

Utah Antidegradation Review Implementation Guidance

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1 **1.0 INTRODUCTION**

2 The central goals of the Clean Water Act and the Utah Water Quality Act are to
3 protect, maintain, and restore the quality of Utah’s waters. One way in which this is
4 accomplished is through Utah’s water quality standards, which consist of: 1) designated
5 uses (e.g., aquatic life, drinking water, recreation), 2) water quality criteria (both
6 numeric and narrative), and 3) antidegradation policy and procedures. The intent of the
7 antidegradation component of our standards is to protect existing uses and to maintain
8 high quality waters. Our water quality criteria create a floor below which uses become
9 impaired, whereas our antidegradation policy protects water quality in waters where
10 the quality is already better than the criteria.

11 Utah’s antidegradation policy (UAC R317-2-3) does not prohibit degradation of water
12 quality, unless the Water Quality Board has previously considered the water to be of
13 exceptional recreational or ecological significance (Category 1 or Category 2 waters).
14 Instead the policy creates a series of rules that together ensure that when degradation
15 of water quality is necessary for social and economic development, every feasible option
16 to minimize degradation is explored. Also, the policy requires that alternative
17 management options and the environmental and socioeconomic benefits of proposed
18 projects are made available to concerned stakeholders.

19 This document provides the implementation procedures for Utah’s antidegradation
20 rules. Utah’s Division of Water Quality (hereafter DWQ) is required by Federal Code (40
21 CFR §131.12(a)) to develop an antidegradation policy and implementation procedures.
22 These procedures and associated rules (UAC R317-2-3) meet these requirements. The
23 implementation procedures discussed in this document were developed in a
24 collaborative process among stakeholders to identify procedures that would meet the
25 intent of antidegradation rules, while avoiding unnecessary regulatory burdens.

26 This first draft of implementation procedures focuses on Utah Pollution Discharge
27 Elimination System (UPDES) permits except for general permits. General permits must
28 meet ADR requirements and implementation procedures for general permits will be
29 forthcoming in future drafts of this guidance. Section 7.0 summarizes the portions of
30 the guidance that are incomplete. The absence of guidance for these topics does not
31 negate or delay the requirements for antidegradation reviews required under UAC
32 R317-2-3.

33 **2.0 THE ANTIDEGRADATION PROCESS**

34 Antidegradation reviews (ADRs) are required, as part of the permitting process, for
35 any action that has the potential to degrade water quality. Activities subject to ADRs
36 include any activities that require a permit or water quality certification pursuant to
37 federal law. The ADR process involves: 1) classification of surface waters into protection
38 categories, and 2) documenting that activities likely to degrade water quality are
39 necessary and that all State and Federal procedures have been followed to ensure that
40 reasonable steps are taken to minimize degradation.

41 The overarching goal of ADRs is summarized in rule R317.2.3.1 as follows:

42 *“Waters whose existing quality is better than the established standards for the designated*
43 *uses will be maintained at high quality unless it is determined by the Board, after*
44 *appropriate intergovernmental coordination and public participation in concert with the*
45 *Utah continuing planning process, allowing lower water quality is necessary to*
46 *accommodate important economic or social development in the area in which the waters are*
47 *located. However, existing instream water uses shall be maintained and protected. No water*
48 *quality degradation is allowable which would interfere with or become injurious to existing*
49 *instream water uses.”*

50 **2.1 Assigning Protection Categories**

51 Utah’s surface waters are assigned to one of three protection categories that
52 prescribe generally permissible water quality actions. These levels of protection are
53 determined by their existing biological, chemical and physical integrity, and by the
54 interest of stakeholders in protecting current conditions. Antidegradation procedures
55 are differentially applied to each of these protection categories on a parameter-by-
56 parameter basis.

57 **2.1.1 Category 1 Waters**

58 Category 1 waters (as listed in R317-2-12.1) are afforded the highest level of
59 protection from activities that are likely to degrade water quality. This category is
60 reserved for waters of exceptional recreation or ecological significance, or that have
61 other qualities that warrant exceptional protection. Once a waterbody is assigned
62 Category 1 protection, future discharges of wastewater into these waters are not
63 permitted. However, permits may be granted for other activities (e.g., road
64 construction, dam maintenance) if it can be shown that water quality effects will be
65 temporary and that all appropriate Best Management Practices (BMPs) have been
66 implemented to minimize degradation of these waters.

67 **2.1.2 Category 2 Waters**

68 Category 2 waters (as listed in R317-2-12.2) are also afforded a high level of
69 protection, but discharges to these waters are permissible, provided no degradation of
70 water quality will occur or where pollution will result only during the actual construction
71 activity, and where best management practices will be employed to minimize pollution
72 effects. In practice, this means that all wastewater parameters should be at or below
73 background concentrations of the receiving water for activities that are not temporary
74 and limited. As a result of this stipulation, the Level I and Level II ADR provisions
75 discussed in these implementation procedures are not required for Category 2 waters.

76 **2.1.3 Category 3 Waters**

77 All surface waters of the State are Category 3 waters unless otherwise designated as
78 Category 1 or 2 in UAC R317-2-12. Discharges that degrade water quality are permitted
79 for Category 3 waters provided that 1) existing uses are protected, 2) the degradation is

80 necessary, 3) the activity supports important social or economic development in the
81 area where the waters are located, and 4) all statutory and regulatory requirements are
82 met in the area of the discharge. Antidegradation rules also apply for any proposed new
83 or expanded discharge that is likely to degrade water quality. ADRs require that these
84 proposed actions demonstrate that such proposed projects are necessary to
85 accommodate social and economic development, and that all reasonable alternatives to
86 minimize degradation of water quality have been explored. These implementation
87 procedures provide details about how ADRs are implemented to meet these
88 requirements.

89 **2.2 Procedures for Assigning Protection Categories**

90 The intent of Category 1 and Category 2 protection classes is to protect high quality
91 waters. Any person or DWQ may nominate a surface water to be afforded Category 1 or
92 2 protections by submitting a request to the ~~Executive Secretary~~Director of the Water
93 Quality Board. DWQ generally considers nominations during the triennial review of
94 surface water quality standards. The nominating party has the burden of establishing
95 the basis for ~~reclassification–recategorization~~ of surface waters, although DWQ may
96 assist, where feasible, with data collection and compilation activities.

97 *2.2.1 Material to Include with a Reclassification Nomination*

98 The nomination may include a map and description of the surface water; a statement
99 in support of the nomination, including specific reference to the applicable criteria for
100 unique water classification, and available, relevant and recent water quality or biological
101 data. All data should meet the minimum quality assurance requirements used by DWQ
102 for assessing waters of the State. A description of these requirements can be found in
103 the most recent *Integrated Report Part 1 Water Quality Assessment*.

104 *2.2.2 ~~Considerations for Appropriate Data and Information to Include with~~* 105 *Nominations for Consideration to Increase Protection of Surface Waters*

106 The Water Quality Board may reclassify a waterbody to a more protected category,
107 following appropriate public comment. Evidence provided to substantiate any of the
108 following justifications that a waterbody warrants greater protection may be used to
109 evaluate the request:

- 110 • The location of the surface water with respect to protections already afforded to
111 waters (e.g. on federal lands such as national parks or national wildlife refuges).
- 112 • The ecological value of the surface water (e.g., biological diversity, or the
113 presence of threatened, endangered, or endemic species)
- 114 • Water quality superior to other similar waters in surrounding locales.
- 115 • The surface water is of exceptional recreational or ecological significance
116 because of its unique attributes (e.g., Blue Ribbon Fishery)
- 117 • The surface water is highly aesthetic or important for recreation and tourism.

- 118 • The surface water has significant archeological, cultural, or scientific importance.
119 • The surface water provides a special educational opportunity.
120 • Any other factors the ~~Executive Secretary~~Director considers relevant as
121 demonstrating the surface water’s value as a resource.

122 The final reclassification decision will be based on all relevant information submitted
123 to or developed by DWQ.

124 ~~2.2.3 Considerations for~~ *Appropriate Data and Information for Consideration to*
125 *Decrease Protection of Surface Waters*

126 The intent of Category 1 and Category 2 protections is to prevent future degradation
127 of water quality. As a result, downgrades to surface water protection categories are
128 rare. However, exceptional circumstances may exist where downgrades may be
129 permitted to accommodate a particular project. For instance, in Utah most surface
130 waters in the upper portions of National Forests are afforded Category 1 protection,
131 which may not be appropriate in specific circumstances. Project proponents may
132 request a classification with lower protection; however, it is their responsibility to
133 provide sufficient justification. Examples of situations where a reclassification with less
134 stringent protections might be appropriate follow:

- 135 • Failure to complete the project will result in significant and widespread
136 economic harm.
137 • Situations where the surface water was improperly classified as a Category 1 or
138 Category 2 water because the surface water is not a high quality water (as
139 defined by the criteria outlined in 2.2.2).
140 • Water quality is more threatened by not permitting a discharge (e.g., septic
141 systems vs. centralized water treatment).

142 Requests for downgrades to protection should provide the most complete and
143 comprehensive rationale that is feasible. The request for a reduction in protection may
144 also be considered in concert with the alternatives evaluated through an accompanying
145 Level II ADR. Proposed projects affecting high quality waters may require more
146 comprehensive analysis than projects affecting lower quality waters.

147 *2.2.4 Public Comment Process for Proposed Reclassifications*

148 All data and information submitted in support of reclassification will be made part of
149 the public record. In addition to public comment, the DWQ will hold at least one public
150 meeting in the area near the nominated water. If the issues related to reclassification
151 are regional or statewide in nature or of broader public interest, the Division will
152 consider requests for public meetings in other locations. Comments received during this
153 meeting will be compiled and considered along with the information submitted with the
154 nomination.

155 *2.2.5 Reclassification Decision Making Process*

156 The final reclassification decision will be based on all relevant information submitted
157 to or developed by the DWQ. All data will be presented and discussed with the Water
158 Quality Standards Workgroup. DWQ then submits its recommendations regarding
159 reclassifications to the Water Quality Board who makes a formal decision about
160 whether to proceed with rulemaking to reclassify the waterbody. The proposed
161 reclassification is a rule change, and as such will trigger public notice and comment
162 procedures.

163 **3.0 ANTIDegradation Review General Procedures**

164 **3.1 Overview of Antidegradation Review Procedures**

165 ADR reviews for Category 3 waters are conducted at two levels, which are referenced
166 in R317-2-3 as Level I and Level II reviews. Figure 1 provides an overview of the overall
167 ADR process.

168 Level I reviews are intended to ensure that proposed actions will not impair “existing
169 uses”. Level II ADRs assure that degradation is necessary and that the proposed activity
170 is economically and socially important. Level II ADRs are required for any activity that is
171 not temporary and limited in nature and is likely to result in degradation of water
172 quality. The central tenet of these reviews is to ensure that the discharge is necessary,
173 water quality standards will not be violated, and that alternatives to minimize
174 degradation are considered.

175 **3.2 Level I Antidegradation Reviews**

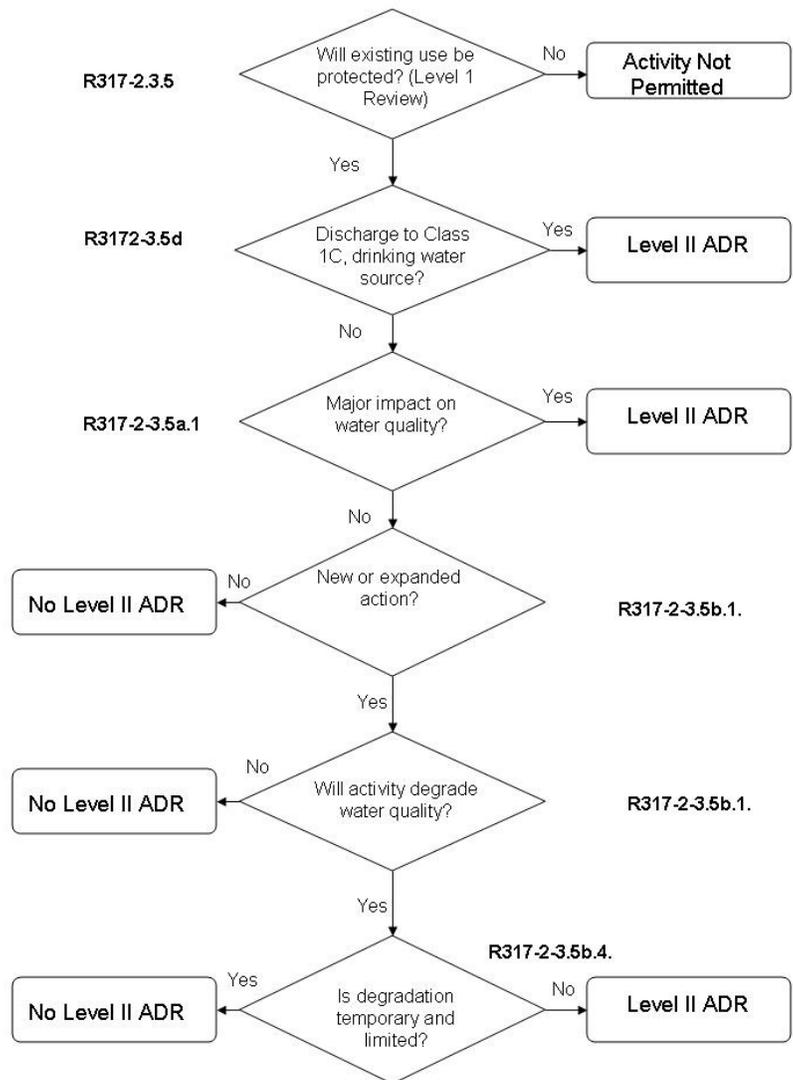
176 Level I reviews are intended to ensure that proposed actions will not impair “existing
177 uses”. Existing uses means those uses actually attained in a water body on or after
178 November 28, 1975 (UAC R317-1), whether or not they are included in the water quality
179 standards. For instance, if a stream currently only contains warm water fish species,
180 whereas it supported a trout fishery at some point after 1975, the “existing use” criteria
181 would be those for Class 3a (cold water fish and organisms in their necessary food
182 chain).

183 Neither State nor federal regulations permit impairment of an existing instream use,
184 and the Level I review simply asks whether there are existing uses with protection
185 requirements that are more stringent than the currently designated uses (R317-2-13).
186 DWQ is currently unaware of any discrepancies between the existing uses and the
187 designated beneficial use classes in R317-2-6.

188 Water quality permits will not be issued if the proposed project will impair existing
189 uses.

190 DWQ staff conduct Level I reviews as the first step in any permitting action by
191 comparing the concentration predicted by the waste load analyses after mixing to the
192 water criterion for the designated uses (R317-2-13) and more restrictive existing uses.
193 The permit applicant is responsible for submitting adequate data for DWQ to conduct
194 the Level I ADR. More information and permit applications are available at
195 http://www.waterquality.utah.gov/UPDES/updes_f.htm .

196



197 •
 198 Figure 1. The general process for determining whether a Level II ADR is required for DWQ
 199 UPDES permit. Expanded actions are increases in loads or concentrations (Section 3.3.1).
 200 Special considerations for other permits are discussed in Section 3.6.

201

202 **3.3 Level II Antidegradation Reviews**

203 A Level II ADR is required if the receiving water is designated with a 1C Drinking Water
204 Source Use or the ~~Executive Secretary~~Director determines that the discharge may have
205 a major impact on water quality. Otherwise, all of the following conditions must apply
206 before a Level II ADR is required for a proposed activity: 1) it must be a new or
207 expanded action, 2) it must be an action that is regulated by the DWQ, and 3) the action
208 must have a reasonable likelihood of degrading water quality. Additional details for
209 each of the preceding requirements are provided below.

210 3.3.12 Actions Regulated by the DWQ

211 Activities subject to ADR requirement include all activities that require a permit or
212 certification under the Clean Water Act. Special considerations for General Permits,
213 §401 Certifications, and Stormwater Permits are provided below.

214 3.3.21 Activities that are Considered to be New or Expanded Actions

215 New actions refer to facilities that are being proposed for construction, or actions that
216 are initiated for the first time. Expanded refers to a change in permitted or design
217 concentration or flow and corresponding pollutant loading. Examples of expanded
218 actions include:

- 219 • An increase in permitted concentrations;
- 220 • An increase in permitted flow;

221 New or expanded actions could include increases in discharge concentration resulting
222 from the construction of new or expanded industrial or commercial facilities. In general,
223 Level II ADRs will be conducted for POTWs based on the design basis of the facility, so
224 subsequent Level II reviews would typically only occur during facility planning and
225 design for construction. Periods when treatment systems are being designed,
226 redesigned, or expanded are often ideal opportunities for implementing new
227 technologies or evaluating long-term strategies for pollution control. The intent of this
228 provision is that any POTW capacity expansion would qualify as an action potentially
229 subject to a Level II ADR.

230 A permit authorizes a facility to discharge pollutants without explicit permit limits as
231 long as those pollutants are constituents of wastestreams, operations, or processes that
232 were clearly identified during the permit application process, regardless of whether or
233 not they were specifically identified as present in the facility discharges (see
234 memorandum from Robert Perciasepe, Assistant Administrator for Water, to Regional
235 Administrators and Regional Counsels, July 1, 1994, at Pages 2-3). These pollutants are
236 generally treated the same as pollutants with explicit permit limits with regards to ADRs,
237 *i.e.*, if a renewing permit maintains the *status quo*, no additional ADR is required.
238 However, the ~~Executive Secretary of the Utah Water Quality Board~~Director can require a
239 Level II ADR for any project, including renewing permits, if the proposed activity could
240 potentially degrade water quality.

241 ~~3.3.2 Actions Regulated by the DWQ~~

242 ~~Activities subject to ADR requirement include all activities that require a permit or~~
243 ~~certification under the Clean Water Act. Special considerations for General Permits,~~
244 ~~§401 Certifications, and Stormwater Permits are provided below.~~

245 3.3.3 *Activities that are not Considered to Result in Degradation or Additional*
246 *Degradation*

247 Level II ADRs are not required for projects that are not likely to result in degradation
248 of the receiving water. Nor are Level II ADRs typically required for projects when the
249 permit is being renewed with no increase in permitted flow or concentrations. Permits
250 that are being renewed met the ADR requirements when the permit was originally
251 issued and are not required to conduct additional ADRs in the absence of an increase in
252 degradation. A regulated discharge activity may not be considered to result in
253 degradation if:

- 254 • Water quality will not be further degraded by the proposed activity (R317-2-
255 3.5.b(1)). Examples include¹:
 - 256 a. The proposed concentration-based effluent limit is less than or equal to
257 the ambient concentration in the receiving water during critical
258 conditions; or
 - 259 b. A UPDES permit is being renewed and the proposed effluent
260 concentration and loading limits are equal to or less than the
261 concentration and loading limits in the previous permit; or
 - 262 c. A UPDES permit is being renewed and new effluent limits are to be
263 added to the permit, but the new effluent limits are based on
264 maintaining or improving upon effluent concentrations and loads that
265 have been observed, including variability; or
- 266 • The activity will result in only temporary and limited degradation of water quality
267 (see Section 3.3.4); or
- 268 • Additional treatment is added to an existing discharge and the facility retains
269 their current permit limits and design capacity; or
- 270 • The activity is a thermal discharge that has been approved through a Clean
271 Water Act §316(a) demonstration.

272 For some parameters, assimilative capacity is used when concentrations in the
273 discharge are less than ambient concentrations. For instance, if the pH in a discharge is
274 6 and ambient pH is 7, assimilative capacity for pH will be used and pH may be a
275 parameter of concern for a Level II ADR.

¹ At the time this guidance was prepared, UAC R317-2-3.5.b.1.(d) contains an additional example. This additional example was disapproved by USEPA during the standards approval process and DWQ will remedy this discrepancy in future rulemaking. If a permit was issued relying on the disapproved example, EPA could disapprove the permit. Therefore, the example in question is not included in the Implementation Guidance.

276 3.3.4 *Activities that are Considered to be Temporary and Limited*

277 This portion of the guidance is incomplete and the reader should contact DWQ for
278 assistance in the interim to determine if the activity will be considered temporary and
279 limited. A ~~Level II~~ review may not be required if the ~~Executive Secretary~~ Director
280 determines degradation from a discharge qualifies as temporary and limited following a
281 review of information provided by the applicant (R317-2-3.5b(3) and (4)). The
282 information provided by applicant should include:

- 283 • length of time during which water quality will be lowered. As a general rule of
284 thumb, temporary means days or months not years;
- 285 • percent change in ambient conditions;
- 286 • pollutants affected;
- 287 • likelihood for long-term water quality benefits to the segment (e.g., as may
288 result from dredging of contaminated sediments);
- 289 • whether fish spawning, or survival and development of aquatic fauna will be
290 affected (excluding fish removal efforts);
- 291 • degree to which achieving the applicable Water Quality Standards during the
292 proposed activity may be at risk; and
- 293 • potential for any residual long-term influences on existing uses.

294 U.S. Fish and Wildlife Service and the Utah Division of Wildlife Resources should be
295 consulted to determine if the timing of the project potentially will affect fish spawning.
296 Clean Water Act Section 402 ~~g~~General ~~p~~Permits, CWA Section 404 ~~n~~Nationwide and
297 ~~g~~General ~~p~~Permits, or activities of short duration and limited impact may be deemed to
298 have temporary and limited effects on water quality. See Section ~~3-67.0~~ for additional
299 detail.

300 **3.4 Responsibilityies for Completing Level II ADR Documentation**

301 Early and frequent communication should occur between applicants and DWQ staff.
302 The applicant (owner), or owner's representative, is responsible for compiling the
303 information required for the selection of Parameters of Concern (Section 4.0),
304 Alternatives Analysis (Section 5.0), and the Statement of Social, Environmental, and
305 Economic Importance (Section 6.0) ~~and selecting the preferred option~~. The applicant is
306 ~~also~~ responsible for recommending the parameters of concern and the preferred
307 alternative to DWQ. ~~However,~~ DWQ staff will assist where possible and provide timely
308 comments to draft material to avoid delays in the permitting process. Much of this
309 information is ~~compiled~~ prepared for other purposes such as a Facility Plan. The
310 suggested process for conducting Level II ADRs is shown in Figure 2.

311 For new and expanded discharges, the Alternatives Analysis must be prepared under
312 the supervision of and stamped by a Professional Engineer registered with the State of
313 Utah. DWQ may grant a variance from this requirement under certain circumstances.

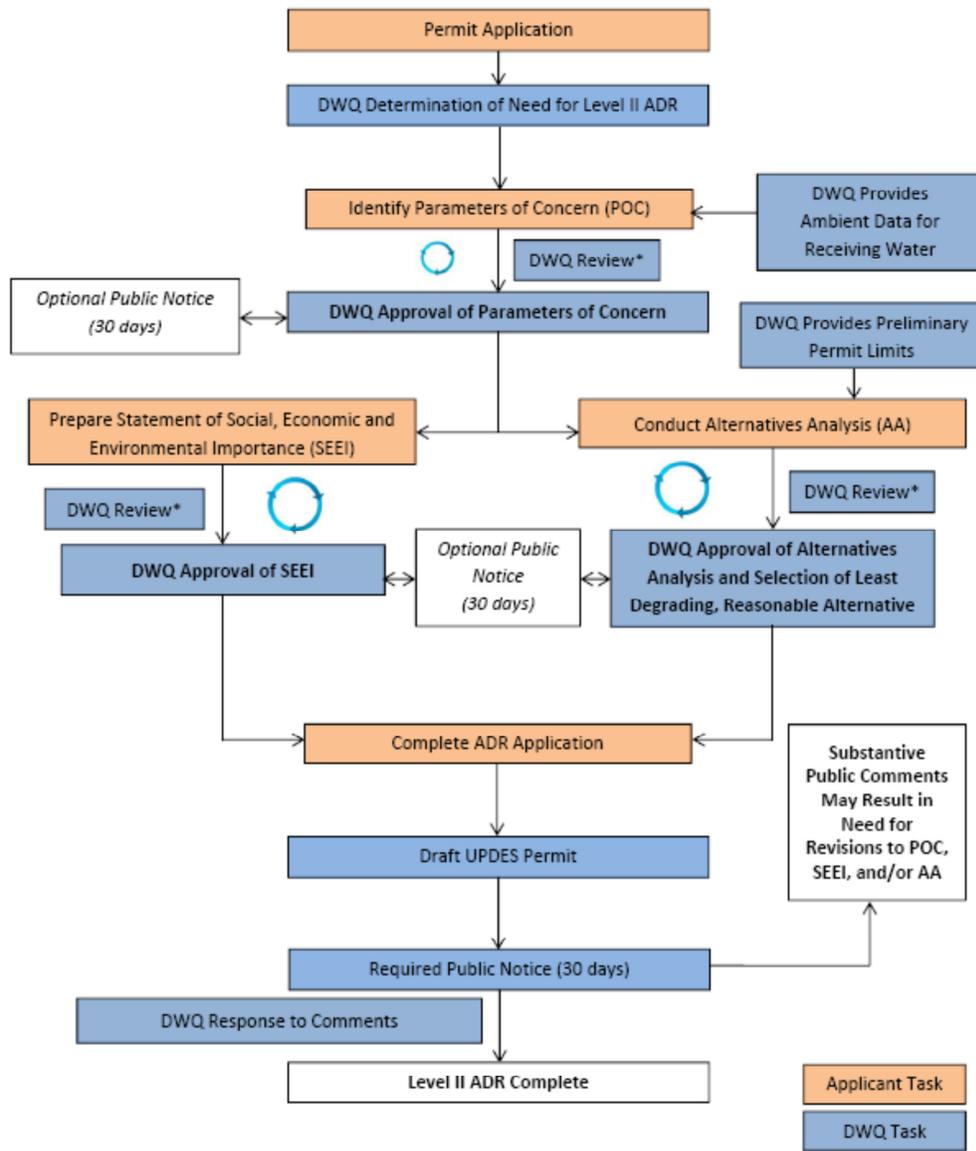
314 | such as the alternatives considered potentially feasible do not include engineered
315 | treatment alternatives.

316 | **3.5 Timing of Level II ADRs and Interim Submittals**

317 | ADR issues should be considered as early in the permitting or design process as
318 | possible. Properly timed Level II ADRs are the most efficient use of time and resources.
319 | For instance, many discharges already consider many of the requirements of Level II
320 | alternative analyses (Section 5.0) while planning for construction of new facilities or
321 | upgrades/expansion to existing facilities. Early planning also allows time to develop an
322 | optional work plan which clearly defines a scope of work for developing alternatives.
323 | The work plan minimizes miscommunication between DWQ staff and applicants and
324 | documents decision points critical to the ADR. The work plan may be put out for public
325 | comment, at the applicant's discretion, so that stakeholder concerns can be addressed
326 | early in the process, which is much easier and less time consuming than addressing
327 | concerns at the end of the permitting process. Finally, early notification provides
328 | sufficient time for the DWQ and applicants to work together to ensure that sufficient
329 | data are available to generate defensible permit limits. The DWQ suggests that
330 | whenever possible applicants initiate ADR processes one year or longer prior to the
331 | desired date of a permit. The actual time required to complete the ADR is dependent
332 | on the complexity of the ADR.

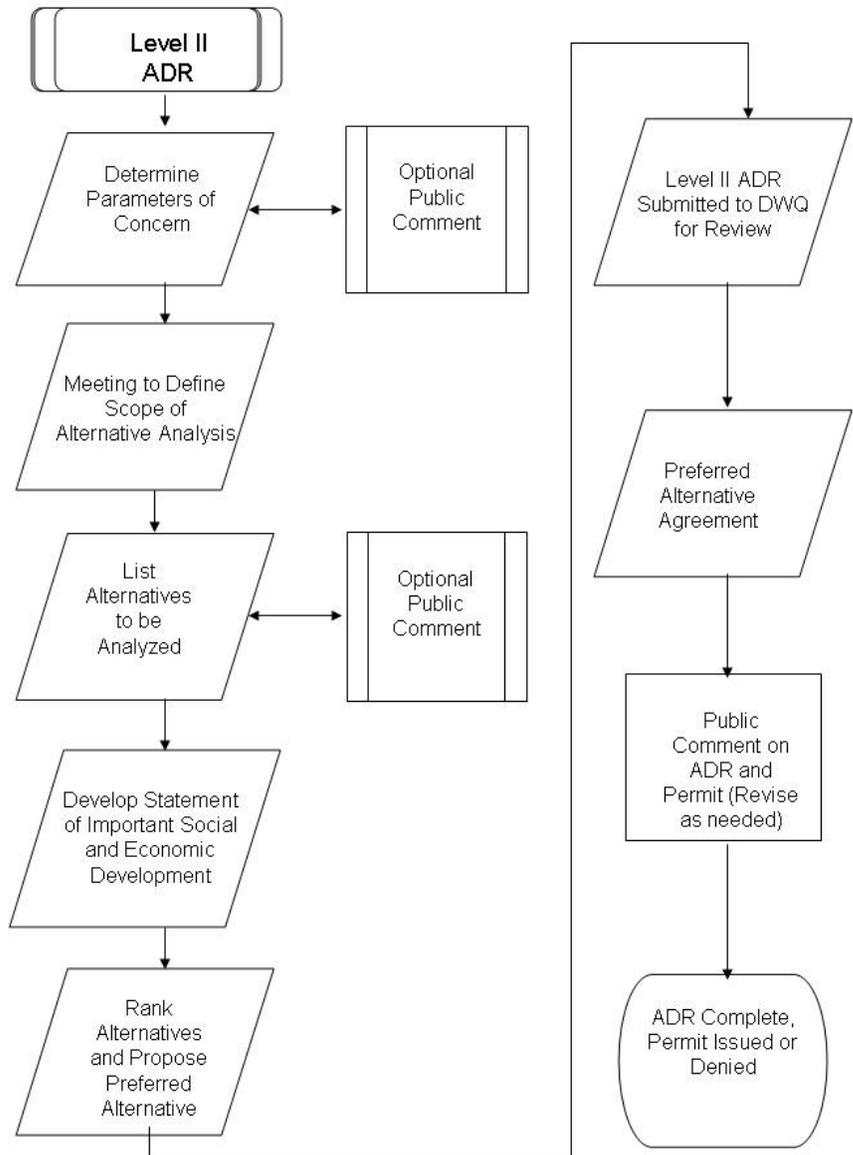
333 | Figure 2 shows the elements required for completing a Level II ADR, including interim
334 | submittals and agency review.

335



336
337

Figure 2. Process for completing a Level II Antidegradation Review (ADR).



338
 339
 340

Figure 2. Suggested process for completing a Level II Antidegradation Review (ADR).

341 **3.6 Public and Interagency Participation in ADRs**

342 Public participation is ~~an important~~ required part of the ADR process. Public notice
343 of antidegradation review findings, solicitations of public comment and maintenance of
344 antidegradation review documents as part of the public record help ensure that
345 interested parties can be engaged and involved throughout the review process. In
346 addition, intergovernmental coordination and review is required prior to any action that
347 allows degradation of water quality of a surface water.

348 **3.6.1 Required Public Notification-Process**

349 ~~Ultimately, the~~ completed and signed ADR and associated documentation will be
350 made available for public comment through the processes required for UPDES permits
351 (Figure 2). Typically, the required public notice will occur with the draft UPDES permit
352 just prior to issuance. For POTWs that obtain funding from DWQ for construction, the
353 ADR will be public noticed with the Environmental Assessment document and
354 determination.

355 DWQ is responsible for responding to comments from the mandatory public comment
356 period. The applicant may be required to conduct additional evaluation if substantive
357 comments are received.

358 **3.6.2 Optional Public Notification**

359 ~~However,~~ the applicant may opt for earlier reviews upon completion of a work plan
360 that defines the parameters of concern and the alternatives to be considered for the
361 Level II ADR alternatives analysis. The primary purpose of these optional early reviews is
362 to identify stakeholder project concerns early in the permitting process when the
363 comments can be addressed most efficiently. If an early review is conducted, concerned
364 members of the public should use this work plan comment period to identify general
365 concerns with the proposed activity, additional parameters of concern that warrant
366 consideration, or additional treatment alternatives that should be considered. Figure 2
367 identifies decision points in the process when DWQ recommends that the applicant
368 solicit optional public comments.

369 DWQ will facilitate any optional public comment opportunities by making the
370 documents available on DWQ's website and the State's Public Notice website.
371 ~~Responding to comments for any optional public comment opportunities is the~~
372 ~~responsibility of the applicant.~~ For the optional public comment periods, DWQ can be
373 the recipient of the comments but the applicant has the responsibility of addressing the
374 comments. A comment response document is not required, but DWQ recommends that
375 the applicant respond to the comments in writing. If DWQ is not the recipient of the
376 comments, the applicant should share the comments received with DWQ in a timely
377 manner. DWQ responds to comments for the mandatory public comment period prior
378 to issuing the permit.

379 | 3.6.23 *Intergovernmental Coordination and Review*

380 | Intergovernmental coordination is required prior to approving a regulated activity
381 | that would degrade a surface water. This coordination will be conducted at a level
382 | deemed appropriate by the ~~Executive Secretary~~ Director and will include any
383 | governmental agency requesting involvement with the ADR.

384 **4.0 IDENTIFICATION OF THE PARAMETERS OF CONCERN**

385 Parameters of concern (POC) are evaluated in the Level II ADR. ~~Only p~~Parameters in
386 the discharge that exceed, or potentially exceed, ambient concentrations in the
387 receiving water should be considered in selecting the parameters of concern. POCs
388 should be identified, ranked and weighted, and submitted to DWQ for review and
389 approval prior to initiation of the alternatives analysis.

390 **4.1 Determination of the Parameters of Concern**

391 The applicant, working with DWQ, should review all available data, from the discharge
392 and the receiving water, and prepare a list of parameters that will be evaluated
393 (potential parameters of concern). DWQ will provide any available data from the
394 receiving water to the applicant. In cases where effluent or receiving water quality data
395 does not exist or is limited, the applicant may need to conduct supplementary sampling
396 and analysis.

397 The initial starting point for identifying potential POCs should be the priority
398 pollutants that are known to be or believed to be present in the effluent, as listed in the
399 permit application forms (EPA Form 2e [http://www.waterquality.utah.gov/UPDES/](http://www.waterquality.utah.gov/UPDES/updes.f.htm)
400 [updes.f.htm](http://www.waterquality.utah.gov/UPDES/updes.f.htm)~~EPAForm2C.pdf~~), ~~but o~~Other parameters may be added or removed
401 depending on the nature of the proposed project and the characteristics of the receiving
402 water (UAC R317-2-3.5.b). The following are considerations for selecting parameters of
403 concern:

- 404 1. Is the parameter already included in an existing permit? Parameters with
405 limits in the discharge permit are generally considered POCs.
- 406 2. Are there any parameters in the effluent, or expected to be in the
407 effluent, that exceed ambient concentrations in the receiving water?

408 Ambient concentrations are determined by DWQ at critical conditions
409 and provided to the applicant. Typically, ambient conditions are based on
410 the most recent 10 years of data. Critical condition for bioaccumulative
411 toxics is considered the 80th percentile concentration and for
412 conventional pollutants and non-bioaccumulative toxics the average
413 concentration. The applicant may elect to collect water quality data to
414 reduce uncertainty and assist DWQ in determining existing ambient
415 concentrations.

416 The effluent concentrations are the permitted effluent limits or discharge
417 concentration of the baseline treatment alternative. For parameters that
418 do not warrant permit effluent limits based on DWQ's reasonable
419 potential analysis, the 80th percentile of the effluent concentrations
420 should be used. If no discharge data is-are available for the baseline

421 treatment alternative, the concentration should be estimated based on
422 pilot studies, literature values, manufacturer's guidelines and/or best
423 professional ~~judgement~~ judgment.

424 In cases when the available data are limited, comparisons between
425 effluent/permitted and ambient concentrations may be conducted using
426 methods that minimize type II errors, *i.e.*, erroneously concluding that a
427 pollutant will not degrade water quality.

428 3. ~~Is the parameter already included in an existing permit?~~

429 4. ~~Are parameter concentrations and/or loads exceeding or projected to~~
430 ~~exceed the current permitted load or design basis?~~

Comment [NvS1]: Propose to remove this clause, as it is more relevant to the requirement to conduct a Level II review than identifying POCs.

431 5.4. Are there any parameters that are considered to be important by DWQ
432 or the general public? For instance, nutrients or bioaccumulative
433 compounds may be of concern for some surface waters. For discharges
434 to Class 1C drinking water sources, any substances potentially deleterious
435 to human health may be considered.

436 6. ~~Are there parameters in the effluent that are known to potentially~~
437 ~~degrade the existing beneficial uses of the receiving water?~~

Comment [NvS2]: Propose to remove. This seems redundant to the previous tests.

438 5. Is the receiving water listed as impaired for any parameters? Parameters
439 for which the receiving water is listed as impaired and have an ongoing or
440 approved TMDL are not considered as part of the ADR and are addressed
441 through the TMDL program.

442 6. ~~Is the discharge of the parameter temporary and limited? Refer to~~
443 ~~Section 3.3.4 for guidance on what qualifies as temporary and limited.~~
444 ~~Parameters that are determined to be temporary and limited are not~~
445 ~~considered parameters of concern.~~

446 7. ~~Is the discharge to a freshwater terminal lake? Additional analysis is~~
447 ~~required to evaluate the degradation and accumulation of the parameter~~
448 ~~in the lake environment.~~

449 7.8. ~~Is the discharge to the Great Salt Lake? Due to uncertainties in the~~
450 ~~biogeochemical transformation and toxicity of parameters in the Great~~
451 ~~Salt Lake environment, parameters of concern will be determined on a~~
452 ~~case-by-case basis utilizing the best available information regarding~~
453 ~~ambient conditions and assimilative capacity.~~

454 ~~The applicant, working with DWQ, should review all available data, from the discharge~~
455 ~~and the receiving water, and prepare a list of parameters which will be evaluated. DWQ~~
456 ~~will provide any available data from the receiving water to the applicant.~~ The list of

457 parameters of concern and parameters evaluated but not considered POCs,
458 and including supporting rationale, should must be submitted to DWQ. DWQ will review
459 the list and provide preliminary approval pending public comment. ~~Meetings between~~
460 ~~the applicant and DWQ are anticipated to be the most efficient way to resolve~~
461 ~~differences regarding parameters to be considered in the Level II ADR.~~

462 Once the list of parameters of concern has been agreed to between DWQ and the
463 applicant, the list ~~could may~~ be made available to the public by DWQ for an optional
464 comment period (see Section 3.6.27-4). After a 30-day comment period, the list may be
465 refined or approved. This list and associated rankings will form the basis for further
466 activities of the ADR and will ultimately be used to select the least degrading project
467 alternative (Section 5).

468 **4.21 Ranking and Weighting the Parameters of Concern**

469 ~~If there is more than one parameter of concern,~~ The parameters of concern may
470 need to be ranked, ~~or and/or~~ weighted, in order to determine overall water quality
471 degradation of a given ~~treatment~~ alternative. Since no single objective method is
472 possible, the ranking and weighting of POCs will inherently involve some subjectivity and
473 professional judgment, and should be developed in close consultation with DWQ.
474 Ranking and weighting factor considerations are provided below. The basis of the
475 ranking and weighting should be must be developed prior to starting the alternatives
476 analysis and documented in the ADR application.

477 1. For each POC, the amount of assimilative capacity available in the receiving
478 water should be a consideration in determining the relative importance of the
479 parameter in the discharge. POCs with greater assimilative capacity in the
480 receiving water are generally considered less important. An example
481 calculation of the assimilative capacity in the receiving water is shown in Table
482 4-1.

483 ~~1.2.~~ For toxic POCs, using the EPA's toxic weighting factors (TWF) ~~to calculate~~
484 ~~toxic weighted pound equivalents (TWPE)~~ for the POCs may be appropriate.
485 EPA derives TWFs from chronic aquatic life criteria (or toxic effect levels) and
486 human health criteria (or toxic effect levels) established for the consumption
487 of fish in order to account for differences in toxicity across pollutants and to
488 provide the means to compare mass loadings of different pollutants. Other
489 factors may be more appropriate for ranking toxic POCs than TWF on a case-
490 by-case basis depending on site specific considerations such as the available
491 assimilative capacity for each toxicant or downstream impacts associated with
492 a particular toxicant. TWFs for selected pollutants and example ranking and
493 weighting calculations are provided in the UDWQ ADR Spreadsheet Tools that
494 are a companion to this guidance document. TWFs for other pollutants can be
495 obtained from multiple sources from EPA, including EPA's DMR Pollutant
496 Loading Tool (<http://cfpub.epa.gov/dmr/>). An example of ranked and
497 weighted toxic POCs is provided in Table 4-2. The TWFs can be used to

Comment [NvS3]: Move up in section.

498 calculate toxic weighted pound equivalents (TWPE) of pollutant removed as
 499 described in Section 5.3.
 500 ~~2-3.~~ For non-toxic POCs, ranking and weighting factors should reflect the
 501 relative potential impact of the POC on the beneficial uses of the receiving
 502 water. As this determination involves application of best professional
 503 judgment, the weighting factors will need to be developed in consultation with
 504 DWQ. An example of ranked and weighted non-toxic POCs is provided in Table
 505 4-34.
 506 ~~— In the case where both toxic and non-toxic POCs are identified, ranking and~~
 507 ~~weighting will be based on best professional judgment based on site specific~~
 508 ~~considerations.~~

510 Table 4-1: Example Assimilative Capacity Determination

<u>Parameter of Concern</u>	<u>Ambient Concentration</u>	<u>Water Quality Criteria</u>	<u>Assimilative Capacity</u>	
			<u>Used¹</u>	<u>Available²</u>
<u>A</u>	<u>0.85</u>	<u>1.25</u>	<u>68%</u>	<u>32%</u>
<u>B</u>	<u>0.06</u>	<u>0.95</u>	<u>6%</u>	<u>94%</u>
<u>C</u>	<u>2.5</u>	<u>5.0</u>	<u>50%</u>	<u>50%</u>

1: Assimilative Capacity Used = (Ambient Concentration/Water Quality Criteria) * 100
 2: Assimilative Capacity Available = 100 – Assimilative Capacity Used

511 Table 4-2: Example Ranking and Weighting of Toxic Parameters of Concern

<u>Parameter of Concern</u>	<u>Rank</u>	<u>Toxic Weighting Factor</u>	<u>Assimilative Capacity Used</u>	<u>Toxic Weighting- Assimilative Capacity Factor</u>
<u>A</u>	<u>1</u>	<u>4.04</u>	<u>68%</u>	<u>2.75</u>
<u>B</u>	<u>2</u>	<u>23.1</u>	<u>6%</u>	<u>1.46</u>
<u>C</u>	<u>3</u>	<u>0.63</u>	<u>50%</u>	<u>0.32</u>

513 An example of a table of ranked and weighted POCs is provided below.

514 ~~Table 4-34:~~ Example Ranking and Weighting of Non-Toxic Parameters of Concern

<u>Parameter</u>	<u>Rank</u>	<u>Weight</u>
<u>Total Phosphorus</u>	<u>1</u>	<u>40%</u>
<u>BOD</u>	<u>2</u>	<u>30%</u>
<u>TSS</u>	<u>3</u>	<u>20%</u>
<u>Total Nitrogen</u>	<u>4</u>	<u>10%</u>
		<u>100%</u>

516
517

518 **5.0 ALTERNATIVES ANALYSIS ~~OF-FOR~~ LEVEL II ADRS**

519 ~~As the name suggests,~~ The alternatives analysis requires, to the extent
520 practicable/feasible, documentation of the costs and water quality benefits of alternative
521 treatment options. The purpose of ~~an-the~~ alternatives analysis is to evaluate whether
522 there are any reasonable non-degrading or less degrading alternatives for the proposed
523 activity.

524 **5.1 Establishing the Baseline Treatment Alternative**

525 The Alternatives Analysis requires selecting the baseline treatment alternative, which
526 is defined as the treatment alternative that meets designated uses and associated
527 criteria through water quality based permit effluent limits established by the wasteload
528 analysis or TMDL and any other categorical limits or secondary standards. The cost of
529 the baseline treatment alternative must be estimated for the purpose of assessing the
530 cost reasonableness of less degrading alternatives.

Comment [NvS4]: Suggest changing Treatment to Effluent Management throughout the guidance, as some alternatives do not involve treatment
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531 **5.2~~1~~ Development of ing a Scope of Work for Level II ADR Alternatives**
532 **Analysis**

533 The intent of this section is to ~~provide-outline~~ a collaborative process to define thea
534 scope of work for a Level II review which allows for analysis and document preparation.
535 This step is critical, as the level of effort for the alternatives analysis will depend on the
536 size and complexity of the project and the relative importance and sensitivity of the
537 receiving water.

538 **5.2.1 Collaborative Scoping**

539 The first suggested step in the scoping process will be to convene a meeting between
540 the applicant, project consultants, and DWQ to identify less degrading treatment
541 alternatives to be considered and the level of detail appropriate for the alternatives
542 analysis.

543 ~~review-~~The requirements for the scope of the alternatives analysis are found in R317-
544 2-3.5 ~~as shown below:~~

545 *"For proposed UPDES permitted discharges, the following list of alternatives should*
546 *be considered, evaluated and implemented to the extent feasible:*

- 547 (a) *innovative or alternative treatment options*
- 548 (b) *more effective treatment options or higher treatment levels*
- 549 (c) *connection to other wastewater treatment facilities*
- 550 (d) *process changes or product or raw material substitution*
- 551 (e) *seasonal or controlled discharge options to minimize discharging during*
552 *critical water quality periods*
- 553 (f) *pollutant trading*
- 554 (g) *water conservation*
- 555 (h) *water recycle and reuse*

- 556 (i) alternative discharge locations or alternative receiving waters
- 557 (j) land application
- 558 (k) total containment
- 559 (l) improved operation and maintenance of existing treatment systems
- 560 (m) other appropriate alternatives...

562 ~~An option more costly than the cheapest alternative may have to be implemented~~
 563 ~~if a substantial benefit to the stream can be realized. Alternatives would generally be~~
 564 ~~considered feasible where costs are no more than 20% higher than the cost of the~~
 565 ~~discharging alternative, and (for POTWs) where the projected per connection service~~
 566 ~~fees are not greater than 1.4% of MAGI (median adjusted gross household income),~~
 567 ~~the current affordability criterion now being used by the Water Quality Board in the~~
 568 ~~wastewater revolving loan program. Alternatives within these cost ranges should be~~
 569 ~~carefully considered by the discharger. Where State financing is appropriate, a~~
 570 ~~financial assistance package may be influenced by this evaluation, i.e., a less~~
 571 ~~polluting alternative may receive a more favorable funding arrangement in order to~~
 572 ~~make it a more financially attractive alternative."~~

573 **5.2 — Establishing the Baseline Treatment Alternative**

574 ~~The Alternatives Analysis requires selecting the baseline treatment alternative, which~~
 575 ~~is defined as the treatment alternative that meets water quality standards and water~~
 576 ~~quality based permit effluent limits established by the wasteload analysis. The cost of~~
 577 ~~the baseline treatment alternative must be estimated for the purpose of assessing the~~
 578 ~~cost reasonableness of less degrading alternatives.~~

579 **5.2.23 General Considerations for Selecting Treatment Alternatives for**
 580 **Consideration/Evaluation**

581 The number of alternatives to be considered and the extent of planning details for
 582 alternative analyses may depend on the nature of the facility, size of the proposed
 583 discharge, the magnitude of degradation, and the characteristics of the receiving water.
 584 This section outlines screening procedures for determining reasonable alternatives that
 585 are appropriately scaled to the proposed project. The alternatives specified here are
 586 guidelines and may be modified from public comments or at the **Executive**
 587 **Secretary/Director's** discretion.

588 ~~For many projects, the Facility Plan documents the selection of the preferred~~
 589 ~~treatment option and may be sufficient to meet the alternatives analysis requirement of~~
 590 ~~the ADR depending on the specific parameters of concern.~~ The following guidelines
 591 should be considered when defining the scope of work for the alternatives analysis:

- 592 1. The feasibility of all alternatives should be examined before inclusion in the
- 593 options to be reviewed in more detail. If an option is initially determined not to
- 594 be feasible, it ~~should~~ does not need to be considered further. ~~As an example,~~

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- 595 | ~~before pollutant trading is considered, willing partners in such trading should be~~
596 | ~~identified or the potential for trading should exist.~~
- 597 | 2. Innovative or alternative treatment options should be limited to proven or
598 | successfully piloted processes.
- 599 | 3. The treatment options subject to review should focus on those which have the
600 | greatest potential for water quality improvement for the parameters of concern.
601 | Flexibility to modify the treatment process to address potential future changes in
602 | waste streams or treatment requirements should also be considered.
- 603 | 4. When an instream need for the discharge water is deemed by the ~~Executive~~
604 | ~~Secretary~~Director to be of significant importance to the beneficial use (i.e., if
605 | removal of the discharge would result in a detrimental loss of stream flow),
606 | evaluation of reuse, land disposal or total containment may be unnecessary.
- 607 | 5. Alternatives may be ranked in order of potential for parameter reduction.
608 | Preference should be given to processes that have the greatest overall effect on
609 | water quality. Typically, these highest ranked processes will have the greatest
610 | reduction in pollutant load and affect the greatest number of parameters of
611 | concern.
- 612 | 6. Before improved operations and maintenance are considered as a way to
613 | prevent degradation, specific operation or maintenance activities should be
614 | identified. If ~~Executive Secretary~~Director and the applicant agree, a third party
615 | may be used to assess potential for operations and maintenance improvements.

616 | **5.4 — Special Project Specific Scoping Considerations**

617 | For many projects, the Facility Plan documents the selection of the preferred
618 | treatment option and may be sufficient to meet the alternatives analysis requirement of
619 | the ADR depending on the specific parameters of concern.

620 | ~~The number of alternatives to be considered and the extent of planning details for~~
621 | ~~alternative analyses may depend on the nature of the facility, size of the proposed~~
622 | ~~discharge, the magnitude of degradation, and the characteristics of the receiving water.~~
623 | ~~This section outlines screening procedures for determining reasonable alternatives that~~
624 | ~~are appropriately scaled to the proposed project. The alternatives specified here are~~
625 | ~~guidelines and may be modified from public comments or at the Executive Secretary's~~
626 | ~~discretion.~~

627 | All discharges requiring a permit must be provided with a level of treatment equal to
628 | or exceeding the requirements in R317-3 for technology based effluent limitations. As
629 | provided in R317-32, minimum technology based treatment requirements for POTWs
630 | consist of secondary treatment and applicable limitations and standards. The
631 | technology based review for POTWs in the Clean Water State Revolving Fund (SRF)
632 | process is accomplished through the Facility's Plan and Environmental Assessment. The

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633 requirements of the process include an investigation of project need, alternatives,
634 effluent limitations, future conditions, and an Environmental Assessment. The
635 technology based review for POTWs subject to the SRF process generally is satisfied on
636 completion of the Facility Plan, Environmental Assessment, public participation, and
637 DWQ approval. -The technology based review for POTWs that are not in the SRF process
638 is conducted through the UPDES permitting process.

639 The technology based review for non-POTW facilities likewise is conducted during the
640 UPDES permitting and technology based requirements are applied when the permit is
641 drafted. DWQ has adopted categorical standards for discharges from various types of
642 industries. Existing industrial discharges are required to achieve the best conventional
643 pollutant control technology for conventional pollutants and the best available
644 technology for nonconventional and toxic pollutants. Certain new industrial discharges
645 are required to comply with new source performance standards based on the best
646 available demonstrated control technology. Effluent limitations for parameters or
647 industries not covered by the categorical standards and limitations are established on a
648 case-by-case basis, based on best professional judgment. The technology review is
649 complete when the ~~Executive Secretary~~Director approves the draft permit.

650 If a Level II review was conducted for the facility for a previous renewal and a Level II
651 review is required for permit reissuance, and if the previous Level II review was based
652 on the design basis of the facility, the applicant should include a written statement
653 certifying that: 1) all alternative treatment processes remain applicable and that the
654 applicant is not aware of alternatives that were not previously considered, 2) that
655 reasonable alternative operation and maintenance procedures are not available that
656 would reduce degradation of the receiving water if implemented.

657 5.2.35 Finalizing the Alternatives ~~Work Plan~~Analysis Scope of Work

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658 Once a scope of work is agreed to between DWQ and the applicant, the applicant can
659 proceed with completing the alternatives analysis.

660 The applicant may wish to public notice the scope of work for the alternatives
661 analysis. In this case, the scope of work should be documented in a work plan. The
662 work plan can be made available to the public and can be published on the State Public
663 Notice website at the applicant's discretion. ~~The scope of work may be modified in~~
664 ~~response to public comments, at the applicant's discretion.~~This public comment period
665 may be held concurrent with the comment period for the parameters of concern, both
666 of which are at the applicant's discretionoptional.

667 ~~For the optional public comment periods, DWQ can be the recipient of the comments~~
668 ~~but the applicant has the responsibility of addressing the comments. A comment~~
669 ~~response document is not required, but DWQ recommends that the applicant respond~~
670 ~~to the comments in writing. If DWQ is not the recipient of the comments, the applicant~~
671 ~~should share the comments received with DWQ in a timely manner.~~

672 Additional alternatives may be identified during the public comment period or during
673 evaluation of the alternatives. These possible changes to the scope ~~to~~of the

674 alternatives analyses should be reviewed by the Applicant and DWQ for inclusion in the
675 work plan, as needed.

676 **5.3.7 Procedures for ~~Evaluating~~ Selecting the Preferred Alternative**

677 ~~5.6 — Materials to be Submitted with Alternative Analyses~~

678 ~~For the DWQ to fairly evaluate alternative treatments, the following information~~
679 ~~should be provided for each alternative process:~~

- 680 ~~1. A technical description of the treatment process, including construction costs~~
681 ~~and continued operation and maintenance expenses.~~
- 682 ~~2. The mass and concentration of discharge constituents, and a description of the~~
683 ~~discharge location.~~
- 684 ~~3. A description of the reliability of the system.~~
- 685 ~~4. A ranking of each alternative in terms of its relative ability to minimize~~
686 ~~degradation to the receiving water (see Section 5.6).~~
- 687 ~~5. A ranking of each alternative as to how adaptable it would be to potentially~~
688 ~~changing regulatory requirements.~~

689 The procedures presented in this section are intended to be applied to those
690 alternatives that pass initial screening for feasibility. The more detailed quantitative
691 ranking of alternatives by ~~degradation~~ degradation and cost effectiveness may be
692 required depending on the size and complexity of the project and importance and
693 sensitivity of the receiving water.

694

695 ~~5.7 — Procedures for Evaluating the Preferred Alternative~~

696 ~~5.3.17.1 Applicant Ranking of Treatment Alternatives by Degradation~~

697 The alternatives should be ranked from the least-degrading to the most-degrading
698 alternative, as determined from the ~~established and~~ ranked and weighted pollutants of
699 concern and the treatment effectiveness of each alternative. Creating a ranked
700 hierarchy of alternatives helps to simplify the applicant's selection of a "preferred" the
701 least degrading, reasonable alternative. The applicant will need to estimate the mass of
702 each parameter removed by each treatment alternative based on the best available
703 information. ~~By ranking alternatives in this way, the applicant can avoid having to~~
704 ~~perform a detailed economic analysis on the universe of available alternatives, instead~~
705 ~~focusing efforts on only the "top" or least-degrading alternative. In a following step the~~
706 ~~applicant either selects the "top" alternative as the "preferred" alternative or conducts~~
707 ~~a more detailed review to justify eliminating that alternative from further consideration~~
708 ~~(e.g., the option would be too costly).~~

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709 A method for ranking the alternatives suitable for less complex reviews is to
 710 qualitatively rate the water quality improvement anticipated for each POC under each
 711 treatment alternative. Also, below is an example scale for determining the benefit of
 712 each alternative for the given parameter of concern (Tables 5-1 and 5-2). The applicant
 713 may propose other qualitative ranking methods as an alternative to the example
 714 provided.

715 Table 5-1: Example Water Quality Improvement Ratings

<u>Water Quality Improvement</u>	<u>Rating</u>
<u>Minor Improvement</u>	<u>1</u>
<u>Fair Improvement</u>	<u>2</u>
<u>Good Improvement</u>	<u>3</u>
<u>Excellent Improvement</u>	<u>4</u>
<u>No Degradation</u>	<u>5</u>

716

717 Table 5-2: Example Qualitative Alternative Rankings by Degradation (from least to most)

<u>Alternatives</u>	<u>POC A</u>		<u>POC B</u>		<u>POC C</u>		<u>Weighted Rating</u>	<u>Rank</u>
	<u>Rating</u>	<u>Weight¹</u>	<u>Rating</u>	<u>Weight¹</u>	<u>Rating</u>	<u>Weight¹</u>		
<u>Alternative 4</u>	<u>5</u>	<u>50%</u>	<u>4</u>	<u>30%</u>	<u>4</u>	<u>20%</u>	<u>4.5</u>	<u>1</u>
<u>Alternative 5</u>	<u>3</u>	<u>50%</u>	<u>5</u>	<u>30%</u>	<u>5</u>	<u>20%</u>	<u>4</u>	<u>2</u>
<u>Alternative 2</u>	<u>4</u>	<u>50%</u>	<u>2</u>	<u>30%</u>	<u>3</u>	<u>20%</u>	<u>3.2</u>	<u>3</u>
<u>Alternative 1</u>	<u>2</u>	<u>50%</u>	<u>3</u>	<u>30%</u>	<u>4</u>	<u>20%</u>	<u>2.7</u>	<u>4</u>
<u>Alternative 3</u>	<u>2</u>	<u>50%</u>	<u>3</u>	<u>30%</u>	<u>2</u>	<u>20%</u>	<u>2.3</u>	<u>5</u>

1: Weighting factor from the ranking and weighting of POCs.

718 ~~The applicant should identify situations in which different alternatives are more or~~
 719 ~~less degrading for individual pollutants. In these cases, the applicant should identify and~~
 720 ~~document its rationale regarding the alternative that — on the whole — is least~~
 721 ~~degrading. For example, alternative A might be least degrading for TDS, but result in a~~
 722 ~~more degradation than alternative B for selenium. If there were a downstream~~
 723 ~~impairment for TDS, that might influence a decision that the overall least degrading~~
 724 ~~alternative in our example was alternative A. On the other hand, if there was no~~
 725 ~~impairment downstream and the assimilative capacity reduction for TDS was 10 percent~~
 726 ~~and the selenium reduction in assimilative capacity was 75 percent, the preferred~~
 727 ~~alternative might be alternative B.~~

728 For more complex evaluations of alternatives, the ranking of alternatives eshould be
 729 based on the development of a matrix giving the weighting of each parameter of
 730 concern ~~against each other~~ and the ~~rating of benefit the alternative has for the~~
 731 ~~individual parameter of concern~~ mass of pollutant removed by each alternative. The
 732 applicant will need to estimate the mass of each parameter removed by each treatment
 733 alternative based on the best available information. Toxic and non-toxic pollutants
 734 should be evaluated separately. ~~The rankings and a description of the rationale for~~
 735 ~~parameter weightings and overall rankings should be compiled and submitted to the~~

736 DWQ. The following is an example rating matrix that could be used in this process to
 737 rank alternatives from least degrading to more degrading:

738 Because toxic pollutants differ in their toxicity, the reductions in pollutant discharges
 739 need to be adjusted for toxicity by multiplying the estimated removal quantity for each
 740 pollutant by a normalizing weight, called a toxic weighting factor (TWF). The TWF for
 741 each pollutant measures its toxicity relative to copper, with more toxic pollutants having
 742 higher TWFs. The TWFs can be obtained from multiple sources from EPA, including
 743 EPA's DMR Pollutant Loading Tool (<http://cfpub.epa.gov/dmr/>). The use of toxic
 744 weights allows the removals of different pollutants to be expressed on a constant
 745 toxicity basis as toxic **weighted** pound-equivalents (TWPE, lb-eq) and summed to yield
 746 an aggregate measure of the reduction in pollutant discharge that is achieved by a
 747 treatment alternative (Table 5-3). The treatment alternatives can then be ranked by
 748 toxic pollutant removal (Table 5-4).

749

750 Table 5-3: Example Toxic Pollutant Removal Estimation for a Treatment Alternative

Toxic Parameter	Influent		Effluent		Removal		Toxic Weighting Factor	TWPE Removal (lb-eq/yr)
	(mg/L)	(lb/day)	(mg/L)	(lb/day)	(lb/yr)	(%)		
Ammonia	<u>1</u>	<u>3.61</u>	<u>0.1</u>	<u>0.36</u>	<u>1,184.3</u>	<u>90%</u>	<u>0.0014</u>	<u>1.7</u>
Arsenic	<u>0.05</u>	<u>0.18</u>	<u>0.005</u>	<u>0.02</u>	<u>59.2</u>	<u>90%</u>	<u>4.04</u>	<u>239.2</u>
Cadmium	<u>0.02</u>	<u>0.07</u>	<u>0.005</u>	<u>0.02</u>	<u>19.7</u>	<u>75%</u>	<u>23.1</u>	<u>456.0</u>
Copper	<u>0.05</u>	<u>0.18</u>	<u>0.005</u>	<u>0.02</u>	<u>59.2</u>	<u>90%</u>	<u>0.63</u>	<u>37.3</u>
Hexavalent chromium	<u>0.05</u>	<u>0.18</u>	<u>0.005</u>	<u>0.02</u>	<u>59.2</u>	<u>90%</u>	<u>0.51</u>	<u>30.2</u>
Iron	<u>0.07</u>	<u>0.25</u>	<u>0.01</u>	<u>0.04</u>	<u>79.0</u>	<u>86%</u>	<u>0.0056</u>	<u>0.4</u>
Lead	<u>0.05</u>	<u>0.18</u>	<u>0.005</u>	<u>0.02</u>	<u>59.2</u>	<u>90%</u>	<u>2.24</u>	<u>132.6</u>
Mercury	<u>0.0001</u>	<u>0.00036</u>	<u>0.0001</u>	<u>0.00036</u>	<u>-</u>	<u>0%</u>	<u>120</u>	<u>0.0</u>
Selenium	<u>0.05</u>	<u>0.18</u>	<u>0.05</u>	<u>0.18</u>	<u>-</u>	<u>0%</u>	<u>1.1</u>	<u>0.0</u>
Silver	<u>0.01</u>	<u>0.04</u>	<u>0.004</u>	<u>0.01</u>	<u>7.9</u>	<u>60%</u>	<u>16.5</u>	<u>130.3</u>
Total chromium	<u>0.05</u>	<u>0.18</u>	<u>0.005</u>	<u>0.02</u>	<u>59.2</u>	<u>90%</u>	<u>0.076</u>	<u>4.5</u>
Total residual chlorine	<u>0.5</u>	<u>1.80</u>	<u>0.01</u>	<u>0.04</u>	<u>644.8</u>	<u>98%</u>	<u>0.509</u>	<u>328.2</u>
Zinc	<u>0.04</u>	<u>0.14</u>	<u>0.005</u>	<u>0.02</u>	<u>46.1</u>	<u>88%</u>	<u>0.047</u>	<u>2.2</u>
Total								<u>1,362.6</u>

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752 Table 5-4: Example Alternatives Ranking by Pollutant Removal for Toxic Pollutants

Alternative	Removal (lb-eq/yr)	Rank
Alternative 4	<u>1,333</u>	<u>1</u>
Alternative 5	<u>1,012</u>	<u>2</u>
Alternative 2	<u>957</u>	<u>3</u>

Alternative 3	886	4
Alternative 1	759	5

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For non-toxic pollutants such as TSS, BOD, TN, and TP, due to the varying mass of each pollutant observed in the discharge, the amount removed needs to be normalized. The suggested approach is to calculate a unitless removal ratio of pollutant removal for each alternative to the maximum pollutant removal amongst all of the alternatives (Table 5-5); however, other normalization methods could be appropriate.

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Table 5-5: Example Alternatives Ranking by Pollutant Removal for Non-Toxic Pollutants

Alternatives	POC A			POC B			POC C			Weighted Removal Ratio	Rank
	Removal (lb)	Removal Ratio ¹	Weight ²	Removal (lb)	Removal Ratio ¹	Weight ²	Removal (lb)	Removal Ratio ¹	Weight ²		
Alternative 4	15	0.75	50%	15	0.50	30%	20	1.00	20%	0.73	1
Alternative 2	15	0.75	50%	10	0.33	30%	20	1.00	20%	0.68	2
Alternative 3	20	1.00	50%	5	0.17	30%	10	0.50	20%	0.65	3
Alternative 1	10	0.50	50%	20	0.67	30%	15	0.75	20%	0.60	4
Alternative 5	8	0.40	50%	30	1.00	30%	10	0.50	20%	0.60	5
Baseline	10	0.50	50%	8	0.27	30%	15	0.75	20%	0.48	6
Maximum	20	-	-	30	-	-	20	-	-	-	-

1: POC removal normalized to maximum removal of all treatment alternatives, i.e. ratio of removal from alternative to max. removal of all alternatives.

2: Weighting factor from the ranking and weighting of POCs.

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<u>Parameters of Concern Removed (Pounds/Year)</u>								
<u>Alternatives</u>	<u>P-1</u>	<u>Weight</u>	<u>P-2</u>	<u>Weight</u>	<u>P-3</u>	<u>Weight</u>	<u>Total Weighted</u>	<u>Ranking</u>
<u>Alternative 4</u>	<u>15</u>	<u>50%</u>	<u>15</u>	<u>30%</u>	<u>20</u>	<u>20%</u>	<u>16.0</u>	<u>1</u>
<u>Alternative 5</u>	<u>8</u>	<u>50%</u>	<u>30</u>	<u>30%</u>	<u>10</u>	<u>20%</u>	<u>15.0</u>	<u>2</u>
<u>Alternative 2</u>	<u>15</u>	<u>50%</u>	<u>10</u>	<u>30%</u>	<u>20</u>	<u>20%</u>	<u>14.5</u>	<u>3</u>
<u>Alternative 1</u>	<u>10</u>	<u>50%</u>	<u>20</u>	<u>30%</u>	<u>15</u>	<u>20%</u>	<u>14.0</u>	<u>4</u>
<u>Alternative 3</u>	<u>20</u>	<u>50%</u>	<u>5</u>	<u>30%</u>	<u>10</u>	<u>20%</u>	<u>13.5</u>	<u>5</u>
<u>Baseline</u>	<u>10</u>	<u>50%</u>	<u>8</u>	<u>30%</u>	<u>15</u>	<u>20%</u>	<u>10.4</u>	<u>6</u>

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Also, below is an example scale for determining the benefit of each alternative for the given parameter of concern:

<u>Ratings:</u>	<u>=</u>
<u>Minor Improvement</u>	<u>1</u>
<u>Modest Improvement</u>	<u>2</u>
<u>Reasonable Improvement</u>	<u>3</u>
<u>Good Improvement</u>	<u>4</u>
<u>Excellent Improvement</u>	<u>5</u>

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5.3.27-2 Review-Evaluation and Selection of the Preferred of Feasibility of Alternatives

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After ranking the alternatives by degradation, the applicant will need to evaluate whether it would be reasonable to select a less degrading alternative. The factors that determine if an alternative is reasonable are cost effectiveness and affordability. Cost effectiveness and affordability are addressed in the rule (R317-2-3.5.c), which states:

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"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 MAGI (median adjusted gross household income), the current affordability criterion now being used by the Water Quality Board in the wastewater revolving loan program. Alternatives within these cost ranges should be carefully considered by the discharger. Where State financing is appropriate, a financial assistance package

784 may be influenced by this evaluation, i.e., a less polluting alternative may receive
 785 a more favorable funding arrangement in order to make it a more financially
 786 attractive alternative.”

787 Additional guidance on how to evaluate cost effectiveness and affordability are
 788 provided in the sections below.

789 5.3.2.1 Evaluation of Cost Effectiveness

790 An alternative must be cost effective to be considered reasonable. Cost effectiveness
 791 should be evaluated in two ways: overall cost increase and unit cost of pollutant
 792 removal in comparison to the baseline treatment alternative.

793 The total cost increase of each alternative needs to be estimated. The cost estimate is
 794 typically based on a concept level design with limited engineering; sufficient detail in the
 795 cost estimate should be provided so that the basis can be verified. The estimate should
 796 be the Net Present Value (NPV) of the 20-year life-cycle cost including land acquisition,
 797 capital cost, and operation and maintenance (O&M) costs. For simplicity, it may be
 798 assumed that the discount rate equals the inflation rate in order to estimate operation
 799 and maintenance costs in today’s dollars, i.e. NPV of O&M equals 20 times O&M annual
 800 cost. The applicant may propose the use of an alternate discount rate, along with
 801 justification. For upgrades to existing facilities, only the cost basis for the upgrade
 802 should be considered, i.e. additional capital and O&M costs.

803 In some cases, the applicant will be requested to calculate unit costs for pollutant
 804 removal to provide additional information to evaluate the relative cost effectiveness of
 805 each of the treatment alternatives. The unit cost of toxic pollutant removal is calculated
 806 using the total cost of the alternative and the equivalent pollutant mass removed that
 807 was previously determined. An example table is provided below:

808 Table 5-6: Example Cost Effectiveness of Treatment Alternatives for Toxic Pollutant
 809 Removal

<u>Alternative</u>	<u>Total Cost</u>	<u>Total Cost Increase</u>	<u>Pollutant Removal (lb-eq)</u>	<u>Unit Cost (\$/lb-eq/yr)</u>	<u>Unit Cost Increase</u>
<u>Alt 1</u>	<u>\$1,100</u>	<u>10%</u>	<u>14</u>	<u>\$78.57</u>	<u>-18.3%</u>
<u>Alt 2</u>	<u>\$1,400</u>	<u>40%</u>	<u>14.5</u>	<u>\$96.55</u>	<u>0.4%</u>
<u>Alt 3</u>	<u>\$1,300</u>	<u>30%</u>	<u>13.5</u>	<u>\$96.30</u>	<u>0.1%</u>
<u>Alt 4</u>	<u>\$2,000</u>	<u>100%</u>	<u>16</u>	<u>\$125.00</u>	<u>30.0%</u>
<u>Alt 5</u>	<u>\$1,500</u>	<u>50%</u>	<u>15</u>	<u>\$100.00</u>	<u>4.0%</u>
<u>Baseline</u>	<u>\$1,000</u>		<u>10.4</u>	<u>\$96.15</u>	

810
 811 Since it is not possible to determine an equivalent mass of removal for non-toxic
 812 pollutants, the unit cost should be presented for each non-toxic pollutant under each
 813 treatment alternative.

814 5.3.2.2 Evaluation of Affordability

815 Although a 20% total cost increase is generally considered the threshold for both cost
816 effectiveness and affordability, the applicant may provide additional information on the
817 affordability of the less degrading alternative.

818 For public sector discharges, alternatives where the projected per connection service
819 fees are not greater than 1.4% of the median adjusted gross household income are
820 generally considered affordable. This is the affordability criterion currently being used
821 by the Water Quality Board for the wastewater revolving loan program. Secondary
822 socioeconomic factors that can be considered to evaluate affordability for public-sector
823 discharges include debt indicators (such as bond rating and overall net debt),
824 socioeconomic indicators (such as unemployment rate), and financial management
825 indicators (such as property tax revenue and property tax collection rate).

826 For private sector discharges, the determination of the affordability of less degrading
827 alternatives will be based on an evaluation of the effect on profitability, liquidity,
828 solvency and leverage of the entity in comparison to industry benchmarks.

829 Worksheets to assist with the calculation of these economic indicators are available
830 by request from EPA (<http://water.epa.gov/scitech/swguidance/standards/economics/>).

831 ~~The applicant will recommend the preferred alternative to DWQ. DWQ will review~~
832 ~~the ratings developed by the applicant or their consultant. The Alternatives should be~~
833 ~~listed from the one showing the most improvement to the one showing the least~~
834 ~~improvement for water quality from the scores in the matrix. The costs for each~~
835 ~~alternative should be listed with its ranking and the rankings should then be evaluated.~~

836 5.3.2.3 Other Considerations

837 ~~In determining the selected~~selecting the preferred alternative, the following
838 additional items should be considered and evaluated:

839 1. Alternative Operations and Maintenance (O&M) scenarios should be considered
840 in the ranking process. An Alternative O&M scenario will generally be considered
841 feasible if -the annual cost increase is no more than 10% of the annual operating
842 cost or 20% of the 20-year ~~present worth~~NPV, whichever is less.

843 2. In ~~considering~~evaluating the feasibility of alternatives, the review should
844 consider the current zoning ~~requirement surrounding the facility being evaluated~~
845 for the community surrounding the facility.

846 3. The review of the selected alternative should also include factors such as
847 reliability, maintainability, operability, sustainability, and adaptability to
848 potentially changing discharge requirements.

849 Sustainability for the purposes of this evaluation is defined as management
850 methods that use natural resources so that the resources are not depleted or
851 permanently damaged and that protect human health and the natural
852 environment.

Comment [Nv55]: Need to provide definition for this term.

853 | ~~3.~~—When different alternatives have similar potential to reduce degradation of
854 | water quality, other ancillary water quality benefits should be considered such as
855 | maintenance or enhancement of instream flow or habitat.

856 | 4.

857 | ~~4.~~—Optional mitigation projects may also be included with any selected alternative
858 | when it is deemed to be cost effective and environmentally beneficial. If the
859 | discharger includes a mitigation project with an alternative, consideration should
860 | be given to the expected net benefits to water quality of both the discharge and
861 | mitigations when ranking project alternatives.

862 | 5.

863 | ~~7.~~ ~~The review of the selected alternative should also include factors such as~~
864 | ~~reliability, maintainability, operability, sustainability, and adaptability to~~
865 | ~~potentially changing discharge requirements.~~

866 | ~~5.~~ ~~Also included in the review should be consideration of the sensitivity of receiving~~
867 | ~~water and its potential for overall improvement.~~

Comment [NvS6]: Proposing to delete this consideration for the following reasons: 1) it is unreasonable to expect the applicant and DWQ to assess overall receiving water health and potential for improvement for individual ADRs, which would essentially require a watershed plan and 2) presumably the selected treatment alternative is cost effective/affordable and therefore could be argued should be implemented regardless of overall health.

868 | 5.3.3 Selecting the Preferred Alternative

869 | Based on all of the factors considered, the applicant will recommend the preferred
870 | alternative to DWQ for review and approval.

871 | For the DWQ to fairly evaluate treatment alternatives, the following information
872 | should be provided for each alternative process:

- 873 | 1. A technical description of the treatment process.
- 874 | 2. Rank alternatives from least degrading to most degrading based on the mass of
875 | pollutants removed.
- 876 | 3. Evaluation of cost effectiveness, including estimation of total cost and unit cost
877 | for pollutant removal.
- 878 | 4. Evaluation of affordability, if necessary.
- 879 | 5. Evaluation of the reliability, maintainability, operability, sustainability, and
880 | adaptability of each alternative.

881 | 5.4 Opportunity for Public Comment and Review Optional Public Notice
882 | of the Preferred Alternatives Analysis

883 | Once the preferred alternative is selected, an optional public comment period may be
884 | conducted by being posted on the DWQ website and being noticed in the State of Utah
885 | Public Notice Website (see Section 3.7.16.2). If no optional reviews are conducted, the

886 | public has an opportunity to comment during the mandatory UPDES public comment
887 | period.
888

889 | **6.0 IMPLEMENTATION PROCEDURES FOR DEVELOPMENT OF A**
890 **STATEMENT OF SOCIAL, ENVIRONMENTAL, AND ECONOMIC**
891 **IMPORTANCE (SEEI)**

892 Beyond the alternatives analysis, the second key component of a Level II ADR is a
893 Statement of Social, Environmental, and Economic Importance (SEEI). The SEEI
894 evaluates the societal benefits of the proposed activity by documenting factors such as:
895 employment, production, tax revenues, housing, and correction of other societal
896 concerns (i.e., health or environmental concerns). This portion of the ADR provides the
897 project proponent the opportunity to document that the overall benefits of the project
898 outweigh any negative consequences to water quality. As a result, the project
899 proponent is best served by making this portion of the ADR as thorough as possible. At
900 a minimum this portion of the review should contain the following:

- 901 1. A description of the communities directly affected by the proposed project,
902 including factors such as: rate of employment, personal or household
903 income, poverty level, population trends, increasing production, community
904 tax base, etc.
- 905 2. An estimate of important social and economic benefits that would be
906 realized by the project, including the number and nature of jobs created and
907 projected tax revenues generated.
- 908 3. An estimate of any social and economic costs of the project, including any
909 impacts on commercial or recreational uses.
- 910 4. A description of environmental benefits of the project and associated
911 mitigation efforts (if any). For instance, if a project would result in an
912 increase in stream flow that would provide additional habitat and a net
913 benefit to stream biota, this benefit would be documented in this section of
914 the review.
- 915 5. Documentation of local government support.

916 As with the Alternatives Analysis portion of the ADR, the size and scope of the SEEI
917 should be commensurate with the size of the proposed project. The applicant may
918 reference existing documents that address alternatives such as Environmental Impact
919 Statements. Also, it is in the best interest of the project proponent to make the SEEI as
920 thorough as possible if the project is likely to be controversial.

921

922 **6.1 Regulatory Framework**

923 The need for SEEs comes from 40 CFR 131.12(a)(2), which states, “Where the quality
924 of waters exceeds levels necessary to support fish, shellfish, and wild life and recreation
925 in and on the water, the quality shall be maintained and protected unless the State find,
926 ..., that allowing lower water quality is necessary to accommodate social or economic
927 development in the area in which the waters are located...” (emphasis added).

928 Accordingly, UAC R317-2-3.5(c)4 specifically calls for SEEI demonstrations:

929 *“Although it is recognized that any activity resulting in a discharge to surface*
930 *waters will have positive and negative aspects, information must be submitted by*
931 *the applicant that any discharge or increased discharge will be of economic or*
932 *social importance in the area.*

933 *The factors addressed in such a demonstration may include, but are not limited*
934 *to, the following:*

935 *(a) employment (i.e., increasing, maintaining, or avoiding a reduction in*
936 *employment);*

937 *(b) increased production;*

938 *(c) improved community tax base;*

939 *(d) housing;*

940 *(e) correction of an environmental or public health problem; and*

941 *(f) other information that may be necessary to determine the social and*
942 *economic importance of the proposed surface water discharge.”*

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946 **6.2 Important Considerations in developing SEEs**

947 The DWQ anticipates that the specific information provided in the SEEI will vary
948 depending on the nature of the project and the community or communities that will be
949 affected by the proposed activity. Nonetheless, this section provides guidance for some
950 of the social and economic considerations that the applicant may want to include with
951 the SEEI portion of the Level II ADR. Many of the decisions relating to the social and
952 economic considerations are local in nature and the local government agencies should
953 be consulted to determine directions that are appropriate.

954 The SEEI is about demonstrating that the degradation will support important social
955 and economic development in the local area. The SEEI is not about the economic
956 benefits to an individual or corporation. Instead, the SEEI is intended to support an
957 informed public discussion and decision about the pros and cons of allowing water
958 quality degradation. If the lowering of water quality resulting from the preferred
959 alternative is not in the overriding public interest, then a less-degrading alternative must
960 be selected or the permit may be denied. If the lowering of water quality is found to be
961 in the overriding public interest, this finding is documented and submitted for public
962 comment along with the draft permit incorporating the preferred alternative.

963 *6.2.1 Effects on Public Need/Social Services*

964 Identify any public services, including social services that will be provided to or
965 required of the communities in the affected area as a result of the proposed project.
966 Explain any benefits that will be provided to enhance health/nursing care, police/fire
967 protection, infrastructure, housing, public education, etc.

968 *6.2.2 Effects on Public Health/Safety*

969 Identify any health and safety services that will be provided to or required of the
970 communities in the affected area as a result of the proposed project. Explain any
971 benefits that will be provided to enhance food/drinking water quality, control disease
972 vectors, or to improve air quality, industrial hygiene, occupational health or public
973 safety. One example is the construction of a central treatment plant to correct
974 problems with failing septic systems. Another example might be removal or additions of
975 toxic or bacteriological pollutants, which reduce life expectancy and increased illness
976 rates.

977 *6.2.3. Effect on Quality of Life*

978 Describe the impacts of the proposed project on the quality of life for residents of the
979 affected area with respect to educational, cultural and recreational opportunities, daily
980 life experience (dust, noise, traffic, etc.) and aesthetics (viewscape).

981 *6.2.4. Effect on Employment*

982 Explain the impacts of the proposed project on employment practices in the affected
983 area. Identify the number and type of jobs projected to be gained or lost as a result of

984 the proposed project. Will the proposed project improve employment or mean
985 household income in the affected area?

986 *6.2.5 Effect on Tax Revenues*

987 Explain the impact of the proposed project on tax revenues and local or county
988 government expenditures in the affected area. Will the project change property values
989 or the tax status of properties? If yes, explain whether that change is a beneficial or
990 detrimental to residents/businesses in the affected area.

991 *6.2.6 Effect on Tourism*

992 Discuss the effects the proposed project may have on the economy of the affected
993 area by creating new or enhancing existing tourist attractions. Conversely, describe any
994 impacts resulting from the elimination of or reduction in existing attractions.

995 *6.2.7 Preservation of assimilative capacity*

996 Review the pros and cons of preserving assimilative capacity for future industry and
997 development. Applicants are encouraged to talk with local stakeholders such as
998 planning, zoning, and economic development officials about their development plans,
999 and should summarize the communities' position on utilizing assimilative capacity for
1000 the proposed project versus future plans or needs.

1001 *6.2.8 Other Factors*

1002 Provide any other information that would explain why it is necessary to lower water
1003 quality to accommodate this proposed project. This category should be used to address
1004 any social or economic factors not considered above.

1005 **6.3 Review and Approval of SEEIs**

1006 Important social, economic or environmental activity refers to an activity that is in the
1007 overriding public interest. The ~~Executive Secretary~~Director will generally consider public
1008 projects to be necessary to accommodate social and economic growth unless
1009 compelling information exists to the contrary. DWQ may consult with local and State
1010 planning and zoning agencies to determine whether or not the project is consistent with
1011 the long-term plans of affected communities. Information obtained from local planning
1012 groups may be compiled with other material obtained through the ADR process. The
1013 ~~Executive Secretary~~Director will make a determination. Appeals to the ~~Executive~~
1014 ~~Secretary~~Director's decision may be made consistent with the procedures for
1015 administrative appeals.

1016 **6.4 Public Comment Procedures**

1017 At a minimum the SEEI material will be submitted for public comment, along with all
1018 other Level II ADR materials, through the required public comment processes used for
1019 permit applications and renewals. However, as described in Section 3.5, the applicant
1020 may include a cursory, or preliminary, SEEI with the work plan, because much of the

1021 information described in SEEI reports help explain the greater socioeconomic context
1022 within which the project takes place.
1023

1024 **7.0 SPECIAL PERMIT CONSIDERATIONS**

1025 Most of the implementation procedures discussed in this document are clearly
1026 applicable to UPDES permitting procedures. However, the DWQ also issues other types
1027 of permits, which have special ADR considerations. This portion of the guidance is
1028 incomplete and the reader should contact DWQ for assistance regarding these permits
1029 in the interim.

1030 **7.1 Individual Stormwater Permits**

1031 This portion of the guidance is incomplete and the reader should contact DWQ for
1032 assistance in the interim. Stormwater permits are subject to an ADR unless the impact
1033 to water quality is temporary and limited.

1034 **7.2 General Permits**

1035 A number of discharges to surface waters are authorized under general UPDES
1036 permits issued by the DWQ:

- 1037 • Concentrated Animal Feeding Operations (CAFOs)
- 1038 • Concentrated aquatic animal feeding operations
- 1039 • Construction dewatering or hydrostatic testing
- 1040 • Construction site stormwater
- 1041 • Municipal stormwater
- 1042 • Industrial stormwater
- 1043 • Drinking water treatment plants
- 1044 • Private on-site wastewater treatment systems
- 1045 • ~~Construction sites one acre or larger~~
- 1046 • Coal mining operations
- 1047 • Discharge of treated groundwater
- 1048 • Application of pesticides

1050 New and reissued General Permits will be reviewed for compliance with
1051 antidegradation provisions as described in this section. The Executive Secretary will
1052 determine the need for a Level II ADR for General Permits on a case-by-case basis until
1053 this implementation guidance is updated to fully address General Permits. New and
1054 reissued General Permits may require evaluation of the potential for degradation as a
1055 result of the permitted discharges if the discharges are not temporary and limited.
1056 DWQ anticipates expanding and revising the ADR guidance for general permits in future
1057 iterations.

1058 Individual regulated activities authorized under General Permits through Notice of
1059 Intent (NOI) procedures are covered under the antidegradation review for the General
1060 Permit and will typically not be required to conduct a Level II ADR. DWQ, after reviewing
1061 the submitted NOI, may require an eligible discharge to undergo a Level II Review if it is
1062 determined that significant degradation may occur as a result of cumulative impacts

1063 from multiple discharges to a water body, as a result of impacts from a single discharger
1064 over time, and/or due to the sensitivity of the receiving water.

1065 UPDES General Permits require that discharges authorized under the permit do not
1066 violate water quality standards and best management practices (BMP) contained in the
1067 permit are implemented. Compliance with the terms of the General Permit is required
1068 to maintain authorization to discharge.

1069 An antidegradation review will be conducted for the entire class of general permittees
1070 that are authorized under the General Permit. The antidegradation review will consist of
1071 the following items:

1072 1) *Identify the pollutants that may contribute to water quality degradation.*

1073 The pollutants that are reasonably expected to occur in discharges covered under
1074 the General Permit will be identified. These pollutants will be considered to have
1075 the potential to degrade high quality waters.

1076 2) *Ensure that existing uses of the receiving waters will be protected.*

1077 The discharge of pollutants must not impair the existing uses of receiving waters.
1078 Methods that may be utilized to demonstrate the protection of existing uses
1079 include the determination of water quality based effluent limits (WQBEL) through
1080 a wasteload analysis, acute and/or chronic whole effluent toxicity (WET) testing,
1081 and implementation of best management practices (BMP) for stormwater and best
1082 practicable technology (BPT) for treatment of process water.

1083 3) *Documentation and public notice of the antidegradation review.*

1084 The antidegradation review will be documented and public noticed with the draft
1085 General Permit.

1086 The level of effort of the antidegradation review will depend on the nature of the
1087 General Permit, the number of dischargers anticipated to fall under the permit, and the
1088 sensitivity of the receiving waters; however, the level of effort will typically be limited
1089 since discharges with a significant potential to degrade water quality are required to
1090 obtain an individual discharge permit.

1091 **7.3 §401 Water Quality Certifications**

1092 The Clean Water Act gives authority to each state to issue a 401 Water Quality
1093 Certification (§401 Certification) for any project that needs a Section 404 Permit. The
1094 §401 Certification is a verification by the state that the project will not violate water
1095 quality standards. DWQ works with applicants to avoid and minimize impacts to water
1096 quality and may require actions on projects to protect water quality. These required
1097 actions are called conditions.

1098 7.3.1 §404 Dredge and Fill Permits

1099 Section 404 of the Clean Water Act regulates the placement of dredged or fill material
1100 into the “waters of the United States,” ~~including small streams and wetlands adjacent~~
1101 ~~or connected to “waters of the United States.”~~ The U.S. Army Corps of Engineers

1102 (USACE) administers the §404 permit program dealing with these activities (e.g.,
1103 wetland fills, in-stream sand/gravel work, etc.) in cooperation with the EPA and in
1104 consultation with other public agencies. Nationwide general permits are issued for
1105 activities with impacts not deemed to be significant. Individual permits are issued for
1106 activities that are considered to have more than minor adverse impacts. For both
1107 individual and nationwide §404 permits, states have an obligation to certify, certify with
1108 conditions, or not certify §404 permits under §401 of the Clean Water Act.
1109 Antidegradation reviews involving the placement of dredged or fill material will be
1110 performed via the §401 Certification process.

1111 Section 73-3-29 of the Utah Code requires any person, governmental agency, or other
1112 organization wishing to alter the bed or banks of a natural stream to obtain written
1113 authorization from the State Engineer prior to beginning work. The Stream Alteration
1114 Program was implemented in 1972 in order to protect the natural resource value of the
1115 state's streams and protect the water rights and recreational opportunities associated
1116 with them. In 1988, the U.S. Army Corps of Engineers issued Regional General Permit 40
1117 (GP-40) which allows an applicant to obtain both state approval and authorization under
1118 Section 404 of the Clean Water Act through a single application process. Although not all
1119 stream alteration activities qualify for approval under GP-40, many minimal impact
1120 projects can be approved under this joint permit agreement.

1121 These activities are subject to ADR requirements (R317-2-3.5.a.1.). ~~This portion of the~~
1122 ~~guidance is incomplete and the reader should contact DWQ for assistance regarding~~
1123 ~~ADRs for these permits in the interim.~~

1124 Antidegradation and compliance with water quality standards will be addressed and
1125 implemented through DWQ's §401 Water Quality Certification process. Applicants who
1126 fulfill the terms and conditions of applicable §404 Permits and the terms and conditions
1127 of the corresponding §401 Water Quality Certification will have fulfilled the
1128 antidegradation requirements. Additional antidegradation considerations may be
1129 incorporated into §404 Permits and the corresponding §401 Water Quality Certifications
1130 at the time of permit issuance. DWQ will not issue a §401 Water Quality Certification
1131 where degradation resulting from the project is not necessary to accommodate
1132 important social, environmental, or economic development.

1133 The decision making process for Individual §404 Permits is contained in the §404(b)(1)
1134 guidelines (40 CFR Part 230) and contains the elements for a Level I and Level II
1135 Antidegradation Review. Prior to issuing a permit under the §404(b)(1) guidelines,
1136 USACE must: 1) make a determination that the proposed discharges are unavoidable
1137 (i.e., necessary); 2) examine alternatives to the proposed activity and authorize only the
1138 least damaging practicable alternative; and 3) require mitigation for all impacts
1139 associated with the activity. A §404(b)(1) findings document is produced as a result of
1140 this procedure and is the basis for the permit decision. Public participation is also
1141 provided for in this process. Level I and Level II Antidegradation Review will be met
1142 through §401 Water Quality Certification of Individual §404 Permits that will typically
1143 rely upon the information contained in the §404(b)(1) findings document. However, if

1144 significant water quality degradation may occur as a result of the proposed activity,
1145 DWQ will require the applicant to provide additional documentation to complete a
1146 formal Level II Review.

1147 For activities covered under a Nationwide §404 Permit, the antidegradation review
1148 will be conducted in conjunction with DWQ's review of the Nationwide Permit for §401
1149 Water Quality Certification. The antidegradation review for Nationwide Permits will be
1150 conducted by DWQ similar to the process for UPDES General Permits (Section 7.2). For
1151 minor activities covered under Nationwide Permits (e.g., road culvert installation, utility
1152 line activities, bank stabilization, etc.), antidegradation requirements will be deemed to
1153 be met if all appropriate and reasonable BMPs related to erosion and sediment control,
1154 project stabilization, and prevention of water quality degradation are applied and
1155 maintained. The §401 Water Quality Certification may place additional conditions upon
1156 the Nationwide Permit to prevent or minimize water quality degradation.

1157 7.3.2 Federal Energy Regulatory Commission Licenses

1158 The Federal Energy Regulatory Commission (FERC) licenses the operation of dams that
1159 generate hydroelectric power. Applicants for these licenses are required to obtain §401
1160 Water Quality Certification. Antidegradation and compliance with water quality
1161 standards will be addressed and implemented through DWQ's §401 Water Quality
1162 Certification process. Applicants who fulfill the terms and conditions of an applicable
1163 FERC license and the terms and conditions of the corresponding §401 Water Quality
1164 Certification will have fulfilled antidegradation requirements. DEQ will not issue a §401
1165 Water Quality Certification where degradation resulting from the project is not
1166 necessary to accommodate important social or economic development.

1167 Hydroelectric dams affect water quality in the impounded reservoir and in the
1168 downstream receiving water. The antidegradation review for the water quality
1169 certification will focus on the degradation in water quality that may result from the
1170 construction of the dam and operation of the reservoir. DWQ may place conditions on
1171 operations or require other actions to mitigate the effect on water quality.

1172 As part of the antidegradation review for the §401 Water Quality Certification for a
1173 FERC License, DWQ will require the applicant to complete a formal Level II Review if
1174 significant water quality degradation may occur.

1175 When a project undergoes relicensing with FERC, the relicensing certification process
1176 will compare the water quality under the current FERC license with projected water
1177 quality in the future under the proposed FERC license. If this comparison shows no
1178 additional degradation in water quality, then a Level II Review will not be required.

1179 **8.0 ISSUES FOR FUTURE ITERATIONS OF THE IMPLEMENTATION** 1180 **GUIDANCE**

1181 As discussed in Section 1.0, the initial versions of this guidance focus on UPDES
1182 permits with the exception of general permits. For the topics listed below in Section

1183 7.1, the guidance is incomplete. The existing guidance provided for these topics
1184 represents DWQ's current thinking but is incomplete and should be applied with
1185 caution. For activities requiring ADRs, but not yet completely addressed in guidance, the
1186 permittee should consult DWQ for assistance. These ADRs will be conducted on a case-
1187 by-case basis consistent with the requirements of R317-2-3.

1188 **8.1 Planned Future Additions to the Guidance**

- 1189 1. Glossary. A glossary of that defines important terms used in the guidance will be added
1190 to future iterations.
- 1191 2. Acronym Key. A key that identifies the acronyms used in the guidance will be added to
1192 future iterations.
- 1193 3. References. References will be added to future iterations of the guidance.
- 1194 4. Temporary and Limited. Guidance on how to determine if a discharge qualifies as
1195 temporary and limited will be added to future iterations.
- 1196 5. General permits and 401 Certifications. General Permits that are subject to ADR
1197 requirements include:
1198 Animal Feeding Operations (AFOs),
1199 Construction dewatering or hydrostatic testing,
1200 Municipal stormwater,
1201 Industrial stormwater,
1202 Drinking water treatment plants, Private on-site wastewater treatment systems
1203 Stream alteration permits,
1204 Construction sites one acre or larger,
1205 Coal mining operations and,
1206 Discharge of treated groundwater.
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GLOSSARY

ambient condition: water quality of the receiving water immediately upstream of the point of discharge

baseline treatment alternative: the treatment alternative that meets water quality standards and water quality based permit effluent limits established by the wasteload analysis

parameter of concern: a pollutant in the discharge that exceeds or is anticipated to exceed the ambient concentration in the receiving water

reasonable potential analysis: statistical analysis to determine whether effluent will have the reasonable potential to cause an excursion above State water quality standards

waters of the State of Utah: all streams, lakes, ponds, marshes, water-courses, waterways, wells, springs, irrigation systems, drainage systems, and all other bodies or accumulations of water, surface and underground, natural or artificial, public or private, which are contained within, flow through, or border upon this state or any portion thereof, except that bodies of water confined to and retained within the limits of private property, and which do not develop into or constitute a nuisance, or a public health hazard, or a menace to fish and wildlife, shall not be considered to be "waters of the state" under this definition (Section 19-5-102)

waters of the United States: waterbodies subject to the provisions of the Clean Water Act. Specific waters included under this definition are based on federal agencies' interpretation of the statute, implementing regulations and relevant caselaw. Refer to EPA for latest guidance on determination of waters of the US.

ACRONYMS

<u>ADR</u>	<u>antidegradation review</u>
<u>BMP</u>	<u>best management practice</u>
<u>BPT</u>	<u>best practicable technnology</u>
<u>DMR</u>	<u>discharge monitoring report</u>
<u>DWQ</u>	<u>Utah Division of Water Quality</u>
<u>NPV</u>	<u>net present value</u>
<u>POC</u>	<u>parameter of concern</u>
<u>POTW</u>	<u>publicly owned treatment works such as water reclamation facilities</u>
<u>TWF</u>	<u>toxic weighting factor</u>
<u>TWPE</u>	<u>toxic weighting pound equivalents</u>
<u>UPDES</u>	<u>Utah Pollution Discharge Elimination System</u>
<u>WET</u>	<u>whole effluent toxicity</u>
<u>WQBEL</u>	<u>water quality based effluent limit</u>

1230 | **REFERENCES**
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