3 Evaluating Potential to Degrade

2/16/11 Revision

This portion of the document outlines the procedure for evaluating an activity or discharge to determine whether it will degrade or lower water quality (i.e., a change in a pollutant that is adverse to designated or existing uses). Only an activity or discharge that will might cause degradation is subject to a Tier 2 antidegradation limitationevaluation. This evaluation is performed parameter by parameter for parameters associated with the activity or discharge. If water quality is degraded by any one parameter, that will mean the activity as a whole degrades the water.

A proposed activity can result in existing receiving water quality being worseneddegraded, improved, or unchanged. To evaluate which of these effects will occur, water quality for two different effluent scenarios must be determined mathematically mixed with water quality upstream under critical conditions and subsequently then compared with each other. These two scenarios are without (i.e. now or current) and with the new or increased activity or discharge (i.e. future or proposed). Existing water quality is that allowed to occur now, under current discharge limits, before any proposed changes in the permitted activity or discharge. Proposed water quality is that which may be allowed to occur in the future after changes in an activity or discharge are licensed or permitted.

The potential existing water quality is determined by calculation of the mixing of the permitted existing discharge with the receiving water, i.e. mMathematical mixing. of the permitted discharge and receiving water is a calculation that provides the potential existing water quality. Performing this calculation again with the proposed discharge gives the potential proposed future water quality. To perform these calculations we need to know five things:

1. the upstream water quality,
2. the effluent quality that is currently allowed (zeros if the proposal is for a new discharge),
3. the effluent quality that would be allowed under the proposal,
4. the activity's design or maximum production-based flow, and
5. the appropriate critical flow of the receiving water, or multiple flows for a flow "tiered" permit situation.

All new regulated activities or discharges are likely tomay degrade water quality as they present new pollutant loads added to the receiving water body. Similarly, an expansion or increase of an existing discharge is also likely to cause degradation of water quality. However, degradation may be avoided if, for example, the quality of the new discharge is as good as or better than receiving water body quality, or if the increased loads are offset.

Existing activities that propose no expansion or existing discharges that propose no change in their discharge upon renewal of their permit or license will not cause degradation of water quality[4]. Non-degrading activities and discharges are not subject to Tier 2 antidegradation reviewlimitation. Thus, once it is determined that an activity would not expand or a discharge would not increase, the only question is whether Tier 1 requirements are met.

3.1 Receiving Water Quality

It is the change in downstream receiving water quality after mixing of the pollutant loads from an activity or discharge that is the concern of antidegradation policy. While our focus is on downstream water quality, in order to calculate this for a new activity or discharge or for an increase in an existing discharge, we need to know the receiving water body's quality unaffected by the increased or new activity or discharge in question. Thus, receiving water quality at two locations is of interest:

1. A location where the water body is not influenced by the source under consideration, either immediately upstream (in a river or stream) or outside the influence of the plume (for lakes or reservoirs); this is the upstream water quality.
2. The location where water quality would reflect the addition of pollutants from the proposed activity or discharge; this is the downstream water quality.

Existing/Proposed

Existing receiving water quality is what is allowed to occur before a new source commences activity or there is any changea permitted increase in an existing source. Proposed water quality is what is would be allowed to occur after a new source, or change an increase in an existing source, is authorized. In either case what is allowed may not actually occur and thus may not be observed or measured. While it is possible that existing conditions reflect this potential worst case and could simply be measured, this is highly unlikely and so in practice, current existing water quality will be calculated instead of simply measuredwhere appropriate instream monitoring data is not available. Proposed water quality can only be calculated or estimated. Calculations will be based upon appropriate mixing

Furthermore, for both existing and proposed water quality, we are interested in the "potential worstcritical" water quality conditions allowed. Therefore, we are concerned with the maximum discharge the permit or license allows, in combination with critical conditions for dilution in the receiving water, which may be multiple flow combinations for "flow tiered" permits.

Although it is a detrimental change in downstream water quality that would *potentially* result from a new source or change an increase in an existing source that we are

[4] It is possible that water quality could decline even if an activity or discharge does not increase, such as due to a decrease in flow and thus assimilative capacity of the receiving water body. If this change in flow is not due to the activity or discharge under review then that activity or discharge will be not be held responsible with regard to antidegradation requirements. In such a situation compliance with water quality-based effluent limits may require a reduction in activity or discharge independent of antidegradation requirements.

concerned with, we also need to know the upstream water quality in order to calculate what the downstream water quality would be.

Upstream vs. Downstream

It is tempting to view degradation of water quality simply as the change in quality from upstream to downstream. While this comparison works for a new activity or discharge — because it amounts to the same thing as the change in downstream water quality for new discharges — it does not work for an existing discharge. This is because once aOnce a discharge is authorized operating there will of course be a lowering ofchange in water quality from upstream to downstream, but this is difference is not an indication of worsening conditions from due to a change in an discharge. Antidegradation review is prospective forward looking and so to fairly judge both new and existing discharges we look at the changes in downstream water quality they may cause before and after a change in permitted operation.

Characterizing Upstream Water Quality

Knowing the upstream water quality data is essential to calculating potential degradation. While it is important to adequately characterize upstream water quality, how much data this takes will depend on water quality variability and how much uncertainty can be tolerated in the analysis. Depending upon the quantity of available background data, DEQ will generally use a conservative estimate of pollutant concentrations when calculating degradation. Depending on the permitting situations these calculations may need to address seasonal water flows and a flow-tiered discharge framework.

Comment [dae3]: This would fit better in the third paragraph, after the second sentence.

It is common practice to use the 95th percentile (i.e., the value that is expected to be exceeded 5% of the time) of measurements as a conservative characterization of ambient concentrations. However, getting a reliable estimate of the 95th percentile requires sufficient data. Generally, 30 measurements across the full range of variation are recommended although as few as 12 (monthly samples for a year) will be acceptable. If fewer than 12 data than this are available, DEQ will use the maximum observed during low flow or other critical time period when receiving stream concentrations are expected to be high, rather than an estimated 95th percentile. If no data are available, DEQ will may request that the applicant obtain such data.

In most cases, DEQ expects sufficient data to be available in the permit or license application and discharge monitoring reports for existing NPDES-permitted discharges. For the latter, DEQ also expects to rely heavily on EPA's calculation of upstream water quality prepared in their drafting of effluent limitations for the permit.

Measurements of upstream water quality are important but may not be sufficient. Measurement of upstream quality may not reflect potential upstream quality, the quality that would occur with other sources upstream discharging at their maximum permitted limits. Potential upstream quality must be determined so that we know what the estimated remaining unallocated assimilative capacity is and ensure that we do not overallocate it. This also affects the determination of whether an increase in discharge is significant or not (see section 5.1). Therefore, ~~we may not be able to assure compliance with antidegradation requirements if upstream water quality is based solely on measurement of upstream ambient conditions. Upstream receiving water quality, for purposes of antidegradation, therefore may need to be calculated or modeled.~~<u>some situations may require the calculation or modeling of upstream water quality.</u>

~~**Possibility of Modeling**~~

Most pollutants~~, to some degree~~ are not <u>strictly</u> conservative, meaning that they do not just accumulate or steadily increase downstream; instead they are physically, chemically, or biologically active and they experience transformation or fractionation with time and travel. They may adsorb to sediments, combine with other constituents and precipitate, be converted into a gaseous form and lost to the atmosphere, be taken up by living organisms, or otherwise lost from the water column. <u>Thus assimilative capacity is more than mere dilution.</u>

Although the possibilities are nearly endless, there are a few parameters and pollutants for which relatively common and dominant transformations are known well enough to be modeled. Dissolved oxygen, nutrients, and temperatures are examples of very non-conservative parameters. Any estimate of their concentration that is not representative of a physical point near the source of load increases will likely be more accurate if modeled to account for known transformations.

Upstream water quality may be affected by distant sources, some of which may not currently be discharging at their allowed limits. This is a situation in which modeling can be quite useful and perhaps necessary. Ultimately, the decision whether to estimate water quality with modeling or with simpler mixing calculations is up to the person analyzing effects on water quality. This decision <u>to model</u> should be driven by the pollutant, acceptable error in the estimates, and whether time and data are available to conduct modeling. <u>Even though monitoring data may not reflect potential upstream water quality it is valuable in calibrating model predictions.</u>

Simple mixing estimates that ignore pollutant fate and transport are always a starting point and may be sufficient in many instances. There is no point in conducting modeling that will not improve upon simpler estimates.

Recommendations for <u>when</u> modeling <u>is needed</u>:

- Always model dissolved oxygen and temperature.
- Seriously consider modeling forms of phosphorus and nitrogen, as suggested by tolerance of uncertainty.
- Only model other pollutants if needed to reduce bias in conservative mixing estimates.

3.2 Effluent Characteristics

Much of the needed information on effluent quality and quantity will be found in the current and/or proposed permit or license. Additional information may be found in the permit application and, for an existing discharge, in discharge monitoring reports.

For pollutants with quantitative limitations in a permit or license, those limits will be used in calculation of the discharge's effect on water quality. However, there are two common situations in which data in the permit alone will be inadequate to assess the effect of a new or an increased existing discharge on water quality:

- **No permit limits:** In either a new or an increased existing discharge, a pollutant may be known to be present for which there are no effluent limitations (no technology-based effluent limitation requirements) and for which it has been determined there will be no reasonable potential to exceed (RPTE) criteria. In this case, there will be no permit limits in either the new or reissued permit from which to calculate degradation.
- **First time permit limits:** In the renewal of an existing permit, a pollutant may be added for the first time, either because of new regulation or due to an increase in discharge leading to RPTE. In this situation, there will be a limit in the reissued permit but not a limit in the old permit.

Even for pollutants with-noout permit limits there can still be degradation of water quality. ~~This would occur for any new discharge or for an increase in an existing discharge of a pollutant.~~ Thus it will be necessary to determine both the current and proposed quality of the effluent for all pollutants of concern regardless of whether there are permit limits.

A first time permit limit implies degradation of water quality but this is not necessarily the case. A new limit could be due solely to a change in regulation, e.g., a new or more stringent criterion or a new effluent limitation guideline, and therefore not result in worsening of water quality. In these situations iIt will be necessary to determine the quality of the effluent prior to the limit, and compare it to the quality with the proposed new limit. Current quality for a pollutant without a prior effluent limitation must be based on discharge monitoring data or estimated based on other similar discharges.

Where new proposed limits are a result of reasonable potential analysis in absence of any actual increased discharge of pollutants, iIt is essential to use the same statistical procedures to characterize the quality of the effluent prior to a new limitation as is used in developing the new limit, e.g., procedures in EPA's Technical Support Document for Water-Quality Based Toxics Controls (TSD) (EPA, 1991)[5]. To do otherwise would be an unfair comparison. Information on proposed effluent quality with regard to a limited

[5] Citation of the TSD here is used as an example of the statistical procedures that are often used in deriving NPDES permit limits. This is not to say the TSD is appropriate for all pollutants or discharge situations, or that other statistical procedures may not be used. The point is that any statistical procedures used must be applied to both the current and future discharge scenarios when judging if discharge has increased.

pollutant may be found in the permit application ~~or discharge monitoring data,~~ or may be estimated based on other similar discharges.

3.3 Calculating the Effect of an Activity or Discharge – Will Degradation Result?

Antidegradation is concerned with any adverse change in water quality that may occur due to a new or changed activity or discharge. Therefore, for rivers and streams, our focus is at a point downstream of the activity or discharge and on a comparison between existing calculated water quality now (under the current permit or license or lack thereof), and calculated water quality in the future (under the proposed permit or license). (For lakes and reservoirs, modified methods of calculating the effect are in the section on Modification for Lakes and Reservoirs, page 3027. As a practical matter we also focus on the near-field change in water quality (see Box 3.1))

Box 3.1 Near-field versus Far-field

When examining the effect of a discharge we can consider effects near the point of discharge or those far beyond the point of discharge. Near-field effects are those that generally occur up to the edge of any authorized mixing zone. The times involved are generally too short for significant transformations of pollutants to occur and therefore pollutant concentrations in the near-field may be reasonably calculated considering dilution only, even for non-conservative pollutants.

Farther away from the point of discharge fate and transport for non-conservative pollutants becomes increasingly important. In the far-field, distant from the point of discharge, accurate estimates of pollutant concentrations require accounting for fate and transport.

For all activities or discharges we calculate their effect on downstream water quality as:

$C_p - C_c = C_{diff}$ or ΔC *Equation 1. Effect on downstream water quality*[6]

Where:

C_p = proposed downstream water quality, after mixing

C_c = current downstream water quality, after mixing

ΔC = change in downstream water quality, after mixing

DEQ will evaluate the effect on water quality for each pollutant of interest. If ΔC is in an adverse direction, i.e., it moves pollutant concentration closer to a criterion akes water quality less suitable for a particular use, there is degradation of water quality.

Now let us turn our attention to calculating current and proposed water quality for use in *Equation 1*Equation 1. For this, we will consider two situations: first, a completely new

[6] Please note that the equations presented are general, i.e. without units of measure. In use consistent measurements units must be used and/or appropriate conversion factors. For example to get pollutant load expressed in lbs/day from equation 3 with a flow measured in millions of gallons/day and a pollutant concentration measured in mg/l the result must be multiplied by a unit conversion factor of 8.34.

activity or discharge—a *new discharge;* second, an expansion or increase in an existing activity or discharge—an *increased discharge.*

For both new and increased discharges, the following simple mixing equation is used:

$$C = \frac{LR_{up} + LR_{dis}}{Q_{up} + Q_{dis}}$$

Equation 2. Mixing equation for ~~new and increased~~effect of discharges

Where:

C = fully mixed concentration in the receiving water body resulting from discharge, generally downstream

LR_{up} = receiving water body pollutant loading rate, upstream of the discharge

LR_{dis} = discharge pollutant loading rate

Q_{up} = receiving water body flow, upstream of the discharge

Q_{dis} = discharge flow

Loading rates are calculated as product of flow and concentration, such that:

$LR_{up} = Q_{up} \times C_{up}$, and *Equation 3. Loading rates*

$LR_{dis} = Q_{dis} \times C_{dis}$

Where:

C_{up} = pollutant concentration in receiving water body, upstream of the discharge

C_{dis} = pollutant concentration in the discharge

Equation 2~~Equation 2~~ is generic and dynamic and has infinite solutions but we are interested in ~~two~~ a pair of solutions in particular for each pollutant of interest. These solutions are for the current receiving water concentration (C_c) and for the receiving water concentration that would result from the proposed permit limits (C_p)[7]. If seasonality or 'flow-tiered' permit limits are involved there will be multiple such pairs. These concentrations are determined using low-flow conditions in the receiving water body and permit conditions associated with the instream low-flow condition. ~~ted flows and pollutant concentrations for the discharge.~~ These flow conditions are termed critical ~~flow~~ conditions and are described more in the following section.

Critical Conditions

When flow or volume in the receiving water body is low, addition of a pollutant will have a greater effect on its concentration than when flow or volume is high because there is

[7] Note that *Equation 2* works as well if Q_{dis} were zero and the discharge load a direct input. Upstream load on the other hand is always calculated from *Equation 3*, because receiving stream flow must be known as well as concentration.

less water to dilute the pollutant load. Therefore, to evaluate what could be a realistic "near worst case scenario", we must consider critical conditions that could occur. Critical conditions are typically a combination of the maximum permitted effluent flow, maximum projected effluent concentrations or maximum allowable effluent limitations, low-flow discharge conditions (aka "critical flows") of the receiving stream, and ~~an estimate of the near-worst-case~~ upstream water quality concentrations (as determined by monitoring, calculation or modeling). If there is consideration of seasonality or 'flow-tiered' effluent limits there will be multiple sets of these critical conditions.

The maximum discharge flow is based on the facility design capacity or production-based maximum discharge. This will be stated in the permit or license for the current discharge and in the permit application for the proposed discharge The receiving water body critical flow is determined according to the WQS (at §210.03) for each pollutant evaluated, e.g., for chronic aquatic life criteria, this is the 7Q10 flow. For nutrients, it is recommended that the 30Q10 flow during the growing season (April-September) be used. For temperature and dissolved oxygen, the 7Q10 flow is also useful but may be calculated on a monthly basis to account for seasonality.[8]

For the effluent, the critical load is the maximum permitted load if stated in the permit or license or the product of:

- the maximum discharge flow as described above, and
- the maximum permitted effluent concentration.

The receiving water body critical load is the product of the critical flow described above and the potential ~~worst case~~ upstream concentration ~~estimated or modeled~~ determined as described in section 3.1 Receiving Water Quality~~3.1 Receiving Water Quality~~.

There will be at least two sets of critical conditions to be evaluated[9]; one for the current permit or license and one for the proposed permit or license. These will yield C_c and C_p in *Equation 2*~~Equation 2~~ for each pollutant evaluated, to be then input into *Equation 1*~~Equation 1~~. It is possible, but unlikely, that the receiving stream critical conditions used in the analysis will also differ between now and the future. An anticipated change in upstream flow regulation would create one such possibility.

Modification for Lakes and Reservoirs

Application of criteria for lakes and reservoirs depends upon their detention time, how slowly water moves through them. A lake or reservoir with 15-days or less detention time are treated as flowing, i.e. as a stream or river. Those with more than a 15-day detention time are treated differently and the calculations described above need to be modified. This is because there is little flow and the concept of upstream and downstream loses meaning if there is not sufficient velocity in the receiving water to facilitate rapid mixing.

[8] Calculation of low-flows for regulated systems should only include flow data from the period of flow regulation.

[9] There will be even more pairs of conditions to be evaluated if seasonality or flow-tiered effluent limits are involved, one pair of critical conditions for each season or flow-tier.

Instead of flow rate in the receiving water body flow rate we will look at volume. And instead of loading rates, we will need to look at total load added over some period of time. Similar to the situation with flowing waters, critical conditions determine the appropriate values for the input variables.

$$C = \frac{L_{10} + L_{dis}}{V_{10} + V_{dis}}$$

Equation 4. Mixing equation for lakes and reservoirs

Where:

C = mixed concentration resulting from discharge

L_{10} = receiving water body pollutant load in V_{10}

L_{dis} = effluent pollutant load delivered over the time it takes to exchange mixed volume of receiving water body at critical inflow

V_{10} = receiving water body volume available for mixing

V_{dis} = volume of effluent discharged over time it takes to exchange mixed volume of receiving water body at critical inflow

In place of Q_{up} we use V_{10}, the volume of the lake or reservoir beneath a circle centered on the point of discharge that encompasses one-tenth the minimum surface area of the water body. If the water body is stratified t~~T~~his volume should be limited to the mixed ~~surface~~ layer (epilimnion or hypolimnion) to which the discharge occurs ~~if the water body is stratified~~. The limitation on mixing volume is based on the limitation in the Idaho WQS that the horizontal extent of a mixing zone in a lake or reservoir is not to take up more than 10% of the surface area (IDAPA 58.0102.060.01.f). A circle is a simplified depiction of the plume, which could be modeled or determined through a tracer study if a more accurate assessment is desired. The ambient load is a product of this volume and the ambient concentration outside the influence of the discharge plume.

Whether the water body is stratified at the time of critical low inflow will be based on when that critical flow occurs and depends on the pollutant. For example, if the pollutant is a metal that is toxic to aquatic life, then the critical low inflow would be the 7Q10 for all inflows combined. If critical inflow occurs the last week of September then that is the time when presence or absence of stratification would be judged. It would also mark the time when the volume available for mixing would be determined.

To determine the appropriate volume of discharge, and thus corresponding load to use in the calculation, we must determine the time period over which the discharge should be evaluated. This renewal time is, the amount of time it would take critical inflow to replace the volume of water allowed for mixing. This volume is in turn the volume of the mixed upper layer that corresponds to 10% of the water body area centered on the plume, when critical inflow occurs.

Ideally, a measurement or estimate in the area surrounding the point of discharge would be used. In absence of this, it is recommended that a suitable time be based on the volume of the mixed layer (e.g., epilimnion) for the entire water body divided by the critical inflow for the entire water body; call this the residence time. For example, if the volume of the entire epilimnion of a lake or reservoir was 1,000 acre-feet and the 7Q10 for all inflow was 25 cubic feet per second (cfs), the residence time would be about 20 days (1,000 acre-ft / (25 cfs * 1.984 ac-ft/day/cfs) = ~20). So in the absence of more specific information about renewal time in the actual area allowed for mixing, we expect the volume allowed for mixing to exchange at the same rate as for the entire water body[10]. Thus, in this example, the volume and load of effluent used in *Equation 4*~~Equation 4~~ would be that which is discharged in 20 days.

As with streams and rivers, *Equation 4*~~Equation 4~~ would be calculated for current conditions and for proposed conditions and those results would be used in *Equation 1*~~Equation 1~~ to quantify the proposed change in water quality.

Alternatively, a three-dimensional hydro-dynamic model could be used to identify the worst case water quality conditions at the edge of any authorized mixing zone, with the mixing zone not to exceed 10% of the lake or reservoir's surface area.

Degradation of water quality requires change in discharge

There has to be a change in an existing discharge in order for that discharge to cause a change in water quality. Therefore, for purposes of antidegradation review, we can conclude an existing discharge is non-degrading if there are no changes in the discharge. Appendix C contains some examples of how new or increased discharges would be addressed.

Comment [dae4]: Moved up from end of section on mixing.

Normally, an existing discharge must increase its pollutant loading in order to degrade the receiving water body's quality11. Increase in load may occur through either an increase in concentration for any one pollutants or an increase in the discharge volume increasing the loads of all pollutants, or both. Typically, increased loads lead to worse water quality; however, it is possible for an increased discharge load to not result in increased concentrations of a pollutant in the receiving water body. This occurs ~~only~~ when effluent quality is equal to or better than receiving water quality. It may also occur when flow tiers in a flow-tiered permit are adjusted with no increase is discharged load.

[10] This is a crude approximation that is unlikely to hold true in portions of lakes and reservoirs that have irregular shorelines and deep bays. In such areas, the exchange rate could be considerably slower than for the water body as a whole and the residence time much longer. This simplifying assumption should be used with caution. Where the simplifying assumption is not appropriate, area specific exchange rates will be evaluated and used

[11] Although unusual, it is possible that where effluent discharge dominates water quality the receiving water quality becomes worse even though discharge load decreases, e.g. a decrease in discharge volume coupled with an increase in effluent pollutant concentration.

Mixing

Below the point where an activity or discharge adds to the receiving water body, downstream water quality is in transition, changing more or less rapidly. Eventually, after full mixing, downstream receiving water quality will reach a steady state. ~~of lower quality.~~ Mixing zone characteristics, particularly location and diffuser design, are important to minimizing the physical size of this transition zone and possible adverse effects, and these characteristics often limit the volume that may be used to dilute a discharge. We can calculate downstream water quality that results from an activity or discharge only if we know the volume of water it mixes with. Regulatory mixing zones represent partial mixing, may change with time, and are always sized so as to meet criteria at the edge of the zone. As a practical matter we can assess changes in water quality for antidegradation purposes based on full mixing, even though the magnitude of change would be less than would be calculated at some partial mix point. ~~Appendix C contains some examples of how new or increased discharges would be addressed.~~

3.4 Other Considerations

In evaluating changes in water quality, there are several other things to consider, particularly whether upstream pollution reductions will offset downstream increases, whether adverse changes are temporary, and whether more information is needed to draw conclusions.

Use of offsets

The Idaho antidegradation rule allows for the use of offsets to proposed increases in pollutant load to Tier 2 and 3 waters (Tier 1 waters are already covered by pollutant trading under the mantle of a TMDL). The rule requires that the offsets occur before an activity or discharge commences and be upstream of any potential degradation. The diagram in Figure 3 shows degradation resulting from a discharge with no offset. The diagram in Figure 4 shows no degradation resulting because water quality upstream is improved before the discharge is added—the upstream raising of water quality offsets the lowering of water quality resulting from the discharge.

Comment [dae5]: Will add second pair of figures illustrating situation in which degradation occurs downstream of the activity and thus so may offsets. Can only imagine this happening with dissolved oxygen, so if there are other examples let us know.

The idea is that through properly conducted offsets there will be no net degradation (i.e. lowering) of water quality, not even locally, relative to current conditions. There would be, as the diagram above shows, upstream to downstream changes in water quality. However, due to placement of the offsets, water quality at all points in the stream would still be better after than before the discharge plus its associated offsets. Degradation is avoided and this avoids the need for antidegradation analysis in Tier 2 waters and makes it possible to allow new or increased discharge in Tier 3 waters.

Because of placement considerations and lack of flow, the use of offsets in lakes and reservoirs to assure no degradation is problematic but may be considered by DEQ.

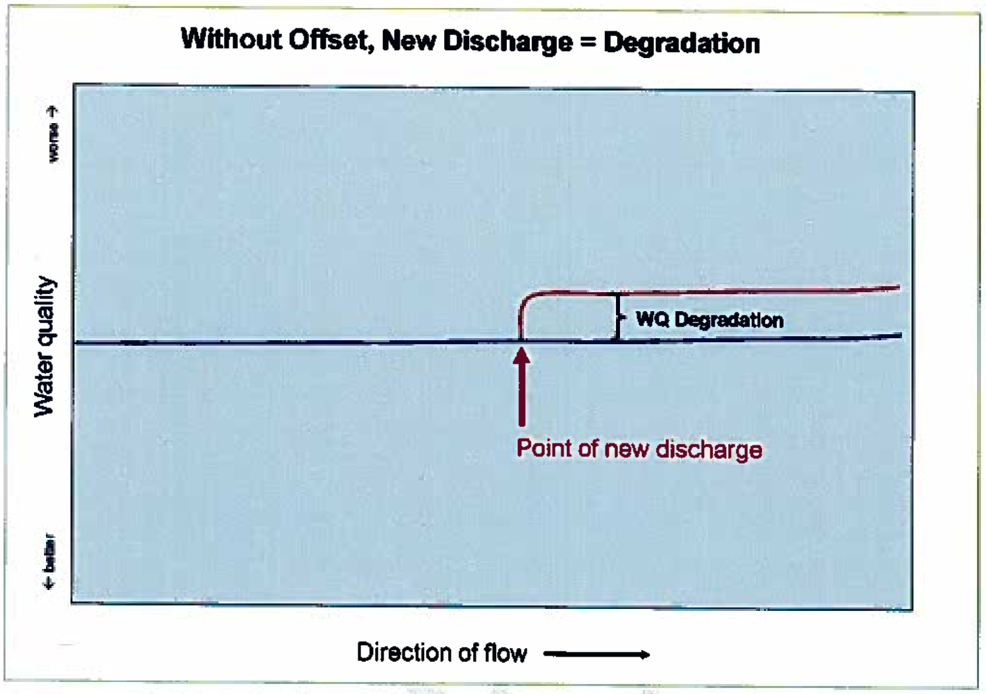

Figure 3. Diagram of discharge without offset.

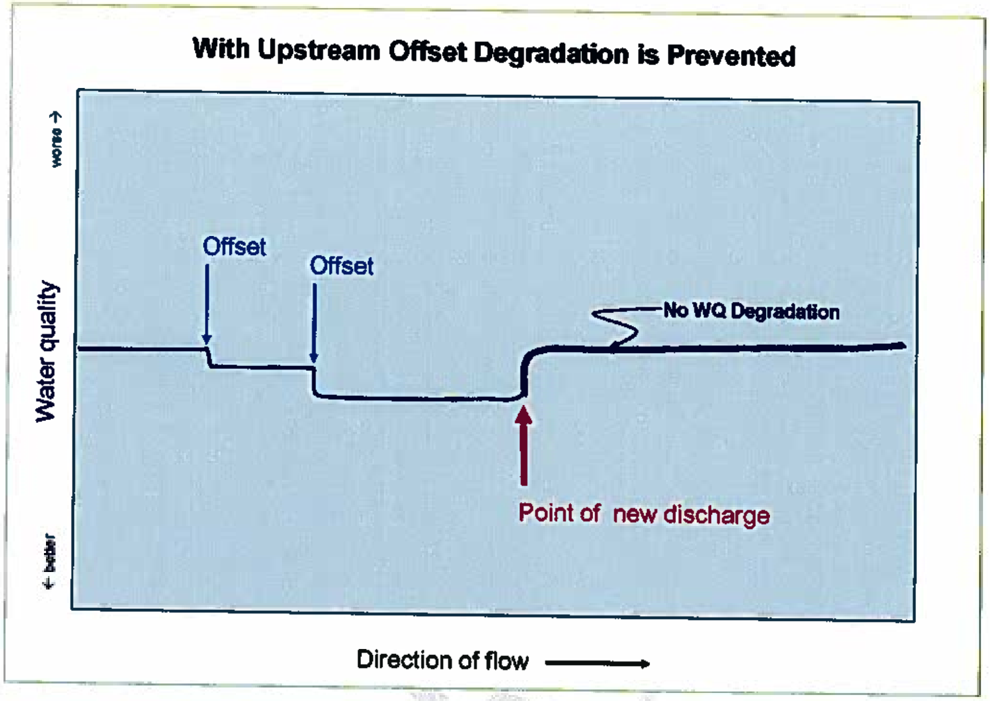

Figure 4. Diagram of discharge with offset.

Temporary Degradation

Some activities, e.g., a culvert replacement to enhance fish passage or reduce risk of road washout, are expected to worsen water quality only temporarily but result in long-term benefit to the public interest and cause no permanent injury to beneficial uses. Idaho's water quality standards allow for exempting such activities from meeting water quality standards (Short Term Activity Exemption IDAPA 58.01.02.080.02).

This allowance is consistent with the notion that degradation of real concern is that which is permanent or long-term, and that short-term degradation ~~or even violations of water quality criteria are~~is sometimes necessary to achieve long-term benefit. A properly designed activity that qualifies for a short-term activity exemption should incorporate measures to minimize its adverse short-term effects and thus would not cause degradation that needs antidegradation review.

As an example, culvert replacements which are done in accordance with the Idaho Forest Practices Act (FPA) may be deemed to comply with Idaho's antidegradation implementation rule.

Comment [dae6]: In tend to move up to here language from chapter 6 on temporary degradation, along with a couple more examples.

Request for additional information

In evaluating proposed changes to water quality, DEQ may find it necessary to request information on the proposed activity or discharge. Such information may include details about the proposed project's location or operation of the, outfall design, effluent characteristics, or monitoring data for the receiving water body. This is particularly likely if modeling is involved, e.g., in estimating upstream water quality or plume configuration.