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For this process to operate (1) the BER would need to have all necessary statutory authority to allow variances from the base numeric nutrient standards, and (2) BER-adopted rules would need to be in place for numeric nutrient criteria and associated implementation procedures. In the flowchart, **activities** to be carried out are in *italics*, **questions** to be answered are in normal font style.

1. *Stream receiving point-source discharge is reviewed relative to the base numeric nutrient standards. This comes about due to:*

- A. *5-year permit review*
- B. *Lack of capacity, requiring a waste-water system upgrade*
- C. *Aging waste-water system*
- D. *Violating current permit*
- E. *TMDL*
- F. *Other case-specific reasons*

2. Is the waterbody a high-quality water for nutrient (i.e., are its current N and P concentrations \leq the applicable, seasonal & ecoregional criteria *and* benthic algae levels are below recommended levels)?

No

Yes

3. *Determine if elevated N & P concentrations or algae levels are naturally high due to **reasonably** operated dams or other hydrologic modifications (per MCA 75-5-306)². Near-field effect of upstream natural lakes & wetlands may also be considered, as the criteria sometimes don't account for such effects.*

Are the N & P concentrations and algae levels *naturally* elevated due to the factors above?

No

Yes

Carry out nondegradation analysis. Go to page 4 of this document¹.

5. Is a TMDL plan completed for the waterbody Or for a downstream waterbody that considers the point source(s) in question?

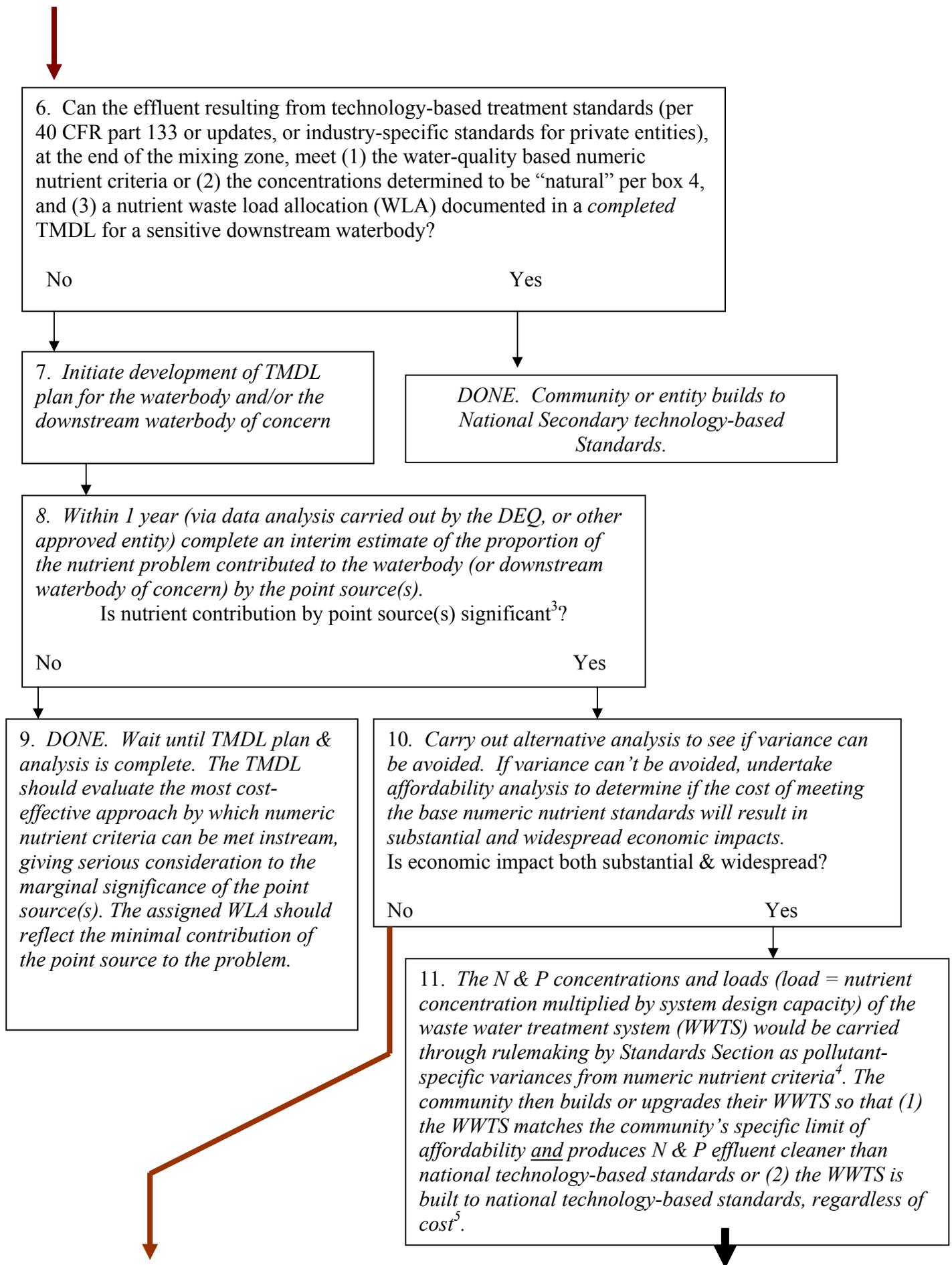
No

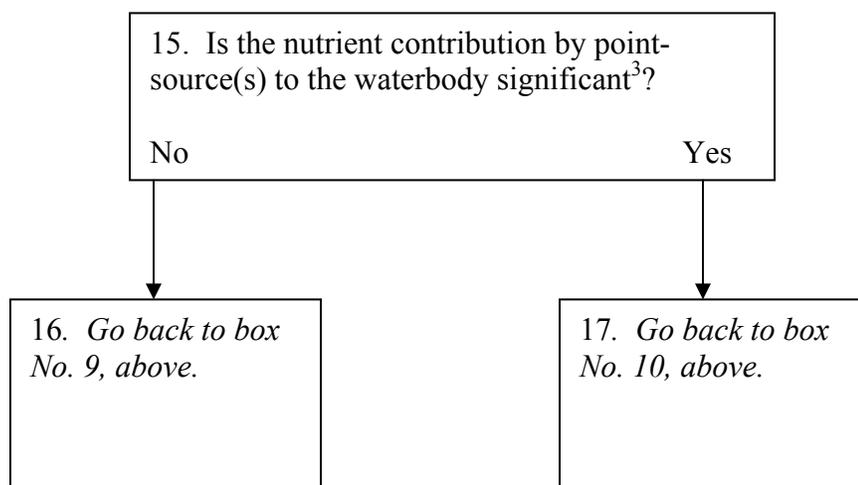
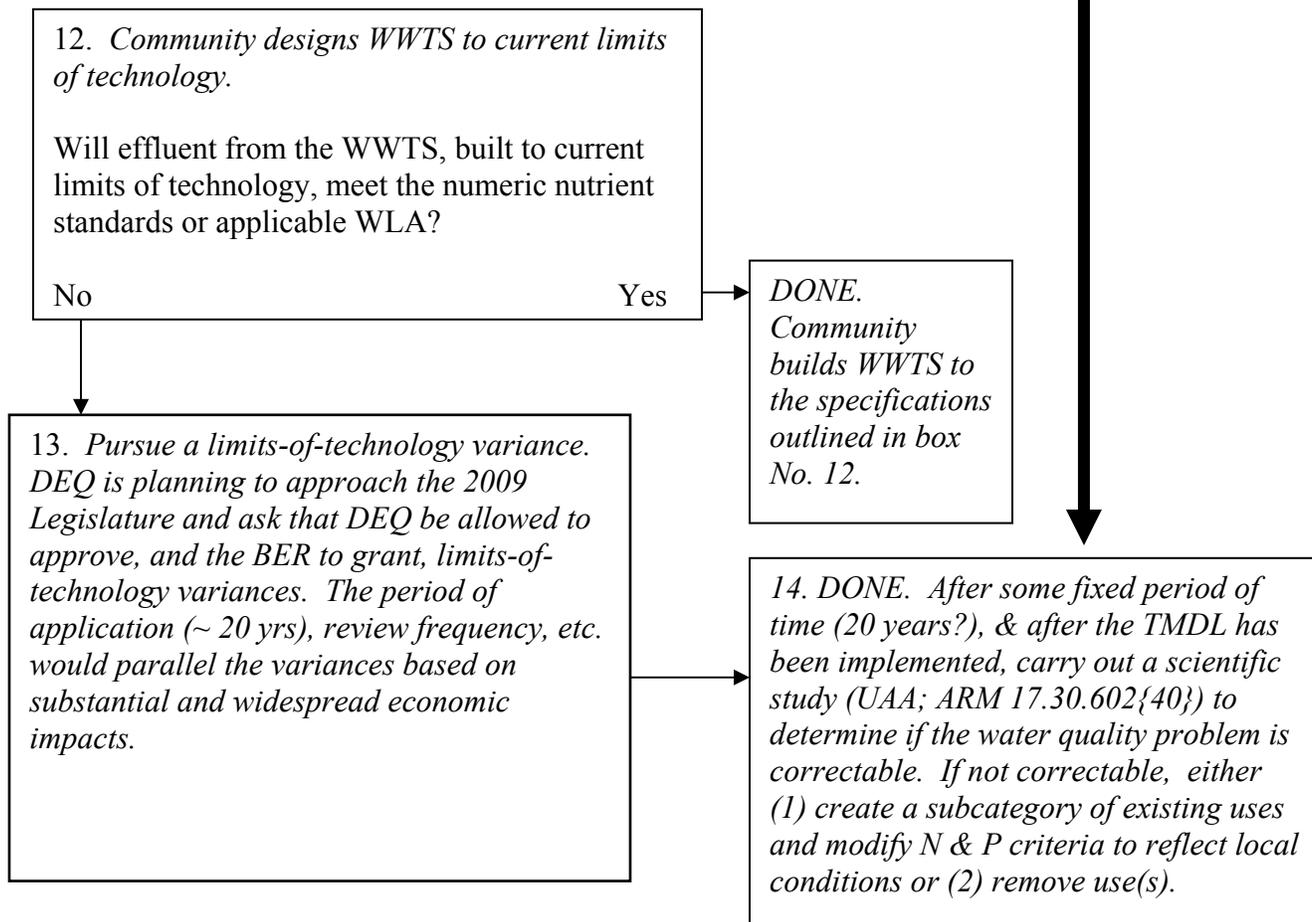
Yes

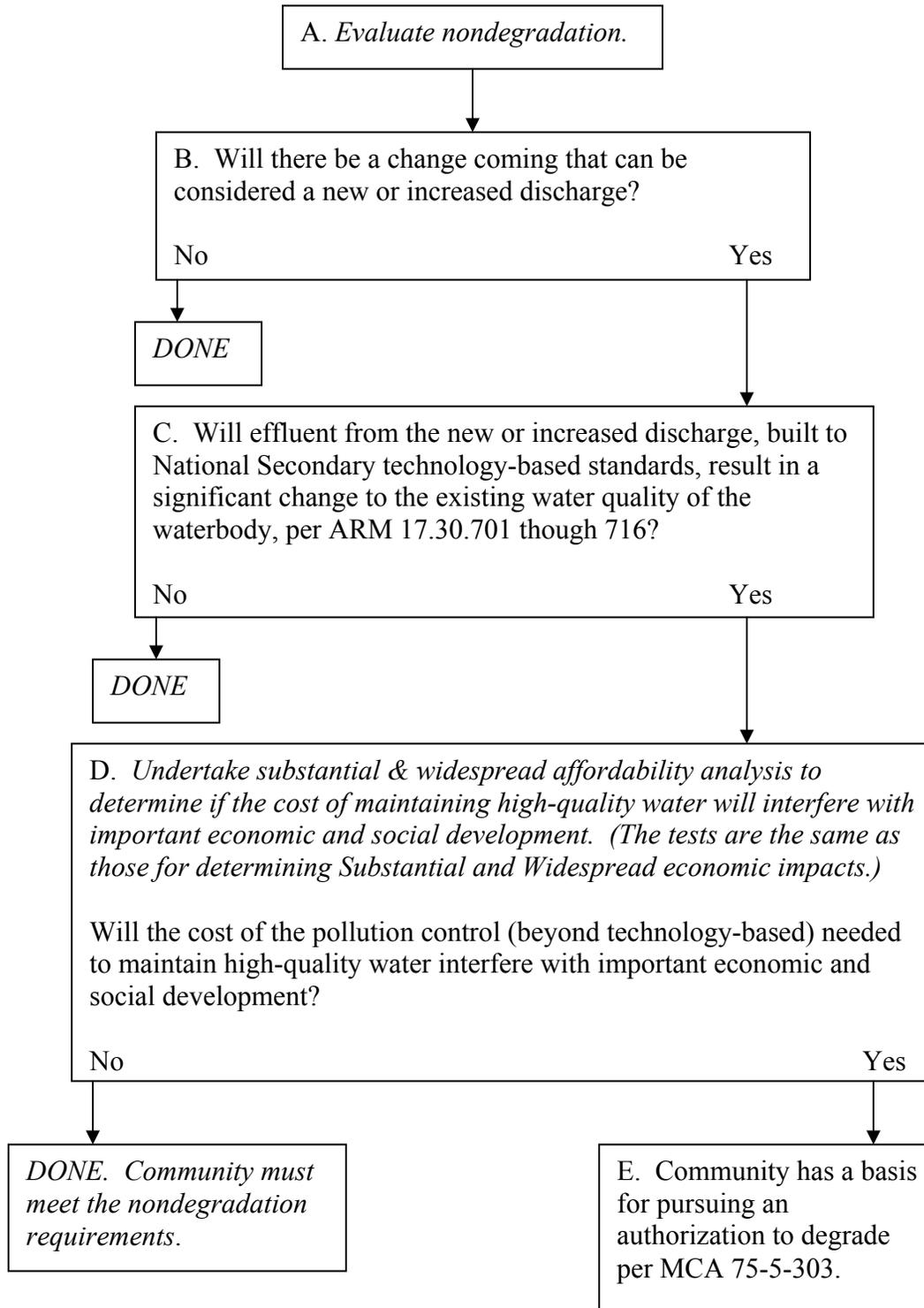
4. *Not necessary to treat to purer than natural (MCA 75-5-306). The "natural" nutrient concentrations and benthic algae levels/biological conditions can be incorporated into the TMDL and permits.*

Go to Box No. 15 on page 3, below.









FOOTNOTES

¹ There is the remote possibility that the concentration and loads that meet nondegradation for a stream (say, Fred Creek) might be less stringent than the TMDL requirements for a highly sensitive waterbody further downstream for which Fred Creek is an important nutrient source. If so, the TMDL-based concentrations and load for Fred Creek (waste load allocation) intended to protect the sensitive downstream waterbody are the values the community would need to address.

² A determination as to whether the dam is being reasonably operated would have to be carried out. Per MCA 75-5-306, “natural” also refers to conditions or materials present in runoff or percolation over which man has no control or from developed land where all reasonable land, soil & water conservation practices have been applied. Except for conditions resulting from the hydrologic affects outlined in box No. 3, streams in a *truly* natural state should generally have nutrient concentrations \leq the numeric nutrient standards because the standards themselves have been calibrated to local reference conditions. See Suplee *et al.* (2005) for details on selection of reference streams. The reasonable land, soil & water conservation component of this statute can be determined & established via each TMDL, and completion of the TMDL is integral to many aspects of this flowchart.

³ DEQ (in collaboration with EPA) will have to determine what proportion of a nutrient problem in a waterbody from a point source(s) can be considered “significant”. A point at which to begin this conversation could be 5% or more. When considering multiple, small point sources along a waterbody, their combined cumulative affects (total %) is what would be considered relative to the significance threshold. And this analysis would be carried out considering the design capacity in the permits of the point sources, not the current effluent volume.

⁴ EPA requires that variances be re-justified every 3-5 years, and may be extended where justifiable. One requirement of an extension is that reasonable progress towards achieving the standard has been achieved including progress towards developing and implementing the TMDL (see 1996 EPA memo from David Moon to Abe Horpestad et al.). In the same memo EPA also recognizes that in other states a 20 year timeframe has been used to determine whether a given water quality problem is temporary and correctable.

The TMDL plan can be completed either before or after the variance in box Nos. 11 & 13 are adopted into rule. The flowchart process outlined here assumes a 20 year timeframe to conclude if the water quality problem is correctable. This conclusion would rely heavily on progress made though implementation of the TMDL; reasonable progress in implementing the TMDL would provide justification for variance extensions, which could be granted for up to 20 years or until a variance discharge load cap is reached, whichever comes first. After 20 years a major evaluation of the success of the TMDL would have to be undertaken. If, based on that evaluation and the current technologies & their associated costs, the pollution problem is not correctable, then go to box No. 14.

⁵ It could result that national technology-based standards may cost **more** than the affordability threshold would allow, in which case the technology-based standards must be met at a minimum. (EPA has generally allowed very few exceptions to the national secondary treatment standards.) This could be especially true if EPA updates the national secondary treatment standards, which they might be considering.