

Water Quality Trading

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Environmental
Quality

Water Quality

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restoring, maintaining
and enhancing the quality
of Oregon's air, land and
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1. PURPOSE OF THIS IMD

The purpose of this internal management directive (IMD) is to provide DEQ staff and permit writers with direction on: evaluating and approving proposed water quality trading plans, incorporating trading into National Pollutant Discharge Elimination System (NPDES) permits, and regulating implementation of trading through annual reporting.

DEQ expects the majority of trading activity to be driven by the need to comply with NPDES permit requirements developed to implement a total maximum daily load (TMDL). This IMD is, therefore, primarily focused on water quality trades between nonpoint sources and NPDES permittees¹ to comply with the latter's water quality-based effluent limitations.

To the extent it is relevant and helpful, this IMD may also be used by DEQ staff to evaluate trading proposals that are part of the water quality certification of a federal permit or other approval issued under Clean Water Act (CWA) section 401 and Oregon Administrative Rules (OAR) chapter 340, division 048 (referred to throughout this IMD as a "401 WQC"). The IMD may also be used to direct DEQ staff on how to consider trading proposals in other situations such as trading for CWA section 303(d) listed parameters prior to development of a TMDL. DEQ staff should consult with DEQ's trading coordinator and DEQ's legal counsel when evaluating a trading plan in those two contexts.

This updated IMD replaces all previous IMDs pertaining to water quality trading. As DEQ gains more experience with water quality trading, the IMD will be modified as necessary.

2. BACKGROUND

This IMD is informed by DEQ and stakeholder experience with water quality trading in Oregon over the last decade. The IMD is also informed by input received during water quality trading policy forums held in 2014 and 2015, public comments received during the division 039 rulemaking, and written feedback on a draft revised IMD submitted by stakeholders in response to DEQ's request for external feedback in the fall of 2015 solicited in accordance with DEQ's "Instructions for Developing and Issuing An Internal Management Directive."

The IMD is also informed by water quality trading policies and guidance developed by the United States Environmental Protection Agency (U.S. EPA), specifically, the final *Water Quality Trading Policy*,² the *Water Quality Trading Assessment Handbook*,³ and the *Water Quality Trading Toolkit for Permit Writers*.⁴ The IMD is also informed by the draft *Regional*

¹ For the purposes of this IMD, "permittee" refers to the regulatory entity that proposes trading to meet its regulatory compliance obligation. Most commonly, the "permittee" is an NPDES permit holder or the holder of a federal permit or license to which the state has issued a water quality certification under Section 401 of the CWA.

² U.S. Environmental Protection Agency, *Water Quality Trading Policy*, 68 Fed. Reg. 1608 (Jan. 13, 2003) (final policy) (hereafter "2003 U.S. EPA Trading Policy") available at <http://www.gpo.gov/fdsys/pkg/FR-2003-01-13/pdf/03-620.pdf>.

³ U.S. EPA, *Water Quality Trading Assessment Handbook: Can Water Quality Trading Advance Your Watershed's Goals?*, EPA 841-B-04-001 (2004), available at http://water.epa.gov/type/watersheds/trading/upload/2004_11_08_watershed_trading_handbook_national-wqt-handbook-2004.pdf.

⁴ U.S. EPA, *Water Quality Trading Toolkit for Permit Writers* (2007), available at http://www.epa.gov/npdes/pubs/wqtradingtoolkit_fundamentals.pdf.

*Recommendations for the Pacific Northwest on Water quality Trading*⁵ and the National Network on Water Quality Trading's publication *Building a Water Quality Trading Program: Options and Considerations*.⁶

3. DEFINITIONS

In addition to the definitions included in the water quality trading rules at OAR 340-039-0005 additional terms used throughout this IMD are defined below:

Additionally: In an environmental market, the environmental benefit secured through the payment is deemed additional if it would not have been generated absent the payment provided by the market system.

Attenuation (pollutant): The change in pollutant quantity as it moves between two points, such as from a point upstream to a point downstream.

Credit generator: A point or non-point source that is directly engaged in implementing trading projects to generate credits for water quality trades.

Credit user: the regulated entity that uses credits to meet its compliance obligation.

Project developer or Trading plan developer: The entity that designs and develops water quality trades and that administers and oversees the implementation of trading projects under that plan. A project developer may be the regulated entity seeking to meet its compliance obligation through trading or a third party contractor working on a regulated entity's behalf to design and propose a trading plan

4. LIST OF ACRONYMS USED IN THIS IMD

CFR: Code of Federal Regulations
DMA: Designated Management Agency
DMR: Discharge Monitoring Report
ELGs: effluent limitation guidelines
EPA: United States Environmental Protection Agency
EQC: Environmental Quality Commission
CWA: Clean Water Act
NPDES: National Pollutant Discharge Elimination System
OAR: Oregon Administrative Rules
ODA: Oregon Department of Agriculture

⁵ Willamette Partnership, *Draft Regional Recommendation for the Pacific Northwest on Water quality Trading* (2014) available at <http://willamettepartnership.org/publications/>.

⁶ Willamette Partnership, World Resources Institute, and the National Network on Water Quality Trading, *Building a Water Quality Trading Program: Options and Considerations*, (2015) available at <http://willamettepartnership.org/wp-content/uploads/2015/06/BuildingaWQIPProgram-NNWQT.pdf>.

ODF: Oregon Department of Forestry
PER: Permit Evaluation Report
POTW: publicly-owned treatment works
TBEL: Technology-based effluent limitation
TMDL: Total Maximum Daily Load
WQC: water quality certification issued pursuant to section 401 of the Clean Water Act
WQBEL: water quality-based effluent limitation

5. DIRECTIVE

I. Water Quality Trading Overview

This section of the directive provides background information and direction to DEQ staff on DEQ's authority for trading, eligibility requirements, and some important concepts fundamental to DEQ's trading program. The information in this section is provided to help orient DEQ staff to the intent and guiding principles underlying DEQ's trading program, and to provide staff with direction on implementing these concepts when evaluating trading plan proposals.

A. What is water quality trading?

Water quality trading is a voluntary compliance option available to help point sources meet their regulatory obligations under the federal CWA. Through a DEQ-approved water quality trading plan, regulated entities may obtain credits to comply with their water quality obligations. Credits represent reductions in pollutant loads from other sources that have voluntarily implemented an activity or practice that generates a quantifiable water quality benefit.

B. State Authority for trading

DEQ's water quality trading program is authorized by ORS 468B.555. Pursuant to this authorization, the Environmental Quality Commission adopted OAR 340 division 039 water quality trading rules in December 2015. Division 039 rules are intended to ensure water quality trading is enforceable and transparent, and that trading is implemented consistently with federal and state laws and regulations throughout the state.

C. Federal Authority & Requirements

The CWA does not explicitly address water quality trading as a compliance option. However, the 2003 U.S. EPA Trading Policy endorsed trading as a voluntary, incentive-based approach that can offer greater efficiency in restoring or protecting water bodies.⁷ That policy encourages states to develop and implement water quality trading programs and, more specifically, encourages "voluntary trading programs that facilitate implementation of TMDLs, reduce the costs of compliance with CWA regulations, establish incentives for voluntary reductions and promotes watershed-based initiatives."⁸

i. Antidegradation

40 C.F.R. § 131.12 directs states to implement a statewide antidegradation policy that, at a minimum, maintains and protects the level of water quality necessary to support beneficial uses.

⁷ U.S. EPA Water Quality Trading Policy, *supra* note 2, at p. 1609.

⁸ *Id.*

Oregon's antidegradation policy is found in OAR 340-041-0004 and generally prohibits the lowering of existing water quality.⁹ In its 2003 U.S. EPA Trading Policy, the EPA states that it "does not believe that trades and trading programs will result in 'lower water quality' as that term is used in 40 CFR § 131.12(a)(2) ... when the trades or trading programs achieve a *no net increase* of the pollutant traded and do not result in any impairment of designated uses." (Emphasis in original).¹⁰

In evaluating proposed trading plans, DEQ staff must ensure that the permittee has provided the information necessary to confirm that a proposed water quality trade is consistent with the state's antidegradation policies (OAR 340-039-0003(1)) and that the proposed trade is designed to result in a net reduction of pollutants in the trading area as required in OAR 340-039-0003(4). DEQ staff must also ensure that the proposed trade does not create localized adverse impacts on water quality and existing and designated beneficial uses as required in OAR 340-039-0003(8).

ii. Anti-backsliding

According to the 2003 U.S. EPA Trading Policy:

EPA believes that the antibacksliding provisions of Section 303(d)(4) of the CWA will generally be satisfied where a point source increases its discharge through the use of credits in accordance with alternate or variable water quality based effluent limitations contained in an NPDES permit, in a manner consistent with provisions for trading under a TMDL, or consistent with the provisions for pre-TMDL trading included in a watershed plan.

These antibacksliding provisions will also generally be satisfied where a point source generates pollution reduction credits by reducing its discharge below a water quality based effluent limitation (WQBEL) that implements a TMDL or is otherwise established to meet water quality standards and it later decides to discontinue generating credits, provided that the total pollutant load to the receiving water is not increased, or is otherwise consistent with state or tribal antidegradation policy.¹¹

Trading offers the permittee an additional, alternative means of achieving compliance with its WQBEL and, therefore, is not subject to additional anti-backsliding prohibitions so long as trading does not result in a net increase in the pollutant discharged to the water body or in a localized impairment. CWA § 303(d)(4), § 402(o)(2) and 40 C.F.R. § 122.44(l) establish some exceptions to the anti-backsliding prohibitions that may apply to permits regardless of whether trading is used as a compliance mechanism.

iii. Federal treatment technology requirements

The 2003 U.S. EPA Trading Policy states that water quality trading cannot be used by an NPDES permittee to meet federal treatment technology requirements, including EPA secondary treatment standards for publicly-owned treatment works (POTWs) and EPA technology-based effluent limitation guidelines (ELGs) for certain industries,¹² unless explicitly authorized in federal regulation. For example, the ELG found at 40 C.F.R. § 420.03 authorizes the iron and

⁹ For more information, see the DEQ *Antidegradation Policy Implementation IMD* (March 2001) available at <http://www.deq.state.or.us/wq/pubs/imds/antideg.pdf>.

¹⁰ 2003 U.S. EPA Water Quality Trading Policy *supra* note 2, at p. 1611.

¹¹ *Id.*

¹² U.S. EPA, *Industrial Regulations: Existing Effluent Limit Guidelines*, available at <http://water.epa.gov/scitech/wastetech/guide/industry.cfm#exist>.

steel point source category to conduct intra-plant trading of pollutants between outfalls at any single steel mill. In keeping with this policy, trading authorized under division 039 may not be used to comply with technology-based effluent limitations (TBELs). See OAR 340-039-0015(2)(c).

D. Public Participation & Access to Information

Stakeholder involvement in DEQ's trading program is important for transparency and accountability. While public participation is a required element of any NPDES permit or 401 WQC issuance process (see OAR 340-045-0027 & OAR 340-048-0027), the division 039 trading rules require that DEQ must provide an opportunity for public notice and comment on a trading plan before approval. OAR 340-039-0025(3). Public review of individual trading projects is not required if the individual trading projects are consistent with the DEQ-approved trading plan. *Id.*

DEQ maintains a website [<http://www.deq.state.or.us/wq/trading/trading.htm>] with designated DEQ contacts, EPA's trading policies, background information, and other useful information on trading activities in Oregon. DEQ staff should update and revise the website regularly to ensure information on trading activities within the state is kept current and is available to the public. When DEQ issues permits or 401 WQCs that include trading, DEQ staff should add links on the website to those documents and their associated DEQ-approved trading plans. In addition, DEQ staff should post trading annual reports submitted to DEQ as required under OAR 340-039-0017(3) to DEQ's trading website as they are received. Other trading project information, such as trading project monitoring results and compliance and inspections reports, are public records that may be made available for public review by DEQ upon request.

E. Waterbodies Where Trading May Occur

Division 039 water quality trading rules allow trading by permittees that discharge to high quality waterbodies, see OAR 340-039-0015(3)(a), as well as permittees that discharge to impaired waterbodies. See OAR 340-039-0015(3)(b).

i. Trading in High Quality Waters

The division 039 rules allow DEQ to approve trading in high quality waters. See OAR 340-039-0015(3)(a). High quality waters "means those waters that meet or exceed levels necessary to support the propagation of fish, shellfish and wildlife; recreation in and on the water; and other designated beneficial uses." OAR 340-041-0002(23); see also OAR 340-041-0004(6).

DEQ staff may approve trading by existing NPDES permittees and nonpoint sources in high quality waters "to maintain or improve water quality in water bodies that meet water quality standards, including but not limited to, trading projects designed to offset new or increased pollutant loads." OAR 340-039-0015(3)(a). As with all trading authorized under division 039, to be approvable trading in high quality waters must meet the requirements of division 039 and be consistent with Oregon antidegradation policies and the CWA and its implementing regulations.

ii. Trading in Water Quality Limited Waters: TMDL Implementation

Division 039 rules allow trading to occur in water quality limited waters "where it is consistent with the water quality management plan in a TMDL...." See OAR 340-039-0015(3)(b). While

state and federal water quality regulations include requirements for developing WQBELs consistent with the assumptions and requirements of any wasteload in an applicable TMDL, these regulations do not dictate how permittees meet the WQBELs. Permittees have the flexibility to meet their WQBELs through a number of compliance vehicles, including water quality trading.

As with all trading authorized under division 039, to be approvable trading in water quality limited waters trading must meet the requirements of division 039 and be consistent with Oregon antidegradation policies and the CWA and its implementing regulations. Additionally, DEQ staff should not approve a trade that is inconsistent with the objectives - or that may delay implementation - of any applicable TMDL.

iii. Trading in Water Quality Limited Waters: Before a TMDL is Approved

DEQ may authorize water quality trading in water quality-limited waters prior to the development of a TMDL, in water bodies “that are water quality limited but not subject to a TMDL” (OAR 340-039-0015(3)(b)(i)) or “[w]here trading projects are designed to achieve progress towards meeting water quality standards before or while a TMDL is being developed.” OAR 340-039-0015(3)(b)(ii). Trading for a pollutant parameter in a watershed in which a TMDL is required but has not yet been established may be challenging because it may be difficult to determine the total allowable loading of a pollutant to a receiving water body without the analysis inherent in the TMDL.

In evaluating a proposal for trading a Section 303(d) listed parameter pre-TMDL, DEQ staff should consider the following:.

- An analysis (such as a cumulative effects analysis) of current pollutant loadings that establishes a target or loading cap at or below current conditions that represents progress in the attainment of water quality standards. Such an analysis (and any resulting target or loading cap) should be subject to a public notice and review process. Such an analysis would likely not be necessary for an existing NPDES permittee to offset its current discharge or a nonpoint source to begin improvements in a basin in anticipation of a TMDL.
- Whether trading will make progress toward or meet the target or cap, which would result in an overall net reduction of the pollutant load evaluated across the participating sources.
- Whether proposed trades will achieve direct environmental benefit relevant to the conditions for which the water body is impaired and will not cause or contribute to further impairments of the water body.

DEQ staff should make sure to communicate to permittees the long-term implications if and when a TMDL is later approved. Specifically, once a TMDL is issued, trading plans approved prior to the TMDL that are inconsistent with TMDL requirements will have to be modified upon permit re-issuance.

iv. Trading in Water Quality Limited Waters: Where a TMDL is Not Required

DEQ may also authorize trading in water quality limited waters that are not subject to a TMDL. OAR 340-039-0015(3)(b)(i). For example, DEQ may authorize trading for parameters for which a TMDL is not necessary because it has been demonstrated that TBELs and other local and state authorities, such as Oregon forest practices rules and Oregon agricultural area rules, are sufficient to implement water quality improvement and achieve standards in a reasonable time period.

Trading in water quality limited waters for a parameter that is not an impairment pollutant would proceed as described in the above section E(i) for high quality waters. For example, a nutrient trade to offset a mass load increase would not be affected by an impairment listing for temperature.

F. Pollutant Parameters Eligible for Trading

OAR 340-039-0015(2) describes the water quality parameters authorized for trading and the prohibition against trading for pollutants that are toxic and either persist in the environment or accumulate in the tissues of humans, fish, wildlife or plants. According to OAR 340-039-0015(2)(d), DEQ may authorize trading for other water quality parameters on a case-by-case basis provided it does not cause or contribute to an exceedance of a water quality standard.

i. Trading for Temperature

Temperature trades are authorized in Oregon's temperature standard (OAR 340-041-0028(12)(f)) which acknowledges that stream temperatures are influenced by a variety of conditions such as stream shade, channel morphology, groundwater inflows, and stream velocity, volume and flow. Below are brief descriptions of the types of trading proposals that may be considered to meet WQBELs for temperature.

(a) Temperature Trades Involving Riparian Re-vegetation to Produce Shade

Under division 039, DEQ may approve trading plans that will result in increased riparian shade if the stream temperature benefits from the increase in shade are proportional to and sufficient for the permittee to meet its WQBEL. The definition of "BMPs" at OAR 340-039-0005(1) recognizes "land-based conservation, enhancement or restoration actions that will reduce pollutant loading or create other water quality benefits." DEQ has authorized a trading program involving shade producing riparian re-vegetation in the Medford Regional Water Reclamation Facility NPDES permit.

(b) Temperature Trades Involving Flow Augmentation

Under division 039, DEQ may approve trading plans that will result in higher instream flows if the higher flows will assist in achievement of the WQBEL for temperature. Flow augmentation is specifically included in the definition of "BMPs" in OAR 340-039-0005(1).

DEQ staff must be sure to evaluate trades involving flow augmentation for their potential to contribute to water quality violations in other time

periods, as well as for their potential to harm fish. For example, a flow augmentation plan involving pulsed flows from a reservoir could result in fish stranding, which may not be desirable even if the plan were to contribute to improved temperatures. On the other hand, the acquisition and protection of instream flow that would have otherwise been withdrawn from the river and put to an out-of-stream beneficial use would likely not cause any harm to fish. DEQ has authorized a trading program involving flow augmentation in the Clean Water Services NPDES permit.

(c) **Temperature Trades Involving Improved Habitat**

Streams with elevated temperatures frequently exhibit a loss of cold water refugia and cooling features (e.g., gravel bars) as a result of floodplain loss and other degraded stream conditions. DEQ recognizes that increasing cold water refugia and improving stream conditions can provide benefits to salmonids and other aquatic life. These types of habitat projects may include but are not limited to floodplain restoration, side channel creation, stream restoration, and wetland enhancement or restoration. DEQ may consider trading projects involving habitat improvements and localized cooling benefits if those benefits can be translated into the same units used to determine whether the permittee (credit user) is complying with its regulatory requirements.

To date, DEQ has not approved this type of trade.

ii. Trading for Oxygen-demanding parameters

DEQ staff may consider proposals for trading oxygen-related pollutants, such as biochemical oxygen demand (BOD), carbonaceous BOD, nitrogenous BOD, ammonia and their surrogates where adequate information exists to evaluate the impacts on water quality and to generate appropriate pollutant equivalency metrics. In evaluating trading for ammonia DEQ staff should consider whether localized toxicity from such trades would occur consistent with mixing zone requirements in OAR 340-41-0130.

Examples of cross-pollutant trading to offset a downstream biochemical oxygen demand or to improve depressed in-stream dissolved oxygen levels include the following:

- Reducing upstream nutrient levels
- Reducing upstream contribution of oxygen demanding solids or sediments
- Flow augmentation to increase instream flows

The CWS NPDES permit authorizes a type of intra-plant CBOD and ammonia trading.

iii. Trading for Nutrients

DEQ will consider trades involving nutrients where sufficient data exists to demonstrate that water quality improvements will be realized through BMPs. DEQ anticipates that the U.S. Department of Agriculture (USDA) National Resource Conservation Services (NRCS) Nutrient Tracking Tool may provide a useful foundation for nutrient trading in Oregon. Other tools may be proposed and approved by DEQ for use in nutrient trading.

To date, DEQ has not approved this type of trade.

iv. Trading for Sediment and Suspended Solids

DEQ will consider trading for sediment and suspended solids to address sedimentation, dissolved oxygen, nutrient, and mass load limitation issues.

To date, DEQ has not approved this type of trade.

G. BMP Quality Standards

Division 039 trading rules require that “BMPs eligible for credit generation must be quantifiable and have BMP quality standards.” OAR 340-039-0015(4). “BMP quality standards” are defined as “[s]pecifications for the design, implementation, maintenance and performance tracking of a particular BMP that ensure the estimated water quality benefits of a trading project are achieved, and that allow for verification that the BMP is performing as described in an approved trading plan.” OAR 340-039-0005(2). Trading plans submitted to DEQ for approval must propose BMPs that will be used to generate credits as well as applicable BMP quality standards. OAR 340-039-0025(5)(d).

Requiring BMP quality standards ensures that water quality benefits that result from BMP implementation are actually realized. Requiring adherence to BMP quality standards also provides transparency, consistency and accountability in trading.

In reviewing and approving BMP quality standards proposed in trading plans, DEQ staff should consider whether the proposed BMP quality standards include some of the characteristics of quality standards described in the bulleted list below, and whether they are well-supported by scientific literature and professionals in the appropriate fields.

A BMP quality standard should include some or all of the following elements:

- A description of the practice or pollutant sources addressed by the BMP;
- A quantitative description of the BMP’s effectiveness at reducing the pollutant,
- Suitability of the BMP for different situations and when it should be used, including eligible land uses, site conditions, practices, or locations in watersheds where BMPs are applicable;
- BMP duration and useful lifetime expectancy including: cumulative, annual, and seasonal practices;
- Factors affecting temporal performance such as time lag between BMP establishment and realization of water quality benefits,
- Potential interactions with other practices;
- Identification of ancillary benefits and unintended consequences;
- A description of conditions or risk factors where a BMP will not function (e.g., large storms);
- BMP design criteria, including installation instructions, verifiable installation criteria (e.g., 100 foot minimum buffer width); qualitative installation criteria (e.g., fence material type); management instructions (e.g., seeding rate);
- BMP monitoring criteria, and the specific metrics to be monitored to ensure the BMP is effective at reducing pollutants and installed correctly;

- Description of BMP operation and maintenance requirements,
- BMP credit quantification methods including: units of measure; technical documentation of quantification approaches/tools, including assumptions and documentation of BMP implementation monitoring and effectiveness measurement accuracy and precision; alternative quantification approaches/tools; and effectiveness estimates, including justifications and references;
- Objective and verifiable BMP performance criteria (e.g., no more than 20% cover invasive species) and procedures for documenting those results;
- Credit calculation guidelines, including guidelines for: applying methodology to pre-project site conditions after trading baseline conditions are satisfied, measuring/predicting future conditions, and documenting assumptions and data used in quantifying water quality benefits;
- Ratio considerations, including a description of the types of ratios that might apply to the BMP and under what circumstances;
- Citations of scientific journals or reports from which the BMP quality standards or guidelines were derived; and
- Procedures supporting verification, including how to document pre- and post-project conditions.

DEQ staff may look to other jurisdictions, agencies or organizations for established and widely-accepted BMP quality standards. When new or substantially revised BMP quality standards are proposed for use in a trading plan, DEQ staff may seek additional review or input by experts or practitioners outside in the appropriate fields (e.g. riparian restoration, in-stream habitat restoration, agricultural BMPs) to evaluate proposals for new BMP quality standards for particular types of trades. Once approved for trading BMP quality standards will be available for future traders and DEQ staff to reference. DEQ staff should maintain a “library” of approved BMP quality standards on DEQ’s trading website at <http://www.deq.state.or.us/wq/trading/trading.htm>.

H. Baseline

“Trading Baseline” is defined as “[p]ollutant load reductions, BMP requirements, or site conditions that must be met under regulatory requirements in place at the time of trading project initiation.” OAR 340-039-0005(6). According to OAR 340-039-0040(3) trading credits may be generated only from BMPs that result in water quality benefits *above* trading baseline.

i. Trading Baselines for NPDES Permitted Sources

(a) NPDES permittee as a credit generator (point-to-point source trades):

Trading baseline for an NPDES permittee as a credit generator is its most stringent WQBEL limitation. A permittee may generate credits for trading when it reduces its discharge below its most stringent WQBEL for that parameter.

(b) NPDES permittee as a credit user: Federal TBELs in an NPDES permit are “pollutant load reductions” that are considered part of the “trading baseline” for NPDES permittees. See the definition of “trading baseline” in OAR 340-039-0005(6). An NPDES permittee

cannot use trade credits to meet its TBELs (OAR 340-039-0015(2)(c)); it may use credits to meet permit effluent limits that are water quality-based and more stringent than the TBEL, if one exists. It is important to note that the secondary treatment requirements for publicly owned treatment plants and many ELGS for industries do not include minimum control levels for temperature.

ii. Trading Baseline for §401 WQCs.

OAR 340-039-0030(1)(d) requires that trading baseline account for “[r]equirements established in a Clean Water Act Section 401 water quality certification.” Typical of these requirements are the underlying federal permit or license as well as the “general conditions” and requirements for wetland or stream mitigation included in 401 WQCs which must be implemented as part of the baseline applicable to a 401 WQC. Trading may be used generate credits that address other impacts of the underlying permitted or licensed project or that are in addition to, or above and beyond, the 401 WQC general conditions and mitigation requirements.

iii. Trading Baseline for Nonpoint Sources

Before generating trading credits, a nonpoint source must meet existing water quality requirements of local, state, federal, or tribal regulations.

Many TMDLs broadly define nonpoint source load allocations for entire sectors (such as agriculture or forestry), making it difficult to translate load allocations into a site-specific trading baseline requirement. OAR 340-039-0030(1) states that “[t]rading baseline must account for the following regulatory requirements applicable to the trading *project* at the time of trading project initiation.” (Emphasis added). Thus, nonpoint source sector-wide compliance is not necessary before trading may occur in a watershed. However, individual landowners that want to trade must comply with regulatory requirements applicable to their site, including any landowner-level obligations derived from a TMDL load allocation, if they exist. See OAR 340-039-0030(1).

For example, all agricultural operators in a basin need not be in compliance with Oregon Department of Agriculture (ODA) area rules before an individual landowner engages in trading; however that individual must be in compliance with the current agricultural management area rules found in OAR 603-095 (different rules apply to the various basins throughout the state). See OAR 340-039-0030(1)(b).

Water quality regulations applicable to a particular nonpoint source trading project will vary depending on location and local land use zoning, as well as applicable designated management agency (DMA) requirements and the activities occurring on the land.

If there are overlapping requirements (e.g. one regulation requires a 30-foot buffer and another requires a 50-foot buffer), then staff should consider the most stringent as the baseline. If multiple regulations of a different type apply to a nonpoint source entity (e.g. if one regulation requires “non-disturbance” in a riparian corridor and another requires that a farm operation not harm water quality), documentation of compliance with all of the different types of applicable regulations is important. Where a TMDL exists and implementation plan requirements promulgated by DMAs are different from existing state, local, and tribal requirements, the requirements stemming from the DMA implementation plans supplement the trading baseline.

Site preparation or restoration activities for some trading projects may initially reduce the water quality benefits provided by a site over the short-term, but once established these projects provide substantially greater water quality benefits. For example, a credit developer seeking to generate and trade credits from a site that is in compliance with all applicable water quality regulations may want to enhance riparian function and water quality benefits by removing non-native grasses and shrubs and establishing native trees and shrubs. In this situation baseline is established at the time of compliance with the applicable regulatory requirements (i.e. at the time of trading project initiation, prior to removal of non-native grasses and shrubs). All water quality benefits generated after trading project implementation that are beyond original baseline benefits may be used to generate trade credits.

iv. Simultaneous Implementation of BMPs for Baseline and Credit-Generation

OAR 340-039-0030(2) states BMPs required to meet baseline requirements and BMPs used to generate additional water quality benefits and trade credits may be installed simultaneously. This rule allows project developers to work with landowners to bring high value or priority sites into compliance with regulations while also allowing for the generation of additional water quality benefits - beyond baseline requirements - to be used in trading. Thus, any deficiencies or gaps in compliance with baseline requirements may be addressed while installing BMPs for the generation of trade credits. In this situation, DEQ staff must ensure that trading credits are not attributable to any BMPs installed to meet baseline.

v. Public conservation funds to meet baseline requirements

Division 039 rules do not prohibit credit generators from using public dollars dedicated to conservation or “public conservation funds”¹³ to meet baseline requirements. See section 5.IV.A of this IMD for more discussion on the use and reporting of public conservation funds.

I. Trading Ratios

A trading ratio is a numeric value used to adjust the number of credits generated from a trading project, or to adjust the number of credits that a permittee needs to obtain. See OAR 340-039-0005(10)). Trading ratios may be used to address issues such as: attenuation of water quality benefits between the location where credit-generating BMPs occur and the point of use; pollutant equivalency; uncertainty of BMP performance; and the uncertainty of methods used to measure or estimate a water quality benefit for a particular project, other types of risk, time lag or delay in realization of water quality benefits. OAR 340-039-0043(2).

A water quality trade must include at least one trading ratio. See OAR 340-039-0043(1). DEQ staff should evaluate a trading plan’s proposed ratio(s) to ensure it fits the circumstances of the trade, makes an appropriate reduction in the available credits and is well supported. If DEQ staff determine a ratio proposed in a trading plan is inadequate it may impose an additional ratio or revise the proposed ratio prior to approval. See OAR 340-039-0025(3).

¹³ “Public Conservation Funds” is defined in OAR 340-039-0005(4) as “public funds that are targeted to support voluntary natural resource protection and restoration. Examples of public conservation funds include United States Department of Agriculture (USDA) cost share programs, United States Environmental Protection Agency (EPA) section 319 grant funds, United States Fish and Wildlife Service Partners for Fish and Wildlife Program funds, State Wildlife Grants, and Oregon Watershed Enhancement Board restoration grants. Public funds that are not considered public conservation funds include: public loans intended to be used for water quality infrastructure projects, such as state Clean Water Revolving Funds and USDA Rural Development funds, and utility sewer storm water and surface water management fees.

DEQ may also use ratios to create incentives or disincentives to locate trade projects and install BMPs in priority locations within a trading area. OAR 340-039-0043(2). DEQ staff should consult TMDL documents, or trading frameworks, if available, to identify relevant information regarding water quality modeling information used to set load and waste load allocations and to inform development of appropriate ratios for a trading area. The various types of ratios allowed under division 039 are described in more detail below.

i. Ratios for Attenuation

Water quality benefits can attenuate or reduce gradually while being transported instream between the location where the benefit-generating BMP is installed and the “point of use” (the location where those benefits are needed to meet a compliance obligation). Thus, it may be necessary to discount water quality benefits produced by a trading project and the credits available for use to reflect the actual benefit that accrues at the point of credit use. For example, for a trade with a compliance point in a lower watershed location, a nutrient and erosion control BMP situated in an upland headwater location may provide much less water quality benefit than a similar BMP installation that is streamside in a mid-watershed location. Nutrient load reduction realized from a distant project is not likely to have the same water quality benefit as the same level of nutrient reduction at the point of a permittee’s credit use. Accounting for water quality benefit attenuation may be necessary to ensure net reductions in pollutant loads are achieved where and when they are needed. This can be done by applying a ratio for attenuation. See OAR 340-039-0043(2)(a).

DEQ staff should evaluate the trading plan for factors that may contribute to attenuation and assess the need and suitability for this type of ratio. In other words, DEQ staff should evaluate whether the parameter is one where attenuation can be reasonably tracked and understood and whether the parameter is influenced by other factors that make it difficult to track the benefits from a trading project.

ii. Ratios for Pollutant Equivalency

Ratios may be used to account for differences in water quality benefits demonstrated by different forms of the same pollutant. OAR 340-039-0043(2)(b). For example, some forms of nitrogen and phosphorus are more biologically available than others and a reduction in ammonia or ortho-phosphate may have greater water quality benefit than an equal reduction in total inorganic nitrogen or total phosphate. This difference in water quality benefit may be addressed as a ratio applied to credits. Likewise ratios may be applied to reflect the effects different pollutants may have on another water quality parameter of concern. For instance, low oxygen levels in a river may be caused in part by the discharge of nutrients that drive algal growth and eutrophication, as well as the discharge of nitrogenous and carbonaceous oxygen demanding substances. In the Tualatin Basin, TMDL modeling information supported the establishment of equivalency ratios for oxygen demanding substances in the Clean Water Services NPDES permit.

iii. Ratios for Uncertainty

Ratios may be used to address uncertainty about how well a BMP will perform over time or how effectively it will perform at various project locations within a trading area. OAR 340-039-0043(2)(c). There may also be some uncertainty in the ability of trading plan developers to measure or otherwise quantify the effectiveness of a credit-generating BMP. In the absence of other reasonable contingencies proposed in the trading plan to address uncertainty DEQ staff may require that trading plans include ratios that increase permittee credit obligations in order to address uncertainty. The need for these types of ratios will depend on how well understood and validated the BMP modeling assumptions are for the proposed BMPs (i.e. is the model a known and accepted approach that has produced expected results? Is there a proven track record of success with the proposed BMP?) and the degree to which risk and uncertainty have been addressed in other aspects of the trading plan (e.g. margins of safety, conservative choices, a credit reserve pool, etc.).

iv. Ratios to Incentivize Trading Projects in Priority Areas

Ratios may be applied to incentivize water quality trading projects in priority areas such as areas of ecological significance. OAR 340-039-0043(2)(f). For example, effective shade projects located on small streams that provide critical salmonid rearing habitat may have greater benefit to these beneficial uses than similar projects on larger streams. However, under current models, more shade will probably be produced, and more trade credits will likely be generated, from trading projects located on larger streams unless incentives to locate trading projects in a priority area, such as a small stream containing critical habitat, are provided. In order to encourage trading projects in priority areas within the watershed, a ratio may be applied so that the number of total credits generated by a trading project located in priority area will be greater than an identical project located in another location in the trading area. Ratios in trading projects in non-priority areas may be increased for the purpose of focusing trading projects into specific locations.

DEQ may identify priority areas for water quality trading in TMDLs, trading frameworks, or via a department order. If DEQ has not identified any priority areas, DEQ staff should review the supporting rationale for any priority areas proposed in the trading plan to ensure that the priority areas align with state or regional priorities such as recovery plans that have been approved by the National Oceanic and Atmospheric Administration Fisheries, and the U.S. Fish & Wildlife Service, the Oregon Department of Fish & Wildlife, or the Northwest Power & Conservation Council (subbasin plans).

v. Ratios to Address Risk

Water quality trading exposes permittees to a number of natural and human-caused risks that may affect their ability to fully implement a trading plan and generate the trading credits necessary to comply with NPDES permit limitations or water quality certification. Ratios may be used to manage this risk. See OAR 340-039-0043(2)(d). The need for this type of ratio will depend on the circumstances associated with the proposed trading area and trading projects (i.e. the likelihood of drought, fire, pests, floods, vandalism) and the degree to which risk and uncertainty have been addressed in other elements of the trading plan (e.g., risk may also be managed by creating a reserve credit pool or by implementing “back up” trading projects).

vi. Ratios to Address Time Lag

Some BMPs may not begin to provide full water quality benefits immediately. A ratio may be used to require a permittee to obtain additional credits to address the time lag or delay in performance. OAR 340-039-0043(2)(e). For example, to address the time lag after initial installation of riparian restoration projects until realization of full water quality benefits, a 2:1 ratio was applied in the Medford and Clean Water Services trades requiring those permittees to obtain twice as many credits to address the temporal delay. Alternatively, lower ratios are appropriate if the permittee is implementing BMPs well in advance of the anticipated compliance obligation or if water quality benefit is delivered in advance of when the credit is needed.

vii. Ratios for credit retirement

A ratio may be used to require that a portion of credits generated or obtained by a credit user be retired or “set aside” to ensure a net reduction in water pollution. See OAR 340-039-0043(2)(g). DEQ staff should evaluate the need for this type of ratio depending on the circumstances of the trade and whether there are other elements of the trade that will ensure a net reduction in water pollution. According to the 2003 U.S. EPA Trading Policy, a retirement ratio may also be one way to compensate for uncertainty by creating a margin of safety.

J. Credits

A water quality trading credit is defined in OAR 340-039-0005(3) as a “measured or estimated unit of trade for a specific pollutant that represents the water quality benefit a water quality trading project generates at a location over a specified period of time, above baseline requirements and after application of trade ratios or any other adjustments.” A trade credit may represent a mass of pollutant or a unit of energy load such as kilograms of phosphorus or kilocalories per day. Credits are generated by implementing voluntary BMPs that result in pollutant load reductions and water quality benefits above trading baseline. OAR 340-039-0040(3).

DEQ staff may consider allowing a permittee to claim credit for multiple benefits generated by a single trading project if credits are used solely by that same permittee pursuant to an approved trading plan for each of the parameters. See OAR 340-039-0040(2). For example, a permittee with both nutrient and temperature limitations may use both temperature and nutrient credits from a riparian restoration project that is implemented consistent with trading plans and BMP quality standards for both parameters. Such a project must provide quantifiable water quality benefits in the form of pollutant load reductions for both parameters.

Credits may be used when BMPs have been implemented consistent with applicable BMP quality standards, and verified as specified in the trading plan. See OAR 340-036-0040(5). Credit usage must be reported to DEQ, at least annually, in an annual report pursuant to OAR 340-039-0017(3). As credits are used to comply with WQBELs they must also be reported to DEQ in monthly DMRs.

K. Verification

A method for verifying trading plan performance and that credits are generated as proposed is a required element of a trading plan. See OAR 340-039-0025(5)(h). Verification results must be reported to DEQ, at least annually, according OAR 340-039-0017(3)(e).

There are a range of verification approaches, each of which has certain advantages and practical limitations given particular trading circumstances. Verification can be conducted in a manner where every credit-generating activity is confirmed in person and all associated paperwork reviewed by a third party or verification may be conducted by a trained and knowledgeable staff employed by the permittee. In most cases, a combination of the two approaches may be appropriate. DEQ staff should review the proposed verification approach to ensure that the proposed methods are credible and will be performed by knowledgeable individuals or entities with relevant experience. Where necessary to ensure that verification will be credible and reliable, DEQ should seek additional information regarding the qualifications and experience of verifying entities.

DEQ staff must ensure that verification is initiated once the BMP has been implemented by a project developer, and the project's water quality benefits are ready for confirmation and use by a permittee; DEQ staff should review the trading plan to make sure that it identifies the timeframe for when this is expected to occur. Credits may be re-verified on a timeframe specified in the trading plan to confirm that the BMP is performing as anticipated and in accordance with the trading plan's schedule for credit generation. Seasonal management practices may be re-verified monthly or quarterly, whereas structural BMPs may need to be verified less frequently. Verification of site performance should be included in each annual report plan to confirm ongoing performance.

II. Trading Plan Review & Approval

The trading plan is the crux of a trading program. It is the means by which a permittee describes how credits will be developed and used to meet the compliance obligations of its NPDES permit or 401 WQC. A team of DEQ staff consisting of DEQ's trading coordinator, the TMDL regional basin coordinator and other appropriate TMDL staff should assist the DEQ permit writer with the review and approval of trading plans.

A trading plan is defined as a "plan that describes the design, implementation, maintenance; monitoring, verification and reporting elements of a water quality trade." OAR 340-039-0005(8). A permittee must submit to DEQ a water quality trading plan for review and approval before trading is authorized. OAR 340-039-0025. To be approvable, a trading plan must first be complete; that is, it must include all the elements in OAR 340-039-0025(5) and -0025(6) and describe how the elements were derived or calculated. It should provide sufficient detail to demonstrate that the water quality benefits generated by trading projects implemented under the plan will be of the quantity and quality necessary to meet the regulatory obligations of the credit users and that the proposed trade will meet the purpose and policies in OAR 340-039-0001 and trading objectives found in OAR 340-039-0003. To approve a trading plan DEQ staff must make appropriate findings in the permit or 401 WQC Evaluation Report (see Section 5.III.C, below on Permit Evaluation Reports).

DEQ must provide an opportunity for public notice and comment on a proposed trading plan before approval. OAR 340-039-0025. This public notice and comment period should coincide with the public notice and comment period on the NPDES permit or 401 WQC.

The proposed trading plan must be consistent with a DEQ-issued trading framework as required in OAR 340-039-0025(4), if such a framework exists. In some cases, an approved TMDL that addresses trading components described in OAR 340-039-0020(1) may function as the trading framework. If a TMDL exists, the proposed trade must be consistent with the TMDL.

DEQ may amend a trading plan or require amendments to the trading plan prior to approval. OAR 340-039-0025(3). If approved, the elements of a trading plan required by OAR 340-039-0025(5) must be incorporated as enforceable conditions in an NPDES permit or 401 WQC by DEQ staff before an entity may use trading credits for compliance with water quality-based regulations.

Where appropriate DEQ staff may consider the following additional characteristics of proposed trades as these variables may impact the viability of a trade and the success of a proposed trade in achieving its intended results:

- Trading project financing: How trading projects (including ongoing monitoring, maintenance and verification costs over the long-term) are proposed to be financed, including whether public conservation funding (as defined in OAR 340-039-0005(4)) will be used. If credits generated under a proposed trading plan are likely to include water quality benefits obtained with public conservation funds, permit writers should ensure that the trading plan proposes to generate enough credits to meet the trading plan targets after a pro rata share of the prohibited water quality benefits have been excluded. DEQ permit writers may request trade developers to demonstrate in the trading plan that the trading program is adequately financed through other non-prohibited sources in order to provide adequate assurance to DEQ that the expected number of trading credits will be successful generated.
- Legal protection of BMPs: While legal protection of BMPs is not required by division 039 it may be appropriate in some situations to help ensure credits will be generated over the expected duration of the trade.
- Experience, knowledge and skills of credit generators: DEQ staff reviewing trading plans should inquire as to the knowledge, skills, and relevant experience of the parties developing and implementing the trading program (including the monitoring and verification parts of the program). If the credit generators are not experienced, the trading plan (or supporting documentation) should explain how they will be trained to successfully implement trade projects, or alternatively, what kind of support or oversight will occur.

A. Water Trading Policies & Objectives

Prior to approving proposed trading plans DEQ staff must evaluate trading plans to ensure they propose activities that will promote the policies of the Environmental Quality Commission as stated in OAR 340-039-0001(2) and are designed to achieve the water quality trading objectives stated in OAR 340-039-0003. If DEQ proposes to approve a trading plan, that approval must be supported by findings in the permit evaluation report that the proposed trading plan promotes EQC policies and achieves rule objectives stated in those rules.

OAR 340-039-0001(2) states that trading authorized by DEQ *must* promote one or more of the following

- Achieves pollutant reductions and progress towards meeting water quality standards;
- Reduces the cost of implementing Total Maximum Daily Loads (TMDLs);
- Establishes incentives for voluntary pollutant reductions from point and nonpoint sources within a watershed;
- Offsets new or increased discharges resulting from growth;
- Secures long-term improvements in water quality; or
- Results in demonstrable benefits to water quality or designated uses the water quality standards are intended to protect.

OAR 340-039-0003 states that water quality trading authorized under Division 39 *must*:

- (a) Be consistent with anti-degradation policies
- (b) Not cause or contribute to an exceedance of water quality standards;
- (c) Be consistent with local, state, and federal water quality laws;
- (d) Be designed to result in a net reduction of pollutants from participating sources in the trading area;
- (e) Be designed to assist the state in attaining or maintaining water quality standards;
- (f) Be designed to assist in implementing TMDLs when applicable;
- (g) Be based on transparent and practical Best Management Practices (BMPs) quality standards to ensure that water quality benefits are generated as planned; and
- (h) Not create localized adverse impacts on water quality and existing and designated beneficial uses.

B. OAR 340-039-0025(5)(a) Trading parameter

A water quality trading plan must specify the parameter for which trading is proposed. If a permittee wants to trade for more than one parameter, a trading plan is required for each parameter. Water quality parameters eligible for trading are identified in OAR 340-039-0015(2) and are discussed in more detail in section 5.I of this IMD.

A trading project that reduces a surrogate metric or parameter may be used to generate credits provided there is strong supporting documentation in a trading plan that links the surrogate metric to the water quality pollutant that is offset by the trade. This supporting information may be drawn from a trading framework, TMDL or similar analysis.

C. OAR 340-039-0025(5)(b) Trading baseline

A trading plan must identify any applicable regulatory requirements that apply within the trading area and that are required to be implemented to achieve baseline requirements. OAR 340-039-0025(5)(b). OAR 340-039-0030(1) requires the trading baseline account for the following regulatory requirements applicable to the trading project at the time of trading project initiation:

- (a) NPDES permit requirements;
- (b) Rules issued by Oregon Department of Agriculture for an agricultural water quality management are under OAR chapter 603 division 095;

- (c) Rules issued by Oregon Board of Forestry under OAR chapter 629 divisions 610-680;
- (d) Requirements of a federal land management plan, or an agreement between a federal agency and the state;
- (e) Requirements established in a Clean Water Act Section 401 water quality certification;
- (f) local ordinances;
- (g) Tribal laws, rules, or permits;
- (h) Other applicable rules affecting nonpoint source requirements;
- (i) Projects completed as part of compensatory mitigation, or projects required under a permit or approval issued pursuant to Clean Water Act section 404, or a supplemental environmental project used to settle a civil penalty imposed under OAR chapter 340 division 012 or the Clean Water Act; and
- (j) Regulatory requirements a designated management agency establishes to comply with a DEQ-issued TMDL, water quality management plan or another water pollution control plan adopted by rule or issued by order under ORS 468B.015 or 468B.110.

Thus, if any of the regulatory requirements listed in OAR 340-039-0030(1), including necessary pollution load reductions, BMP requirements, or site conditions, are likely to apply to potential project sites in the trading area DEQ must ensure that they are cited in the trading plan. DEQ staff may consider requesting additional information in the trading plan such as a list or general description of potential or proposed trading partners within the trading area, or a preliminary determination as to the level of compliance with the applicable baseline regulatory requirements within the trading area to help DEQ evaluate the trading plan's credit generation estimates and ensure the proposed trade will achieve its intended results.

If no regulatory requirements described in OAR 340-039-0030(1) exist or apply within the trading area, the trading plan may state that baseline is "existing conditions." Note: *actual* quantification of baseline and/or water quality benefits generated by trading projects occurs via annual reporting required by OAR 340-039-0017(3). Because baseline is determined at the time of project *initiation*, much of the information necessary to determine site-specific baseline information will likely be unknown at the time of trading plan review and approval. For more on annual reporting see Section IV.A below.

D. OAR 340-039-0025(5)(c) Trading area

A trading plan must include a description of the trading area. OAR 340-039-0025(5)(c). Trading area is defined in OAR 340-039-0005(5) as a "watershed or other hydrologically-connected geographic area, as defined within a water quality management plan adopted for a TMDL, trading framework, or trading plan. A trading area must encompass the location of the discharge to be offset, or its downstream point of impact, if applicable, and the trading project to be implemented." The trading plan's description of the trading area must include "identification of the location of the discharge to be offset, its downstream point of impact, if applicable, where trading projects are expected to be implemented, and the relationship of the trading projects to beneficial uses in the trading area." OAR 340-039-0025(5)(c).

In reviewing this element of a trading plan, DEQ staff must ensure that the description of the trading area is specific enough that members of the public and DEQ staff will be able to identify where the regulated discharge is and where trading projects will occur. DEQ staff should encourage the use of the twelve digit hydrological units codes contained in the national Watershed Boundary Dataset in a trading plan which can ease identification of locations in a trading plan.

As stated in the 2003 U.S. EPA Water Quality Trading Policy, “[a]ll water quality trading should occur within a watershed or a defined area for which a TMDL has been approved. Establishing defined trading areas that coincide with a watershed or TMDL boundary results in trades that affect the same water body or stream segment and helps ensure that water quality standards are maintained or achieved throughout the trading area and contiguous waters.”¹⁴ Generally, the geographic scope of a trading program should be large enough to encompass the universe of sources that contribute to the specific water quality problem that is to be addressed through trading.

DEQ staff should evaluate whether trading projects are located upstream of a point of compliance or a point of concern defined in the TMDL (TMDLs established for temperature after 2003 refer to a “point of maximum impact” in a watershed from point source and nonpoint sources of heat) and if not, whether there is adequate rationale for the proposed location. A trading area may be established on a case-by-case basis, via a proposed trading plan subject to DEQ approval, or via a department order issued by DEQ establishing a trading framework (see OAR 340-039-0020), if a trading area has not been defined in one of these documents and if there is adequate scientific justification for doing so. For instance, DEQ may require that trading plans further refine or broaden the trading area to address specific impairments or to ensure that restoration activities are prioritized to focus on ecologically important areas provided there is adequate justification to do so either in a TMDL, WQMP or trading framework.

E. OAR 340-039-0025(5)(d) BMPs

Trading plans must include a description of *what* water quality benefits that will be generated as well as a description of *how* water quality benefits will be generated – specifically, the BMP or BMPs that will be implemented. OAR 340-039-0025(5)(d). Proposed BMP quality standards are also a required element of the trading plan. OAR 340-039-0025(5)(d).

OAR 340-039-0005(1) defines BMPs as “[i]n-water or land-based conservation, enhancement or restoration actions that will reduce pollutant loading or create other water quality benefits. BMPs include, but are not limited to, structural and nonstructural controls and practices and flow augmentation.”

Structural controls generally include conservation or restoration actions that are constructed and expected to remain in place and functioning for a longer duration of time (e.g., a treatment wetland, a revegetated riparian forest, an irrigation system upgrade). Non-structural controls generally refer to non-infrastructure type actions such as education and outreach, pollution prevention or protection policies, rules, or ordinances, and management practices. Credits may also be generated by operational or maintenance activities that reduce the pollutant loading of

¹⁴ 2003 U.S. EPA Trading Policy, 68 Fed. Reg. at 1610.

another source (e.g., changes in fertilizer management on a farm, etc.). As described in OAR 340-041-0015(4), BMPs must be quantifiable to be eligible for credit generation. While a number of restoration or conservation activities may provide some ecological benefit, they must be translatable into the regulatory units by which the credit purchaser's compliance is judged (e.g., "kilocalories per day of thermal load, or pounds of total phosphorus").

In evaluating proposed BMPs DEQ staff must ensure that the BMP is designed to achieve water quality benefits that will offset the targeted discharge and that they are described in the trading plan with specificity and detail necessary for DEQ to confirm the BMP will achieve the intended results.

Some BMPs will begin providing a water quality benefit upon implementation, while others, such as in-stream improvements, riparian restoration and other structural BMPs, may take longer to implement, but provide long-lasting water quality and ecosystem benefits. For these more complex BMPs, ratios may be used to account for the interim period of time until water quality improvements are achieved and to ensure a net reduction in pollutant loads over the long-term.

DEQ staff may approve trading plans for generating credits from BMPs that are installed at a project site prior to DEQ approval of a trading plan. See OAR 340-039-0040(6). This rule allows trade developers and credit generators to undertake early, voluntary restoration actions, which is especially meaningful when implementing BMPs that take longer to produce full water quality benefits. DEQ staff should evaluate these early projects to determine the extent to which they were implemented in accordance with acceptable and approvable BMP quality standards. If DEQ staff determine that the projects do not meet current standards DEQ may impose additional requirements in the trading plan necessary to bring these projects into alignment with approved BMP quality standards.

DEQ staff should evaluate whether there is a logical basis for the selected BMPs in generating the types of credits needed and that BMPs are otherwise ecologically appropriate for the watershed. For example, riparian restoration projects to implement a temperature trading plan should include native species appropriate for the location rather than fast growing, but non-native tree or shrub species.

For more discussion on BMP quality standards see section 5.I.F of this IMD.

F. OAR 340-039-0025(5)(e) Trading Ratios

Trading plans must propose and describe at least one, possibly more, applicable trading ratios (see OAR 340-039-0043(1)), and include "the basis for each applicable trading ratio, including the underlying assumptions for the ratio and a statement indicating whether those ratios increase or decrease the size of a credit obligation or the number of credits generated from an individual trading project." OAR 340-039-0025(5)(e). The trading plan should also propose where and when the ratios apply.

Where a trading plan contains multiple ratios, they may be applied separately or combined into a single ratio factor. If combined, the separate ratio components must be specifically documented. Whether separated or combined, the sum of the various ratios applied to a point source's credit obligation should always be greater than 1:1 (e.g., for every unit of pollution discharged by a

point source, there must be at least one unit reduced through trading). For more information on ratios see section 5.I.H of this IMD.

G. OAR 340-039-0025(5)(f) Credits

A permittee must describe in its trading plan the credits needed to meet the water quality-based requirements of its permit or 401 WQC. This includes the *quantity* of credits needed and *when* they were or will be generated. The plan must also describe the methods used to quantify credits and the expected duration or “life” of a credit. OAR 340-039-0025(5)(f). Credits must be generated within the defined trading area of an approved trading plan. OAR 340-039-0040(1).

DEQ staff should review the trading plan to determine whether it is sufficiently detailed to explain all the calculations, models, assumptions, and the data needed to support the proposed credit quantification methods. DEQ staff must evaluate the trading plan to ensure that the proposed quantity and timing of credit generation “add up” to meet the water-quality-based requirements of the permit or 401 WQC for which trading is proposed. For more information on credits, see section 5.I.I of this IMD.

i. Credit Quantity & Timing

Quantity: DEQ staff should review the trading plan to ensure that it describes the quantity of trading credits that the permittee proposes to use to comply with a water quality-based requirement of the NPDES permit or 401 WQC. OAR 340-039-0025(5)(f). DEQ staff should review the trading plan to make sure that it includes sufficient detail to show that the projected credit quantity is sufficient to meet the WQBEL or other water quality-based requirement. Credits should be expressed in the same unit as the discharge targeted for offset.

Timing: DEQ staff should review the trading plan to make sure that it identifies the total number of credits needed and a schedule for credit generation, including a start date. If trading projects will be implemented over an extended period of time, DEQ staff should ensure the trading plan proposes credit generation milestones, see OAR 340-039-0025(5)(f)A), based on an assessment of how soon BMPs could be implemented and begin generating actual water quality benefits, as well as other factors such as time spent securing, designing and developing trading projects. If periods of critical conditions - such as periods of low flow and high pollutant loading – have been identified for the watershed in a TMDL or applicable water quality standards, DEQ staff should evaluate whether the trading plan demonstrates how compliance with WQBELs or other water quality-based requirements will be achieved during critical conditions.

ii. Credit Quantification Methods

DEQ staff should evaluate the trading plan to ensure that it describes how credits will be quantified including any assumptions and inputs used to derive the number of credits. OAR 340-039-0025(5)(f)(ii). In other words, a trading plan must identify a method that will be used to estimate or measure the water quality benefit directly attributable to credit-generating BMPs and how those benefits will be translated into credits. To ensure transparency, water quality benefits and credits should be quantified and expressed in the same units specified in a WQBEL or other water quality- based requirement unless the use of a surrogate metric or parameter has been approved.

DEQ staff should evaluate proposed credit quantification methods to ensure they are: 1) objective and repeatable, 2) sensitive to the parameter of interest (i.e. variation in quantified credits reflects actual differences in the water quality indicators being measured and not random or background variation), 3) accurate and representative of true pollution load reductions, and 4) transparent and easy to understand with well-documented relationship of inputs and outcomes. Water quality benefit calculations may use pre-determined pollutant reduction rates or ratios for specific BMPs (included in BMP quality standards), modeling, or direct measurement. If models are used DEQ staff must ensure that trading plans clearly state which versions of the models are being used.

iii. Credit Duration

DEQ staff must ensure the trading plan includes a description of when a credit becomes valid and how long the credit is expected to be used for compliance purposes (or the “credit duration”). OAR 340-039-0025(5)(f)(iii). The duration of a credit depends upon the type of BMP and pollution reduction generated, as well as documentation that BMPs are, and will remain, effective.

DEQ staff may approve trading plans that allow credits to continue to be used for subsequent permit cycles provided that BMPs are protected for the projected credit duration and the water quality benefit is maintained. If the credits are expected to continue to be used in subsequent permit cycles, the trading plan should state that. Upon permit renewal DEQ staff must ensure the trading plans are appropriately revised.

Some BMPs such as in-stream improvements, riparian restoration and other structural BMPs, may take a long time to realize full water quality benefits. For BMPs that may a long time to deliver full benefits, DEQ may approve trading plans that allow the duration of credits to begin before the full water quality benefit of the BMP is achieved provided an appropriate ratio is used to account for the interim period of time before full water quality improvements are achieved.

H. OAR 340-039-0025(5)(g) Monitoring

Trading plans must describe two monitoring elements: 1) the proposed methods and frequency of trading project BMP monitoring, and 2) proposed methods and frequency of how water quality benefits generated by a trading project will be monitored. OAR 340-039-0025(5)(g). Each of these types of monitoring is discussed below. DEQ staff must evaluate the trading plan to make sure the basis for a proposed monitoring method is described in the trading plan.

Trading project monitoring results must be reported annually to DEQ pursuant to OAR 340-039-0017(3)(d). Where appropriate, DEQ staff may request monitoring results be submitted to DEQ in electronic format and include all the meta data requirements. This will help DEQ properly upload the data into its environmental data database.

i. BMP monitoring

DEQ staff must evaluate proposed BMP monitoring to ensure that it will provide DEQ with sufficient information to demonstrate that BMP implementation is on schedule and that BMPs are functioning as expected. Thus DEQ staff should ensure that trading plans propose both monitoring that provides immediate feedback on trading project BMP implementation as well as

monitoring for the duration of the credit life, and that monitoring is both qualitative and quantitative.

In evaluating proposed BMP monitoring DEQ staff should examine whether proposed monitoring metrics are sensitive and appropriate for the BMP, have low spatial and temporal variability, and will be easy to measure with sufficient accuracy and frequency to confirm that trading plan implementation is on track and that BMPs are functioning as expected. In many cases BMP monitoring will be prescribed by the applicable BMP quality standards so DEQ staff should make sure proposed monitoring methods are consistent with the applicable BMP quality standard. Additionally, DEQ staff should evaluate whether proposed monitoring metrics support any proposed corrective actions or adaptive management actions identified in the plan.

ii. Water quality benefits monitoring

The rules require monitoring of water quality benefits generated by trading projects. This monitoring data is important to demonstrate the effectiveness of BMP implementation, whether BMPs are generating benefits that can be quantified as credits, and to inform DEQ and stakeholders whether or not trading projects are achieving the desired results.

In evaluating this element of a trading plan DEQ staff should ensure that trading plans propose a monitoring method and frequency that captures the water quality benefits generated by trading project implementation. DEQ staff must evaluate the proposed monitoring method to ensure it will accurately capture or model the benefits generated by proposed BMP and that it is well-supported by science for that purpose. As with BMP implementation monitoring described above, much of the monitoring of water quality benefits will be prescribed by the applicable BMP quality standards so DEQ staff should make sure proposed monitoring methods are consistent with the applicable BMP quality standard.

Additionally DEQ staff should evaluate whether an initial assessment of the water quality benefits of baseline conditions is necessary prior to BMP implementation. For some types of BMPs the credit quantification method focuses only on the water quality benefit of a BMP and no assessment of the water quality benefits at baseline conditions is necessary. For other types of BMPs it may be necessary to measure the water quality benefits at baseline conditions in order to determine what the uplift is from BMP implementation. If the water quality benefits of the baseline conditions are necessary to quantify the credits generated by BMP implementation, DEQ staff must ensure that the trading plan includes a proposed method for monitoring water quality benefits of baseline conditions.

I. OAR 340-039-0025(5)(h) Trading plan performance verification

DEQ staff must ensure that a trading plan describes how a credit user will verify and document for each trading project that BMPs are conforming to applicable quality standards and that credits are generated as planned. OAR 340-039-0025(5)(h). Verification is defined in OAR 340-039-0005(11) as a “process to confirm and document that a trading project is implemented and performing according to the approved trading plan and BMP quality standards, and to confirm the quantity of credits generated by the trading project.” For more information on verification see section 5.I.I.J of this IMD.

This element of the trading plan should specifically identify organizations, individuals (or staff positions) responsible for verifying BMP implementation and water quality benefits and credit quantities produced.

J. OAR 340-039-0025(5)(i) Tracking and Reporting

A description of how credit generation, acquisition and usage will be tracked and how this information will be made available to the public is a required element of the trading plan. OAR 340-039-0025(5)(i). DEQ staff should evaluate this element of a trading plan to ensure that such a ledger of credit information will be made available to the public by either posting timely reports to the permittee's website, or via an on-line credit registry, or other method that tracks trading project credit information.

On-line credit registries: The 2003 EPA Water Quality Trading Policy states that “[e]asy and timely public access to information is necessary for markets to function efficiently and for the public to monitor trading activity.” DEQ recognizes the utility of credit registries as an efficient way to record and track trades but has not established, required or approved any particular credit registry. Services provided by a registry can include tracking the generation, verification, maintenance, purchase, ownership, and reporting of credits available within a marketplace. DEQ staff may approve a trading plan that proposes the use of a credit registry with these characteristics to meet the “tracking and reporting” element of OAR 340-039-0025(5)(i). DEQ inspectors may accept reports (for a permit's DMR requirements and the annual reporting requirement at OAR 340-039-0017(3)) generated by a credit registry provided they are signed and certified by the permittee as required by 40 CFR §122.22.

K. OAR 340-039-0025(6) Adaptive management

A trading plan must describe how monitoring information and other information, such as site or project-specific information, may be used to adjust trading projects and under what circumstances. OAR 340-039-0025(6).

DEQ staff may approve a trading plan with a small range of alternative trading project implementation methods in order to provide trading entities some flexibility to respond to reasonably foreseeable changes in circumstances affecting trading projects without triggering a permit or 401 WQC modification subject to divisions 045 and 048. For example, circumstances that are foreseeable or reasonable to anticipate are low survival rates of riparian plantings, financing issues, etc. DEQ staff should ensure that an adaptive management element describes what conditions or circumstances may trigger implementation of an adaptive management alternative.

The adaptive management provisions of a trading plan are not required to be translated into enforceable conditions of a permit or 401 WQC but they must be identified in the adaptive management section of the trading plan at the time of public notice and DEQ approval and should be referenced in the permit.

Significant changes in circumstances that go beyond the adaptive management provisions in the trading plan or that fail to align with a permit or 401 WQC condition will require revisions to

trading plans. DEQ must re-open and modify the permit or 401 WQC for any revisions to a trading plan that will affect an enforceable condition. OAR 340-039-0025(7).

III. Incorporating Trades into NPDES Permits

A. Permitting Process Overview

A permittee proposing to use water quality trading credits to meet a WQBEL of its permit must submit a water quality trading plan, with the application for the permit action, to DEQ for approval. DEQ may authorize water quality trading in an NPDES permit to meet WQBELs (see OAR 340-039-0017(1)(a)) after the permit evaluation report, permit (or permit modification), and trading plan have been subject to public notice and comment (public review of all three documents should happen concurrently and in accordance with OAR 340 Division 045 public notice requirements) and DEQ has reviewed and approved the permittee's water quality trading plan. OAR 340-039-0025(1). DEQ review and approval of the trading plan is described in Section II of this IMD. All the elements of an approved trading plan listed in OAR 340-039-0025(5) must be incorporated into the permit as enforceable conditions.

This section discusses how a permit writer translates trading plan elements into enforceable permit conditions and the findings that DEQ must make in a permit evaluation report or "fact sheet" in order to approve trading in a permit.

B. Permit Conditions

Water quality trading-related conditions will be included in the following permit schedules:

- Schedule A – Wastewater Discharge Limitation
- Schedule B – Monitoring and Reporting
- Schedule C – Compliance Schedule (if the WQBEL can't be achieved upon permit issuance)
- Schedule D – Special Conditions

i. Schedule A – Wastewater Discharge Limitations

Schedule A must clearly identify which limitations are approved for trading. Trading may be one of several options a permittee may use to comply with an effluent limit.

The permit must also clearly state the quantity of credits that will be used to meet the WQBEL and when they are needed (e.g. year-round, seasonably, or a critical period described in a TMDL).

ii. Schedule B – Monitoring and Reporting

DEQ will rely on annual reporting required pursuant to OAR 340-039-0017(3) and/or monthly discharge monitoring reports (DMRs) required by the NPDES permit to regulate and enforce the trading requirements included in the permit or 401 WQC.

The permit must include a condition that requires that credits used for compliance with NPDES permit limitations be reported in a monthly DMRs. The permit writer should consider including

in the permit's monthly reporting requirements the following three values for each pollutant that is approved for trading:

- (a) Effluent discharge monitoring results,
- (b) Credits used, and
- (c) Calculation of the effluent discharge minus the credits used.

For example, Medford Regional Water Reclamation Facility reports the thermal credits used to comply with its excess thermal load limitation in its DMR. This value is reported daily in each DMR submitted during the critical period.

In addition to monthly DMR reporting, Schedule B must also include a requirement for an annual report describing trading plan performance and implementation that complies with OAR 340-039-0017(3). DEQ staff should include a deadline for annual report submittal that fits the circumstances of a trade so long as it is not more than twelve months from the date that implementation of an approved trading plan is initiated. See Section IV below for more information on annual reporting.

iii. Schedule C – Compliance Schedule

If a permittee cannot meet a WQBEL immediately, DEQ may approve the use of a compliance schedule that is consistent with the requirements of OAR 340-041-0061 and federal regulations on compliance schedules. When granting a compliance schedule, DEQ must make a reasonable finding, adequately supported by the administrative record and described in the PER, that the compliance schedule will lead to compliance with an effluent limitation to meet water quality standards by the end of the compliance schedule 40 CFR 122.47 states:

- (3) *Interim dates.* Except as provided in paragraph (b)(1)(ii) of this section [not applicable in this context], if a permit establishes a schedule of compliance which exceeds 1 year from the date of permit issuance, the schedule shall set forth interim requirements and the dates for their achievement.
 - (i) The time between interim dates shall not exceed 1 year, except that in the case of a schedule for compliance with standards for sewage sludge use and disposal, the time between interim dates shall not exceed six months.
 - (ii) If the time necessary for completion of any interim requirement (such as the construction of a control facility) is more than 1 year and is not readily divisible into stages for completion, the permit shall specify interim dates for the submission of reports of progress toward completion of the interim requirements and indicate a projected completion date.

For trading-related compliance schedules, permit writers must develop milestones with consideration of: 1) the time it will take to establish site-specific contracts with landowners, 2) the time it will take to design and implement all necessary BMP projects, 3) local constraints in implementing the trading plan (e.g., supply of materials, equipment, available sites, and labor); and 3) time lag until a BMP reaches full performance (and delivery of water quality benefits). These milestones should be developed in consideration of the trading plan's proposed credit generation milestones and should be credit-implementation-based (e.g, if a trading program is expected to take 10 years to implement, a permit writer should consider including credit implementation and verification milestones included in proposed trading plans at permit years 2, 5 and 10 to ensure the permittee is on track to hold enough credits by a particular time).

In addition, for BMPs with delayed realization of water quality benefits, permit writers should include performance-based milestones at particular point(s) in the compliance schedule. For

example, if the shade from the same riparian program that takes 10 years to implement is expected to take 20 years to reach maturity, the permittee should have to demonstrate the overall credit performance of its program at year 30 - 10 years of implementation, with the last year of implementation taking 20 years to mature). These compliance milestones should be related to the credit generation milestones articulated in the trading plan (see OAR 340-039-0025(5)(f)(i)). The permit writer should require the information necessary to make a well-informed decision about an appropriate time period to implement trading projects and comply with the WQBEL as soon as possible if it is not adequately described in the trading plan.

The permit must include language as required by 40 CFR 122.47: the permit shall be written to require that no later than 14 days following each interim date and the final date of compliance, the permittee shall notify the Director in writing of its compliance or noncompliance with the interim or final requirements, or submit progress reports if paragraph (a)(3)(ii) is applicable. The compliance schedule analysis performed by the permit writer, including any findings and assumptions relied upon, should be documented in the permit evaluation report, and should be made available for public review at the time the permit is placed on public notice.

iv. Schedule D – Special Conditions

The Special Conditions section of the permit should state that trading has been authorized for meeting a Schedule A WQBEL and include permit conditions for trading not addressed by Schedules A and B, above. These conditions should be grouped into two sections: one section directly translating elements of the approved trading plan into permit conditions and another section containing the following additional conditions:

- (a) The permit effluent limit(s) for which water quality trading is authorized.
- (b) The most current version of each applicable baseline regulatory requirement (from OAR 340-039-0030(1), in place at the time of trading project initiation will be applied to determine the baseline of specific trading projects.
- (c) A prohibition against using credits to meet a regulator obligation by more than one entity at any given time.
- (d) A clause specifying that an approved trading plan may be revised during permit renewal or, if there is a change in circumstances that affects a required trading plan element (and is not among the circumstances captured by the adaptive management element of the trading plan), the permit will be reopened. In all instances, revised trading plans must be submitted to DEQ for review and approval and must be given an opportunity for public notice and comment. If a trading plan revision results in a change to a permit condition the permit must be also modified according to OAR 340-045-0055.
- (e) A clause stating that individual trading projects may be implemented without public notice if they are consistent with the approved trading plan (OAR 340-039-0025(3)).
- (f) The permittee must document when individual trading projects are implemented in its monthly DMRs if the permittee is relying on credits generated from those projects within that month (this

monthly DMR reporting condition is in addition to the annual reporting requirements in OAR 340-039-0017(3)).

If the trading plan contains a significant level of additional detail regarding implementation, such that incorporation of the detail proves impractical to incorporate into permit conditions, DEQ permit writers should consider making compliance with the trading plan, a condition of the permit.

C. Permit Evaluation Report

DEQ must make findings and provide justification for its findings in a permit evaluation report (PER) supporting: 1) the approval of the trading plan, 2) the incorporation of the trading plan elements into the permit, 3) a compliance schedule, if applicable; and 4) the trading-related “special conditions” in a permit evaluation report. Additionally, the permit writer must make the explicit findings (listed below) and provide justification for each finding in the permit evaluation report. If a DEQ permit writer is not able to make these findings, the trading plan should not be approved.

Required Findings, generally:

- Trading will promote one or more of the policies in OAR 340-039-0001(2). The PER should identify which EQC policy or policies the trade will promote and why.
- The parameter to be traded meets eligibility requirements stated in OAR 340-039-0015(2). This is another opportunity for the permit writer to demonstrate how the trade promotes the policies of the EQC (OAR 340-039-0001(2)). For example, the purpose of a trade is to implement at WQBEL derived from an approved TMDL.
- The proposed trade is expected to generate credits that will meet the permit’s WQBEL for which the trade is designed to address.
- Trading will achieve the following objectives as required in OAR 340-039-003:
 - Be consistent with antidegradation policies
 - Not cause or contribute to an exceedance of water quality standards.
 - Be consistent with local, state, and federal water quality laws.
 - Be designed to result in a net reduction of pollutants from the sources in the trading area.
 - Be designed to assist the state in attaining or maintaining water quality standards.
 - Be designed to assist in implementing TMDLs, when a TMDL applies to the trading area.
 - Be based on transparent and practical BMP quality standards
 - Will not create localized adverse impacts on water quality and existing and designated beneficial uses. In making this finding, permit writers should follow the mixing zone regulations in Division 41 and may refer to DEQ’s Mixing Zone IMD (properly implemented, the mixing zone regulations protect beneficial uses from the adverse effects of pollutants at the point of discharge).

- The type of waterbody, the type of trade being proposed, and the type of credit buyer meet the eligibility requirements of the trading rules (see OAR 340-039-0015(2) and OAR 340-039-0015(3)).
- Proposed BMPs are eligible to be used for trade credit generation for the parameter (OAR 340-039-0015(4)).
- The proposed trading plan is in agreement with a trading framework, if a trading framework exists.
- Compliance history: A source should be in compliance with their current permit and any agency-approved compliance schedule for the pollutant desired for trading. Trading may not be an option for a facility with a history of repeated, significant violations, particularly if those violations include any falsification of records or monitoring and reporting violations as much of the trading program is based on self-reporting and monitoring. The PER should include findings regarding the outcome of the permit writer's review of the permittee's compliance history, with a focus particularly on the permittee's compliance with its monitoring and reporting requirements.¹⁵

Findings supporting DEQ approval of the trading plan:

If DEQ proposes to approve a trading plan, the DEQ permit writer must incorporate plan elements from OAR 340-039-0025(5)(a)-(i) into the permit as enforceable conditions. Permit writers must include findings supporting each element and condition as detailed below:

- The PER must include a description of how the permittee's current or projected exceedance of the trade parameter was calculated. This description should include the modeling input used by the permittee (effluent characteristics, receiving water characteristics, water quality standards, etc.) and clearly identify the amount of load that needs to be offset, and when that load needs to be offset. This description should note the seasonal or other temporal aspects related to the trading plan (see OAR 340-039-0025 and section 3.6 of this IMD).
- The PER should include findings that the proposed credit quantification methods are : 1) objective and repeatable, 2) sensitive to the targeted parameter, 3) accurate and representative of true pollutant reductions, 4) transparent and easy to understand with well-documented relationship of inputs and outcomes, and 5) practical to use.
- The PER should include a finding that the baseline regulatory requirements described in the trading plan are complete and accurate, if applicable. If more than one baseline regulatory requirement applies in the trading area the PER should include findings as to which ones apply and are the most stringent. If none exist or none apply, the PER must include findings demonstrating that no "requirements for trading baselines" in OAR 340-039-0030 apply within the trading area and include a finding that baseline is "existing conditions."
- The PER must include a finding that the trading area is consistent with an applicable trading framework or TMDL, if they exist. If the trading area was not set in a TMDL or trading framework, the PER should include a finding that the proposed trading area meets the definition in OAR 340-039-0005(5).

¹⁵ The U.S. EPA 2003 Water Quality Trading Policy recommends, but does not require, that "states and tribes consider the role of compliance history in determining source eligibility to participate in trading." 2003 U.S. EPA Trading Policy, 68 Fed. Reg. at 1612.

- The PER must include findings to support the selection of the BMP for generating quantifiable water quality benefits to meet the WQBEL.
- The PER should include findings regarding the credibility of the proposed BMP quality standards included in the proposed trading plan (e.g. that they are well-supported by scientific literature, etc). Where applicable the PER should include findings regarding the BMP quality standard development and vetting processes described in the plan.
- The PER should include findings that support the proposed ratio(s) as well as the rationale, assumptions, or basis for ratios. If more than one ratio is included, the PER should address the bases for each ratio separately.
- The PER must include findings supporting the proposed method or models of BMP and water quality benefit monitoring.
- The PER should include findings related to the trading plan's proposed adaptive management strategy, particularly findings as to whether the adaptive management strategies align with BMP performance standards and rely on monitoring data in measuring achievement of BMP performance (quality) standards to inform remedial actions as necessary.
- If a compliance schedule is included in the draft permit, the PER must include a finding, adequately supported by the administrative record, that the compliance schedule will lead to compliance with an effluent limitation to meet water quality standards by the end of the compliance schedule.

IV. Compliance and Enforcement

A. Annual Reporting

Annual reporting to DEQ is the key mechanism through which trading will be validated by DEQ. Annual reports must be submitted annually. It is extremely important that permit writers perform a detailed review of annual reports to ensure that trading projects are implemented - and trading credits are generated - in accordance with permit conditions and in accordance with the approved trading plan and its assumptions. DEQ staff must post annual reports to DEQ's water quality trading website so that information related to trading is easily available to the public.

DEQ staff must ensure that annual reporting describe trading plan implementation and performance over the past year, including any verification of trading project implementation and performance to confirm that credits have been generated, and in what quantities, by the implemented trading projects. OAR 340-039-0017(3). This includes documentation of each trading project implemented and the results for that year. The annual report must include the number of credits generated over the last year, if any, as well as the total number of credits generated under the approved trading plan to date, and confirm that those credits are available during the period(s) for which they are needed by the permittee (month, season, and year). OAR 340-039-0017(3).

As required in OAR 340-039-0017(3) DEQ staff must make sure that the annual report includes information specific to each trading project implemented including: a) the location of each trading project and BMPs implemented in the preceding year; b) the trading project baseline; c) the trading ratios used; d) the trading project monitoring results; e) verification of trading plan

performance including the quantity of credits acquired from each trading project, and the total quantity of credits generated under the trading plan to date; f) a demonstration of compliance with OAR 340-039-0040(4); and g) adaptive management measures implemented under the trading plan, if applicable. Each of these annual reporting requirements from OAR 340-039-0017(3) is addressed below.

- (a) The location of each trading project and BMPs implemented in the preceding year:

Location information such as decimal latitude and longitude or GIS files with project boundaries (as polygons) and the units or number of BMPs implemented in the preceding year;

- (b) Trading baseline:

Trading baselines are determined by compliance with regulatory requirements in place “*at the time of trading project initiation.*” OAR 340-039-0005(6) (Emphasis added). Thus, in some cases it will be necessary for DEQ to first document a trading project site’s compliance with the applicable and current¹⁶ regulatory requirements (OAR 340-039-0030(1)). Local, state and federal agencies (and tribal agencies if trade projects occur on tribal lands) are responsible for determining compliance with their own regulations. However, in some cases, especially where compliance is unclear, a project site’s compliance with an agency’s regulatory requirements should be supported by certifications or findings from that other agency. DEQ staff should examine whether a site meets baseline regulations and if it does not, ensure that the annual report describes the deficiency and that calculations of credit generation account for and include a deduction of credits to address the deficiency.

Depending on the type of BMP it may be necessary to quantify the water quality benefits that result from compliance (the “pre-project condition”) or pollutant loading to the receiving stream from the pre-project site conditions in order to quantify the benefits that result from trading project BMP implementation (the post-project condition). This may not be appropriate for every type of project as some credit quantification methods focus only on the benefit of the BMP, not the function of the existing condition. Trade credits may then be quantified by calculating the water quality benefits produced by voluntarily implemented BMPs above and beyond any required baseline requirements. Permittees may not take credit for water quality benefits generated as a result of meeting baseline requirements. DEQ staff should evaluate annual reporting on this element to make sure that baseline and credit quantifications “add up” and make sense for the BMPs implemented.

- (c) Trading ratios applied to credits generated at each project site:

DEQ staff should ensure that trading ratios are applied as proposed in the trading plan. For instance, if a trading plan proposes to apply a ratio to address attenuation for trading projects implemented a long distance away from the

¹⁶ DEQ staff should look up any applicable regulatory requirements to check if the rules have been revised since the trading plan was approved. The most current version of the rule must be applied.

regulated discharge, DEQ staff should evaluate that the circumstances and assumptions supporting the proposed use of an attenuation ratio are in fact present in the trading projects that were implemented in the prior year and that the ratio was properly applied.

(d) Trading project monitoring results;

Trading project monitoring results for each trading project implemented should be summarized and must be reported to DEQ in an annual report pursuant to OAR 340-039-0017(3)(d). DEQ staff should evaluate monitoring results to affirm that projects implemented are generating benefits as expected under the trading plan.

(e) Verification of trading plan performance and the quantity of credits acquired from each trading project, and the total quantity of credits generated under the trading plan to date:

DEQ staff should ensure that trading plan performance verification was conducted as described in the trading plan and that the total quantity of credits reported by a permittee is the net water quality benefit resulting from BMP implementation adjusted to account for ratios and/or prohibited public conservation funds, if applicable.

Credits may be used when trading projects have been verified as conforming to applicable quality standards and credits are verified to be generated as planned (as specified in the trading plan (OAR 340-036-0040(5))). Verification results must be reported to DEQ as part of the annual report.

(f) A demonstration of compliance with OAR 340-039-0040(4), if applicable:

Public Conservation Funds: OAR 340-039-0040(4) states that “[c]redits generated under an approved trading plan may not include water quality benefits obtained with public conservation funds. Where public sources of funding are used for credit-generating activities, it is the entity’s responsibility to demonstrate compliance with this requirement in its annual report.” The term “public conservation funds” is defined in OAR 340-039-0005(4) as “[p]ublic funds that are targeted to support voluntary natural resource protection or restoration. Examples of public conservation funds include United States Department of Agriculture (USDA) cost share programs, United States Environmental Protection Agency section 319 grant funds, United States Fish and Wildlife Service Partners for Fish and Wildlife Program funds, State Wildlife Grants, and Oregon Watershed Enhancement Board restoration grants. Public funds that are not considered public conservation funds include: public loans intended to be used for water quality infrastructure projects, such as Clean Water State Revolving Funds, USDA Rural Development funds, and utility sewer storm water and surface water management fees.”

The prohibition in OAR 340-039-0040(4) is consistent with other state and federal agencies that have prohibited the use of public monies to satisfy regulatory requirements, such as wetland mitigation obligations.¹⁷

OAR 340-039-0040(4) prohibits the use of credits that include water quality benefits obtained with public conservation funds. The following are examples of activities that are typically *not* water quality benefit and credit generating and may be funded with “public conservation funds”: land acquisition and rental costs, costs associated with implementing BMPs or site conditions necessary to achieve baseline requirements, legal fees, and, in the case of temperature trades, costs associated with implementing buffer areas around the credit-generating trading project that do not generate additional shade credit but enhance ecosystem values or the placement of habitat elements that support fisheries but provide no shade for temperature credits.

Activities such as BMP implementation (planting, monitoring, maintenance) that directly generate water quality benefits are considered “credit-generating activities” for the purposes of OAR 340-039-0040(4).

DEQ staff must ensure if public conservation funds are used in credit-generating activities the annual report includes the “demonstration of compliance” required by OAR 340-039-0040(4) and OAR 340-039-0017(3)(f). DEQ staff must ensure the demonstration in the annual report includes: the amount of public conservation funds used in the project and either: documentation (such as a grant report or signed statement) that the public conservation funds were not spent on a water quality benefit and credit-generating piece of the project, or a budget for the overall trading program that shows the total sources and amounts of funding received for the trading program along with a pro rata reduction of the total credits generated that is proportional to the amount of public conservation funding the goes into the trading program. For example, if the overall trading program cost \$100,000 and \$25,000 of public conservation funds were used for BMP implementation (labor, materials, etc), then the water quality benefits must be reduced by $\frac{1}{4}$. If the program generates 200 kcals of water quality benefits, which adjusted for ratios results in 100 kcals, then a pro rata $\frac{1}{4}$ (the proportion of public conservation funds in relation to the program cost) reduction to these benefits should be made to arrive at the total number of credits available for trading. In this example the resulting credits available for trading would be 75 kcals. This latter “proportional accounting” approach may be more appropriate in complicated trading programs where public conservation funding is used for the whole program (rather than a discrete piece of a project) and is not easily separated out. The intent of the proportional accounting method is to allow for collaborative funding between private and public entities of trading projects

¹⁷U.S. Fish and Wildlife Service, National Marine Fisheries Service, U.S. Environmental Protection Agency, U.S. Army Corps of Engineers, Oregon Department of State Lands, Oregon Watershed Enhancement Board, Oregon Department of Fish and Wildlife, Oregon Interagency Recommendations: Public Funds to Restore, Enhance, and Protect Wetland and At-Risk, Threatened and Endangered Species Habitats: Appropriate Uses of These Funds in Species and Wetland Mitigation Projects (2008), *available at* <http://www.fws.gov/oregonfwo/LandAndWater/Documents/PublicFunding-final.pdf>

(including funding with public conservation funds). Permittees may also propose to DEQ for its consideration and approval alternative accounting methods that are more appropriate to their circumstances.

If reporting demonstrates that public conservation funds were used in the project but were *not* used to specifically fund water quality benefit-generating actions (such as BMP implementation costs) that are proposed to be used as trading credits then no credits need to be deducted. If reporting demonstrates that public conservation funds *were* used to fund water quality benefit-generating actions that are proposed to be used as trading credits then DEQ staff should ensure that a portion of the credits generated is deducted in proportion to the amount of public conservation funds used.

If it is unclear whether a source of public funds is of the type prohibited by OAR-039-0040(4) DEQ staff should examine factors such as: would the project have been implemented without the public funds? Are the benefits generated under the project *additional* to what is already required on the ground? DEQ's inquiry should ensure that trading projects funded with public conservation funds result in benefits that would not have been secured otherwise and that the resulting benefits are above and beyond or "in addition to" what is already required.

(g) Implementation of adaptive management measures if applicable:

If any adaptive management measures were implemented the annual report should describe what was done and the circumstances that triggered use of the alternative measures.

B. Monitoring and Discharge Monitoring Reports

Permittees must comply with the monthly and annual reporting requirements in Schedule B of the permit. Failure to collect monitoring data required in Schedule B of a permit is a class I violation under OAR 340-012-0055(1)(o).

C. Compliance with WQBELs

The permittee must hold sufficient credit balances to comply with its WQBEL at all times. The ultimate responsibility for credit generation rests with the permittee, even if the permittee hires a third party to implement its trading program. If failing to generate the required credits results in a violation of a WQBEL the permittee is liable for the permit violation.

If the anticipated credits are not available to comply with a permit due to the failure of a trading project or errors in credit quantification or reporting (i.e., the quantity or quality is improperly calculated or otherwise misrepresented by the registry or third party), the permittee should report this situation to DEQ as early as possible, and coordinate on an appropriate corrective action. The corrective action may include acquiring other available credits, taking appropriate operational actions to maintain compliance, or other measures.

D. Compliance schedule milestones

Permittees must comply with any trading-related compliance schedule milestones and deadlines, including interim compliance schedule milestones. Failure to do so is a violation of a permit condition and must be reported to DEQ in accordance with 40 CRF 122.47(4) and may be referred for formal enforcement.

E. Record-keeping

The permittee must retain all trading-related records according to the timelines outlined in federal and state regulation and Schedule F of the NPDES permit. Permittees should retain site-specific monitoring reports and any other information necessary to implement a trading plan as required in Schedule F of NPDES permit. This information must be made available to DEQ upon request.

F. Enforcement of trading-related noncompliance

Enforcement of noncompliance with permit conditions, including trading plan elements incorporated into the permit as conditions, will be conducted in accordance with OAR 340 Division 012 and DEQ enforcement guidance. Extreme weather conditions or other extraordinary circumstances beyond the control of a regulated entity that may limit the number of credits available to comply with permit limits and water quality standards will be handled in a manner consistent with DEQ enforcement guidance. Permit writers and DEQ staff should encourage permittees to be conservative and implement risk management measures, such as building a credit reserve pool, to ensure trading plan compliance in all but the most unusual events.

6. APPENDICES

Previous versions of this IMD included appendices containing general approaches (known as a trade “protocol”) for developing credits for trades involving temperature and oxygen demanding substances such as biochemical oxygen demand (BOD), ammonia, and nutrients. DEQ supports trades based on these general approaches, but at this time these protocols are incomplete and have been withdrawn until DEQ may review and update the protocols.

7. Record of Revisions to IMD

Revision	Date	Changes	Editor
Revisions made to all sections of the IMD	March 31, 2016	Incorporated direction related to Division 039; deleted appendices; changed format; aligned with agency instructions regarding IMDs and the Administrative Procedures Act	Courtney Brown
	August 31, 2012	<ol style="list-style-type: none"> 1. Replaced references to “statewide” and “regional” trading coordinators with “DEQ trading coordinator” throughout IMD. 2. Updated list of DEQ-approved trading projects to include Medford. (Section 1.3, <i>Examples</i>, p. 4) 3. Improved reference to EPA guidance by citing relevant section and page. (Section 3.3 <i>Location of credit generation activities</i>, p. 20) 4. Added USDA Nutrient Tracking Tool to the IMD as an available method for quantifying certain types of nutrient trades. (Appendix D) 5. Added City of Medford permit language for trading to the IMD as an example. (Appendix E) 6. Updated DEQ contacts. (Appendix F) 	Ranei Nomura
Water Quality Trading IMD (first created)	December 2009		Ranei Nomura

