup

Thank You