

Numeric Nutrient Standards Variances: Individual Variance for Whitefish, MT

Prepared for the Water Pollution Control Advisory Council

Water Quality Standards & Modeling Section
Montana Dept. of Environmental Quality
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DEPARTMENT CIRCULAR

DEQ-12A

Montana Base Numeric Nutrient Standards



DEPARTMENT CIRCULAR

DEQ-12B

Nutrient Standards Variances

JUNE 2017 EDITION

<http://deq.mt.gov/Water/WQPB/Standards>

Variations from Numeric Nutrient Standards

- Options available for communities to receive temporary relief from the standards based on:
 - Inability to pay for treatment/economics
 - Limits of technology
- General Variations
- Individual Variations

Circular DEQ-12B Review Requirements

- 75-5-313(7) and (8), MCA require DEQ to review Circular DEQ-12B and associated variances every 3 years
 - 1st version of DEQ-12B adopted July 2014
 - It expired on 7/1/2017

Changes to Federal Rules

- 2014: DEQ and Board adopt nutrient standards and variances
- 2015: EPA updated its rules regarding variances
 - 40 CFR 131.14
- Federal updates affected DEQ's triennial review
 - Highest Attainable Condition (HAC)
 - Time to achieve HAC
 - Pollutant minimization program

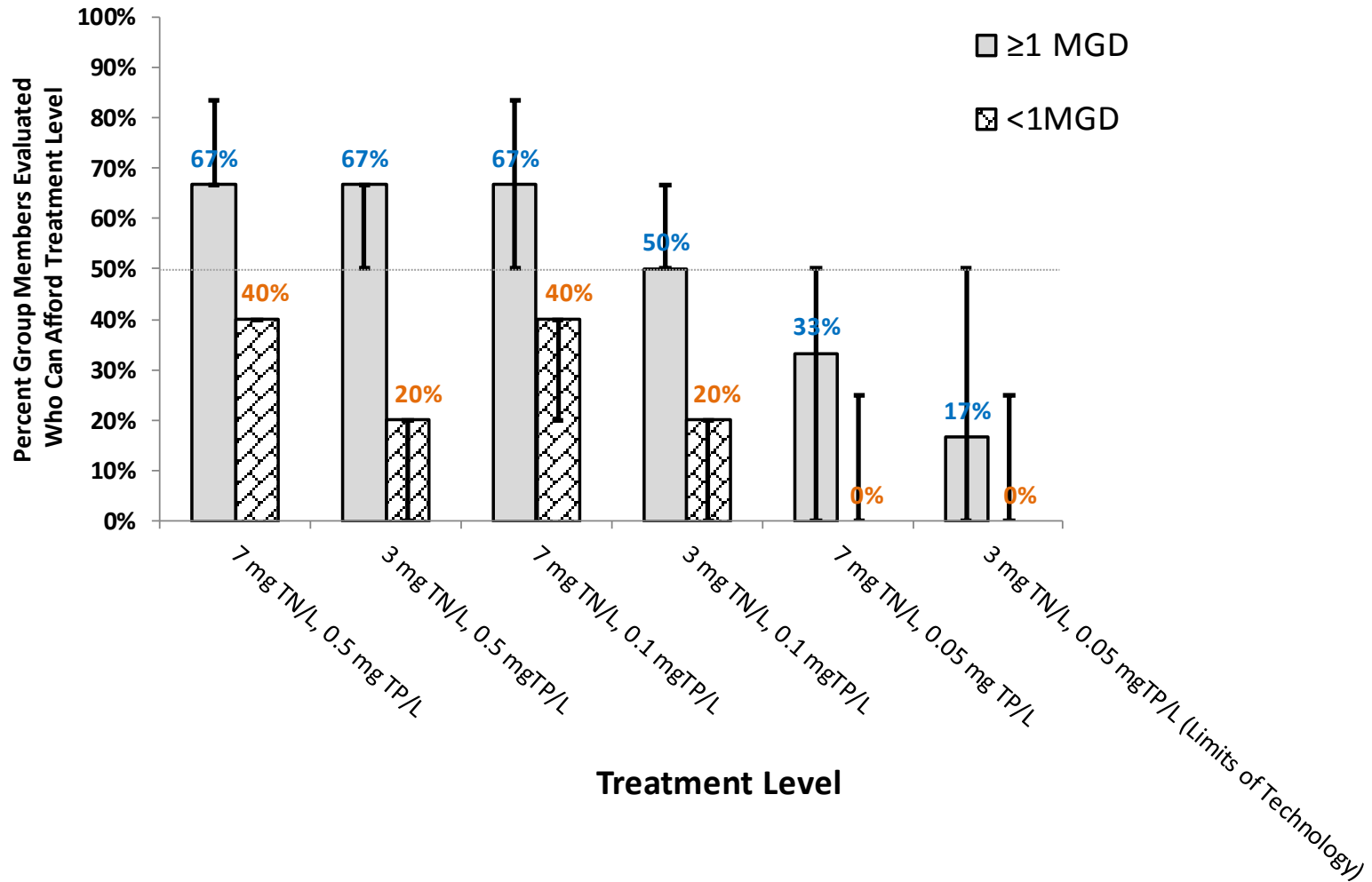
How HAC is Defined?

At federal level:

The highest attainable interim criterion *or* the Interim effluent condition that reflects the greatest pollutant reduction achievable

- In Montana, this essentially translates as the highest cost for effluent treatment that can be afforded based on the state's economic affordability process

≥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).

Final Treatment Requirements adopted in Circular DEQ-12B:

- ≥1MGD Discharge Category: 6mg TN/L, and 0.3 mg TP/L.
- <1MGD Discharge Category: 10 mg TN/L, and 1.0 mg TP/L

Individual Variances, Circular DEQ-12B

- In state statute DEQ given authority to grant Individual variances
 - 75-5-313(1), MCA
- DEQ may grant them, case-by-case, because attainment of the numeric nutrient standards is precluded by economic impacts, LOT, or both
- Important: Don't have to show that meeting the variance treatment levels in 12B are too expensive; need to show that meeting the nutrient standards themselves is too expensive

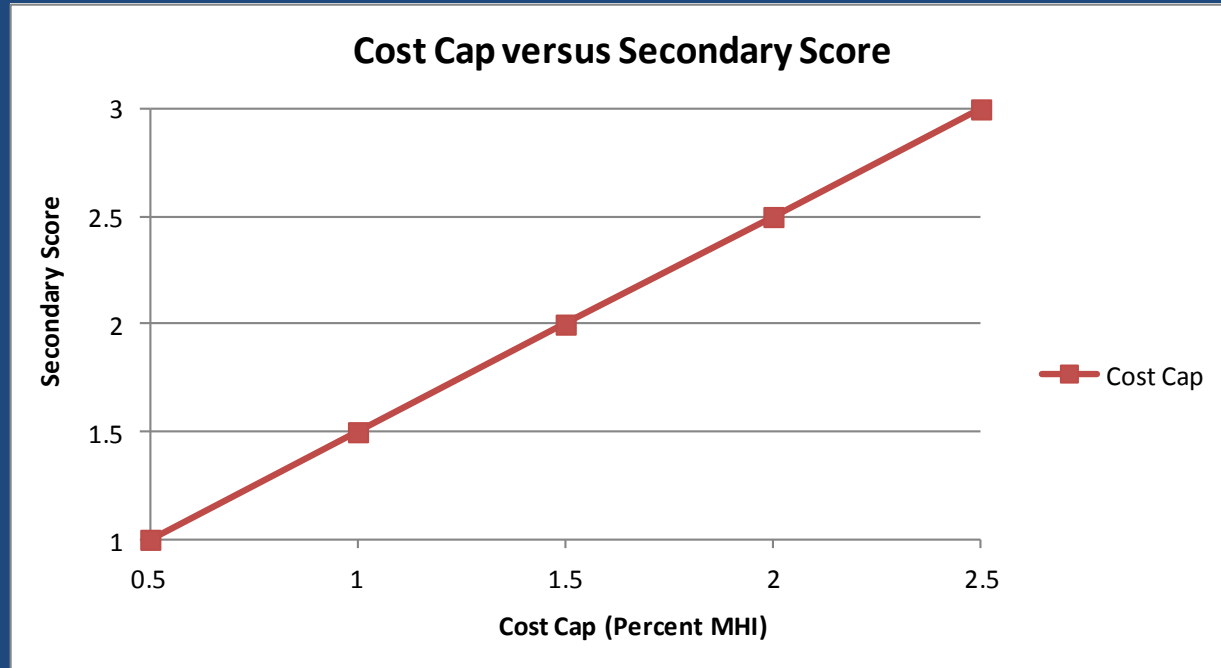
Individual Variance: Process Overview

1. Demonstrate that meeting nutrient standards would cause S&W economic impact, and/or >LOT is needed to meet standards
2. Establish cost cap (% of community MHI) expected for pollution control project
3. Propose facility at or above cost cap in 2
4. Work with DEQ to go through rule-adoption
 - a) Community-specific variance added to Table 12B-3 in Circular DEQ-12B, documentation assembled, WPCAC (DEQ, applicant)
 - b) 45 day public comment period (DEQ)
 - c) Public hearing, response to comments (DEQ)
 - d) Department head signature on rule (DEQ)
 - e) Submittal to EPA for final approval (EPA)
5. **Ind. variance reviewed by DEQ every 3 years. Variance limit requirements could change if:**
 - a. Sharp improvement to economic status and MHI of community
 - b. A low-cost technological innovation occurs which can achieve low nutrient concentrations, potential to meet the nutrient standards

Cost Evaluation Spreadsheet

- DEQ has a cost-evaluation spreadsheet (with instructions) where applicant may show that meeting standards costs too much
 - LOT may also be considered: would meeting the standards require treatment beyond LOT?
- Both Substantial and Widespread elements must be satisfied
 - Factor 6, CWA (40 CFR 131.10(g))
 - Substantial is evaluated quantitatively (spreadsheet)
 - Widespread more qualitative

Cost Cap Sliding Scale-what is to be expended toward the pollution control project?



Whitefish

Economic status evaluation (i.e., Secondary Score): 1.8

Min. % MHI to be expended on project: 1.3% of MHI

Whitefish MHI: \$44,988

% MHI just to meet 6 mg TN/L, 0.3 mg TP/L*: 3.37%

Conclusion: Substantial impact demonstrated

*General variance limits. To meet nutrient standards would be even more costly.

Widespread

- Whitefish laid out reasonable arguments that satisfy the widespread component:
 - Unemployment 30-51% higher than national average
 - Just to meet general variance levels, would result in \$2.22 M in lost disposable income
 - Too high sewer rates might force more development outside of town

Whitefish Individual Variance

- Whitefish is requesting individual variance based on an SBR facility
 - Designed to meet 10 mg TN/L, 1 mg TP/L, potential for further optimization
 - Costs 2.61% of MHI (more than meets expenditure requirement of 1.3% MHI)
- Variance to be applied in two phases
 - Phase I (~ 7 year duration)
 - 10 mg TN/L, 1 mg TP/L (new facility's specs)
 - Phase II (likely to end of statutory authorization, 2034)
 - Based on the achieved concentrations (presumably better than 10 mg TN/L and 1 mg TP/L) which have resulted from operational stabilization and optimization.

In Circular DEQ-12B

Table 12B-3. Individual nutrient standards variances.

MPDES Number	Facility Name	Discharge Latitude	Discharge Longitude	Receiving Waterbody	Receiving Waterbody Classification	Monthly Average			Start Date	Sunset Date (maximum)	Review Schedule* (year)	Review Outcome
						Total P (mg/L)	Total N (mg/L)	CV				
MT0020184	City of Whitefish	48.39194	-114.3299	Whitefish River	B-2	1.0	10.0	0.6	8/1/2022	8/1/2029	2025	

*For individual variances longer than five years, the Department must complete the reevaluation, which includes both the review and any necessary rulemaking, no less frequently than every five years from the date of EPA approval.

Questions?



Whitefish River, Montana

Variance Permitting Process for TN, TP Today

- To DEQ, variance treatment requirements are long term averages (LTA), and limits are expressed (per statute) as Average Monthly Limit (AML), so:

$$\text{Variance (mg/L)} * \text{Table 5-2 value}_{95\text{th}} * \text{Design Flow} * \text{conversions} = \text{Permitted Load Limit (lbs/day)}$$



From Permitting's Technical Support Document—based on coefficient of variation (CV; SD/mean) as calculated from samples from discharger's effluent

Coefficient of Variation (CV) in the variance permitting process

- Currently based on CV of *past* data
- CVs likely to go up at lower nutrient effluent concentrations; could lead to compliance problems
- Using a fixed CV of 0.6 is a realistic CV for nutrient effluent data at low concentrations