

## **Antidegradation Reasonableness Evaluation Proposed Modifications**

### **Outline**

#### Purpose and Need:

UAC R317-2-3.5

*There will be an evaluation of whether there are any reasonable non-degrading or less degrading alternatives for the proposed activity.*

*An option more costly than the cheapest alternative may have to be implemented if a substantial benefit to the stream can be realized. Alternatives would generally be considered feasible where costs are no more than 20% higher than the cost of the discharging alternative, and (for POTWs) where the projected per connection service fees are not greater than 1.4% of MAGHI (median adjusted gross household income), the current affordability criterion now being used by the Water Quality Board in the wastewater revolving loan program.*

A less degrading alternative is considered “reasonable” if it is cost effective, affordable, and feasible from a technical, environmental and political standpoint. Current rule addresses cost effectiveness through 20% cost increase threshold, and affordability through 1.4% of MAGHI total cost threshold for public entities.

1. Cost effectiveness criteria (20% cost increase threshold for selection of less degrading treatment alternative):
  - lacks flexibility and arbitrary threshold
  - having specific threshold is inducement to inflate cost estimates of alternatives
  - does not work well for incremental alternatives (stormwater, phased projects)
  - effectively eliminates all less degrading treatment alternatives as reasonable
2. Lack of affordability criteria for private entities.
  - need more specificity regarding which factors to consider and what information to require from the applicant
  - need guidance on how much additional expense would be considered affordable

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### Review of State Criteria:

Summary table of selected state policies regarding cost effectiveness.

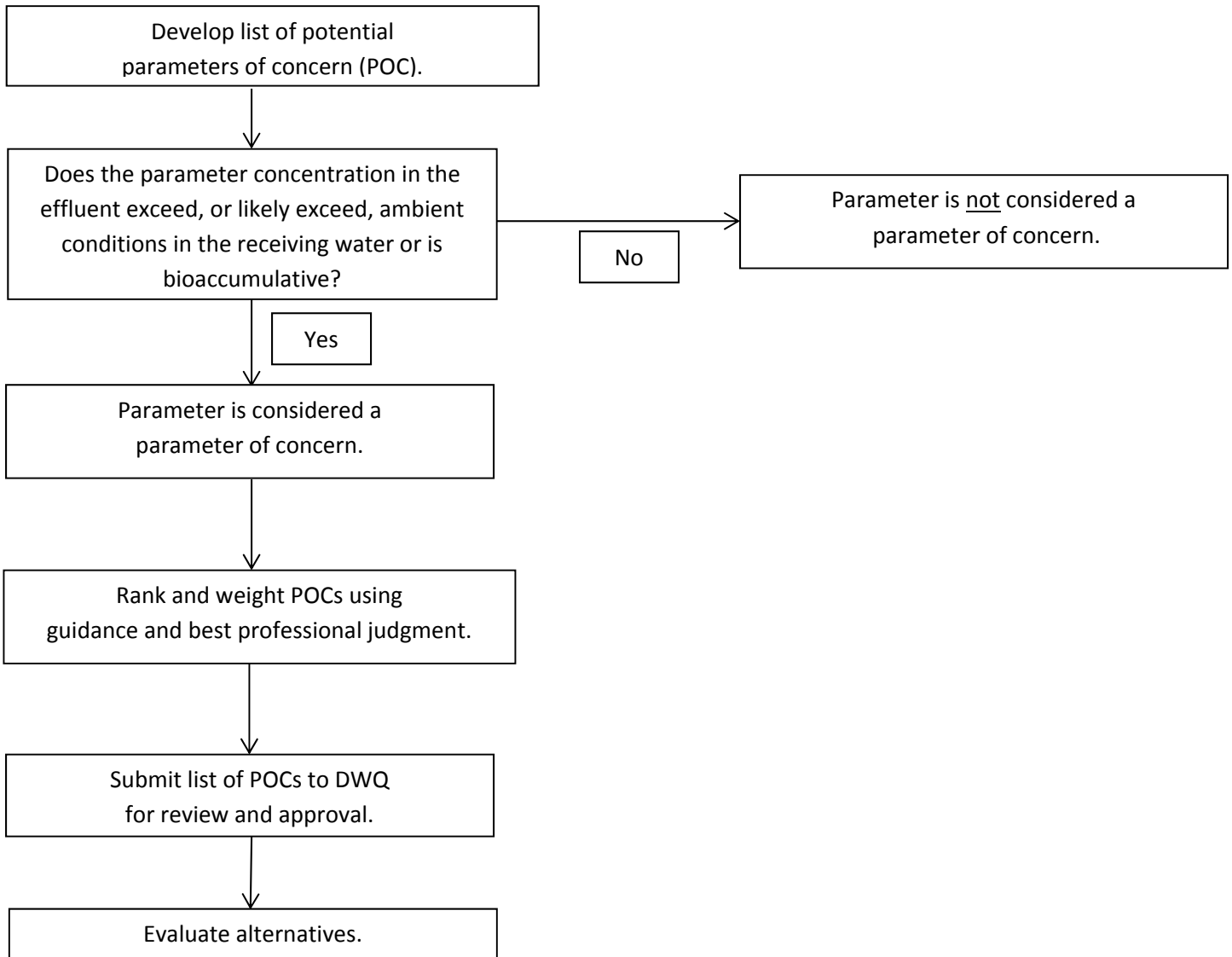
State	Thresh- old	Source	Language
AZ	110%	Implementation Procedures	In general, an alternative or suite of alternatives is considered to be cost-effective and reasonable if it is feasible and the cost is less than 110 percent of the base costs of pollution control measures for the proposed discharge in present worth costs. It should be noted that the 110 percent cost-effectiveness criterion is a general rule-of-thumb – if pollution control costs for alternatives that would result in substantial water quality benefits slightly exceed the 110 percent cost threshold, those alternatives may be required.
CO	No numeric	Guidance	The department will determine the economic feasibility of the alternative water quality protection practices by evaluating the cost effects of the proposed alternatives on the economic viability of the project and on the applicant by using standard and accepted financial analyses.
IA	115%	Implementation Procedures	As a non-binding guideline, alternatives less than 115 percent of the base cost of the minimum level of pollution control are presumed to be economically efficient. Alternatives greater than 115 percent of the base costs should also be considered if implementation of the alternative would produce a substantial improvement in the resulting discharge. Conditions that might warrant consideration of alternatives of greater cost (above 115 percent) are the effectiveness, reliability, and environmental factors identified above.
ID	No numeric	Implementation Procedures	rank alternatives by their pollutant-reduction cost-effectiveness. Cost effectiveness looks at the cost per unit mass of pollutant removed, such as dollars per pound (\$/lb). Most processes generate an effluent stream measured in volume per day; therefore, cost effectiveness can be unitized as \$/lb/million gallons per day (MGD), or other comparable units.
MO	120%	Rule and Implementation Procedure	As a non-binding rule-of-thumb, alternatives less than 120 percent of the base cost of pollution control measures are economically efficient. In general, this amount represents the point beyond which increasing costs yield less proportional increases in water quality. Unless evidence exists to the contrary, alternatives greater than 120 percent of the base costs are generally considered to not be economically efficient. Conditions that might warrant consideration of alternatives of greater cost (above 120 percent) are the practicability factors identified under Section II.B.2.a of this document.
MT	No numeric	Rule	The department will determine the economic feasibility of the alternative water quality protection practices by evaluating the cost effects of the proposed alternatives on the economic viability of the project and on the applicant by using standard and accepted financial analyses.
OR	No numeric	Implementation Memo	Under environmental and economic effects criteria, the discharger/applicant/source must demonstrate that there are no alternatives to lowering water quality in the WQLW, and that economic benefits of lowering water quality are greater than other uses of the assimilative capacity.
WA	AKART	Guidance	Determining the economic achievability of less-degrading alternatives under Tier II of the antidegradation rules would be generally equivalent to the BAT analysis described in Chapter IV, Section 2, of the Permit Writer’s Manual – except that it applies to the economic achievability of reducing the concentrations of conventional, non-conventional, and toxic pollutants. AKART: All Known and Reasonable Technologies

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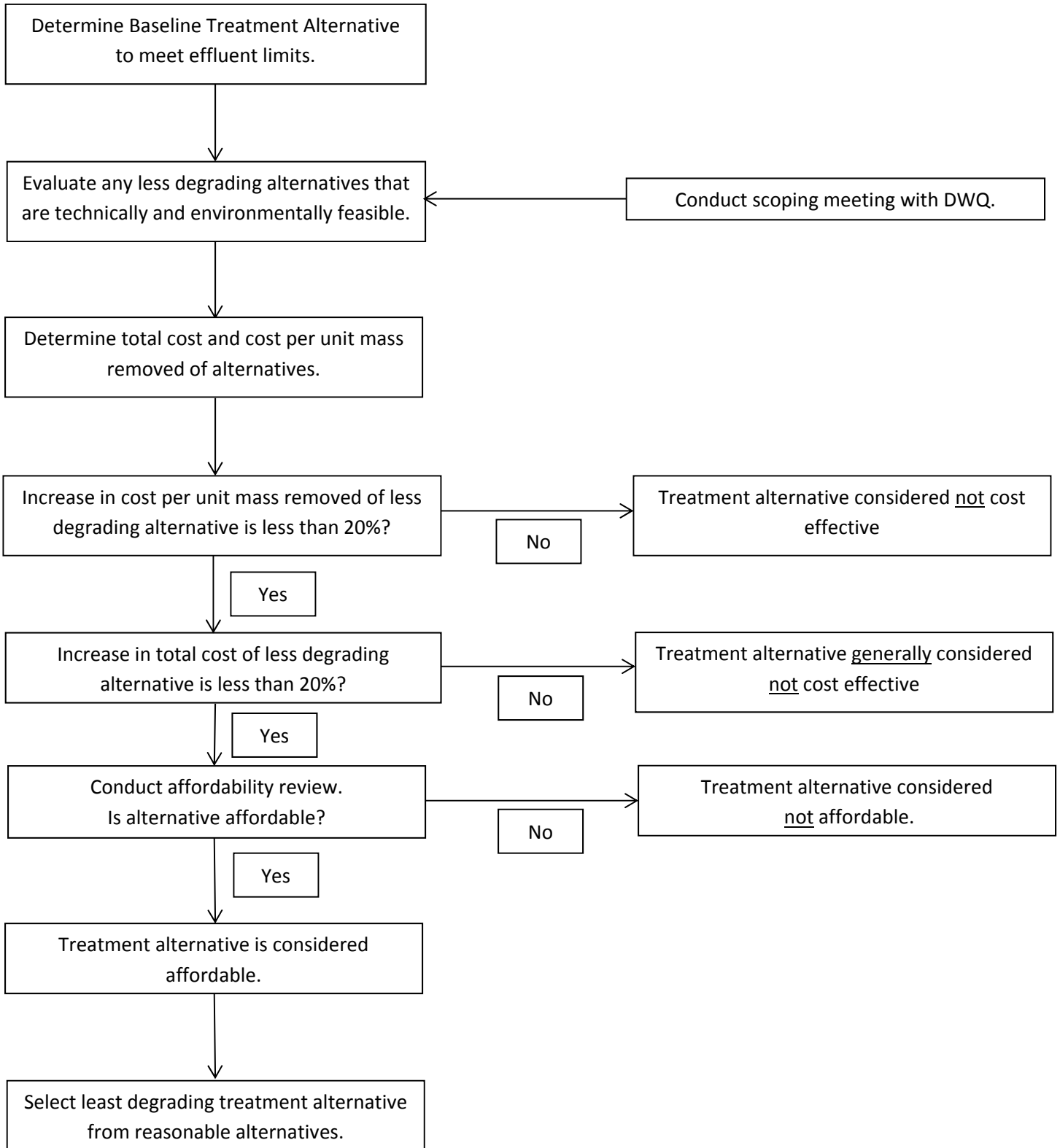
### Proposed Modifications:

- No rule changes proposed at this time (Rule UAC R317-2-3.5)
- ADR Implementation Guidance clarification:
  - 20% cost threshold is general indicator of cost effectiveness and affordability to be supplemented with additional evaluation if degradation is considered significant
  - Refer to attached flow charts and changes to Implementation Guidance Version 1.2 (Sections 3.6, 4.1 and 5.0).
  - Ranking and Weighing of Parameters of Concern
    1. Provide additional guidance for how to rank and weight POCs, which is required for the determination of “least degrading” and evaluation of cost effectiveness.
    2. Ranking and weighting toxic and conventional pollutants will inevitably require subjective judgment on a case-by-case basis.
  - Ranking Less Degrading Treatment Alternatives
    1. Estimate pollutant removal for each POC for each alternative.
    2. Using weighting of POCs, determine equivalent pollutant removal for all POCs for each alternative.
    3. Rank treatment alternatives by degradation, i.e. from highest to lowest equivalent pollutant removal.
  - Cost Effectiveness
    1. Determine total cost of each treatment alternative – net present value of 20-year life-cycle of land acquisition, capital, and operation and maintenance costs.
    2. Determine cost effectiveness (cost per unit mass of pollutant removed) for each treatment alternative, i.e. dollars per pound (\$/lb), \$/lb/million gallons per day (MGD), or other comparable units of pollutant removed.
    3. If less degrading alternative is more cost effective than baseline treatment alternative and less than 20% additional total cost, less degrading treatment alternative is considered cost effective and reasonable (applicant can still demonstrate lack of affordability).
    4. If less degrading alternative is more cost effective than baseline treatment alternative and more than 20% additional total cost, then conduct affordability review.
  - Affordability
    1. If less degrading treatment technology is considered cost effective, conduct review of affordability
    2. Provide information required for each socioeconomic factor for public and private entities. (Information required needs to be developed – refer to EPA guidance and worksheets as starting point.)
    3. For public entities, if total cost of treatment alternative above 1.4% MAGHI, considered not affordable. Below 1.4% MAGHI, consider secondary socioeconomic factors.
    4. Compare to affordability criteria (need to develop guidance for assessing reasonableness of cost increases)

Identification, Ranking and Weighting of Parameters of Concern



Alternatives Analysis Flow Chart for Private Entities



Alternatives Analysis Flow Chart for Public Entities

