Memo

Date: Thursday, March 17, 2016

Project: NPDES Technical Support

To: Troy Smith, Idaho Department of Environmental Quality

From: Clint Dolsby, City of Meridian, Dave Clark and Michael Kasch, HDR

Subject: DEQ Requesting Comments for IPDES Effluent Limit Development

Introduction

The Idaho Department of Environmental Quality (DEQ) is developing a program to address water pollution by regulating point sources that discharge pollutants to waters of the United States. In 2014, the Idaho Legislature revised Idaho Code to direct DEQ to seek Environmental Protection Agency's (EPA) authorization for a state-operated pollutant discharge elimination system permitting program. The current program is operated by EPA and called the National Pollutant Discharge Elimination System (NPDES) program. The state program will be called the Idaho Pollutant Discharge Elimination System (IPDES) program.

There are multiple steps toward state primacy and development of a program. Two of these steps are: prepare and develop IPDES rules for Idaho and prepare guidance documents. DEQ requested comments to consider in developing IPDES guidance for effluent limit and reasonable potential analyses. Specific items of interest include:

- 2002 DEQ Decision Analysis Report 2 (DAR2), Appendix 4. Guidance for Water Quality-Based Effluent Limits.
- 1991 EPA Technical Support Document (TSD) for Water Quality-Based Toxics Control.

Comments

The City recommends the IPDES guidance for effluent limit and reasonable potential analyses provide information to the permit writer on a wide range of permit elements and have guidance specific to Idaho. DEQ should take this opportunity to write the guidance from the beginning. As such the following topics are recommended as a starting point.

Topics for WQBELs Guidance Document

1. Water Temperature

The guidance should provide a discussion of temperature permitting and the variety of potential approaches to establishing effluent limits or alternatives. The process for establishing water quality–based limits for temperature that can be feasibly met relies heavily on the ability of the river or stream to bring the effluent's temperature into equilibration with that of the receiving

water. Numeric effluent limitations can be difficult for municipal or industrial discharges to meet when discharging to water bodies with naturally low flows.

References:

Bartholow, J. 2010. Stream Network and Stream Segment Temperature Models Software. Fort Collins, CO: U.S. Geological Survey.

Oregon Department of Environmental Quality. 2008. Temperature Water Quality Standard Implementation – A DEQ Internal Management Directive.

USEPA. 2003. EPA Region 10 Guidance For Pacific Northwest State and Tribal Temperature Water Quality Standards. EPA 910-B-03-002.

Washington Department of Ecology. Water Quality Program Guidance Manual. Procedures to Implement the State's Temperature Standards through NPDES Permit. Publication Number 06-10-100.

2. pH

While the standard technology based limit is an allowable pH range of 6.0 to 9.0, Idaho water quality standards are low for specific conditions. Also, pH varies into response to algal dynamics and other factors. The guidance should provide a discussion of pH permitting issues.

References:

EPA (2010) NPDES Permit Writers' Manual. U.S. Environmental Protection Agency, Office of Wastewater Management, Water Permits Division, State and Regional Branch, EPA-833-K-10-001.

USEPA. 1986. Quality Criteria for Water 1986 ("Gold Book"). EPA 440/5-86-001.

3. Nutrient Permitting

The guidance should describe the differences between nutrients, toxics, and other parameters for protecting water quality and provide permit writers approaches and examples for developing effluent limits. The national discussion of nutrient impacts on water quality continues to evolve with issues in water bodies across the U.S. The EPA efforts to promulgate numeric nutrient standards in all states raise questions about how these standards apply to point source dischargers, whether they are effective, and how they affect others in the water quality arena.

The guidance should provide a discussion of nutrient discharge permitting and the variety of potential approaches to establishing effluent limits for nitrogen and phosphorus. The traditional permit writers' deterministic approach to developing effluent limits is inappropriate in the context of nitrogen and phosphorus (TSD). Additional approaches to nutrient discharge permitting that provide greater flexibility, while at the same time arriving at limits that are protective of water quality should be provided to Idaho permit writers.

It is preferable to structure discharge permits in such a way that receiving water quality objectives are met with the greatest flexibility that can be provided to the treatment processes. This is important in order to avoid unnecessarily restrictive effluent discharge conditions that result in little additional water quality protection but consume inordinate amounts of energy and chemicals that result in other deleterious environmental impacts.

There are unique considerations regarding nutrients that a permit writer and permittee may examine when drafting a new permit or renewing an existing permit. These considerations are a part of applying appropriate approaches in the development of effluent nutrient limits, including the following:

- Advanced nutrient removal treatment is costly and complex.
- Nutrients should be distinguished from toxics.
- Effluent nutrient concentrations vary even in the best nutrient removal facilities.
- A variety of nutrient discharge permit structures have been successful.
- Flexibility in permitting promotes reuse, recharge and restoration.

References:

Bell, C., Parker, D., Parker, A., Tillotson, B. and DeBoer, M. (2014) Review of USEPA Methods for Setting Water Quality-Based Effluent Limits for Nutrients. National Association of Clean Water Agencies, Washington DC.

Bierman, V.J., DePinto, J.V. Dilks, D.W., Moskus, P.E., Slawecki, T.A.D., Bell, C.F., Chapra, S.C., Flynn, K.F. (2013) Modeling Guidance for Developing Site-Specific Nutrient Goals. LINK1T11. WERF.

Bott, C.B. and Parker, D.S. (2011) "Nutrient Management Volume II: Removal Technology Performance & Reliability" WERF Nutrient Removal Challenge project NUTR1R06k.

Clark, D.L., Hunt, G., Kasch, M.S., Lemonds, P.J., Moen, G.M., Neethling, J.B. (2010) "Nutrient Management Regulatory Approaches To Protect Water Quality – Volume 1 Review Of Existing Practices" WERF Nutrient Removal Challenge project NUTR1R06i.

EPA (2010) NPDES Permit Writers' Manual. U.S. Environmental Protection Agency, Office of Wastewater Management, Water Permits Division, State and Regional Branch, EPA-833-K-10-001.

EPA (2013) NPDES Permit Writer's Specialty Workshop: Developing WQBELs for Nutrient Pollution, Shepherdstown, WV.

Montana Department of Environmental Quality (MDEQ) (2013) Department Circular DEQ-12A, Montana Base Numeric Nutrient Standards, Version 6.8.

Montana Department of Environmental Quality (MDEQ) (2014a) Department Circular DEQ-12A Montana Base Numeric Nutrient Standards.

Montana Department of Environmental Quality (MDEQ) (2014b) Department Circular DEQ-12B Nutrient Standards Variances.

USEPA. 2009. EPA's Ecoregional Criteria for Total Phosphorus, Total Nitrogen, Chlorophyll a and Water Clarity (Level III Ecoregional Criteria).

WERF (2014) Nutrient Challenge "Reference Guide to Proposed Terminology for Nutrient Management," Water Environment Research Foundation (WERF), accessed 16 July 2014 <http://www.werf.org>.

WERF NUTRIR06z Nutrient Management Volume III: Development of Nutrient Permitting Frameworks.

Water Environment Research Foundation (WERF). 2011. Striking the Balance Between Nutrient Removal in Wastewater Treatment and Sustainability. NUTR1R06n.

4. Ammonia

Ammonia nitrogen guidance should describe issues associated with ammonia and provide permit writers the latest information and methods for developing effluent limits. Ammonia has

implications as both a toxic and nutrient. Section 2.3.2.2 (DAR2) does provide a starting point regarding discussion points relative to ammonia. However, the guidance should address the revised federal ammonia criteria and how Idaho will update state water quality standards for ammonia. The revised federal ammonia criteria include some challenging decisions points in the process, such as the presence of mussels, snails, and/or salmonids. Guidance to permit writers on assessing and documenting the select pathways will be needed.

EPA published the final 2013 revised federal freshwater ammonia criteria in the Federal Register. The 2013 ammonia criteria are lower concentrations than the 1999 criteria upon which existing state standards are based, which govern the effluent ammonia limits in existing NPDES permits. The 2013 criteria are based upon toxicity to freshwater mussels and snails, which are more sensitive than the juvenile salmonids that were the basis of the 1999 criteria. The 2013 acute values are about 29% lower and the chronic values are about 58% lower than the 1999 criteria at a neutral pH. EPA has provided a recalculation procedure that may allow reversion to the 1999 criteria if sensitive species of mussels, snails, and fish are not present. EPA has also provided guidance on flexibilities for potential state use.

The EPA Ammonia Criteria webpage has been updated to include the 2013 documents:

http://water.epa.gov/scitech/swguidance/standards/criteria/aqlife/ammonia/index.cfm

- August 22, 2013 Federal Register Notice "***Final Aquatic Life Ambient Water Quality Criteria For Ammonia— Freshwater 2013***" [EPA–HQ–OW–2009–0921; FRL–9810–4]
- Notice of availability of final criteria
    - EPA's summary of the current action and background information
- Fact Sheet: "***Aquatic Life Ambient Water Quality Criteria for Ammonia - Freshwater (2013)"***
- "**Aquatic Life Ambient Water Quality Criteria For Ammonia – Freshwater, 2013"**
    - 225 pages with 14 appendices
        - The juicy stuff is in Appendix N. Site-Specific Criteria for Ammonia!
- "***Flexibilities for States Applying EPA's Ammonia Criteria Recommendations***"
    - EPA presents a number of flexibilities are available for state consideration including:
        - *1. Recalculation Procedure for Site-specific Criteria Derivation*
        - *2. Variances*
        - *3. Revisions to Designated Uses*
        - *4. Dilution Allowances*
        - *5. Compliance Schedules*

Appendix N. Site-Specific Criteria Recalculation Procedures
The potential recalculation procedure for site specific ammonia criteria if either sensitive mussels or salmonids are absent, or both mussels and salmonids are absent is of interest in Idaho. The challenge is to determine what species of mussels and fish are present in a given receiving water. A summary of what EPA has presented for recalculation of criteria in Appendix N. Site-Specific Criteria for Ammonia is outlined as follows:

ACUTE CRITERION MAGNITUDE RECALCULATION FOR AMMONIA (CMC CRITERION MAXIMUM CONCENTRATION)

- *Unionid Mussels Present and Oncorhynchus species (salmonids) Absent*
- *Unionid Mussels Absent and Oncorhynchus Present*

    - State demonstrates that unionid mussels are not present but the commercially and recreationally important adult rainbow trout (*Oncorhynchus mykiss*) is the most acutely sensitive species
- *Unionid Mussels Absent and Oncorhynchus Absent*
    - If both unionid mussels and *Oncorhynchus spp.* are absent, the CMC calculated based on the four most sensitive in the following rank order: mountain whitefish, Lost River sucker, pebblesnail, and golden shiner.
- *Chronic Criteria*
    - *Unionid Mussels Absent, Early Life Stage (ELS) Protection Necessary*

CHRONIC CRITERION MAGNITUDE RECALCULATION FOR AMMONIA (CCC CRITERION CONTINUOUS CONCENTRATION)

- *Unionid Mussels Absent, Early Life Stage (ELS) Protection Necessary*
    - When unionid mussels are present, the CCC is the same regardless of whether early life stages (ELS) of fish genera require protection. This is because unionid mussels represent the two most sensitive genera in the chronic dataset.
- *Unionid Mussels Absent, Early Life Stage (ELS) Protection Not Necessary*

References:

Aquatic Life Ambient Water Quality Criteria for Ammonia – Freshwater 2013 EPA 822-R-13-001.

EPA (2010) NPDES Permit Writers' Manual. U.S. Environmental Protection Agency, Office of Wastewater Management, Water Permits Division, State and Regional Branch, EPA-833-K-10-001.

USEPA. 1986. Quality Criteria for Water 1986 ("Gold Book"). EPA 440/5-86-001.

5. Human Health Water Quality Criteria

The guidance should describe issues associated with changing human health water quality criteria and provide guidance to permit writers on how to address these issues. Human health water quality criteria continue to evolve. Guidance will be needed to address fecal contamination, E. coli, and enterococci to best protect ambient water quality. Coliphages are equally good indicators of fecal contamination along with being better indicators of viruses. Additionally, the 2015 EPA updated ambient water quality criteria for the protection of human health includes EPA policies that Idaho will need to address and provide guidance to permit writers.

Bacteriophages are viruses that infect and lyse bacteria. There is interest in the ability of phages to control bacterial populations from medical applications into the fields of agriculture, aquaculture and the food industry. The potential application of phage techniques in wastewater treatment systems to improve effluent and sludge emissions into the environment is currently in discussions. Phage-mediated bacterial mortality has the potential to influence treatment performance by controlling the abundance of key functional groups. Phage treatments have the potential to control environmental wastewater process problems such as: foaming in activated sludge plants; sludge dewaterability and digestibility; pathogenic bacteria; and to reduce competition between nuisance bacteria and functionally important microbial populations. Successful application of phage therapy to wastewater treatment does though require a fuller understanding of wastewater microbial community dynamics and interactions. Strategies to

counter host specificity and host cell resistance must also be developed, as should safety considerations regarding pathogen emergence through transduction.

References:

Request for Scientific Views: Updated National Recommended Water Quality Criteria for the Protection of Human Health. Docket Number EPA–HQ–OW–2014–0135

Review of Coliphages as Possible Indicators of Fecal Contamination for Ambient Water Quality: Data for Consideration. Docket Number EPA–HQ–OW–2015–0300

University of North Carolina. 2015.Water Microbiology Conference Bacteriophage as Indicators.

U.S. Environmental Protection Agency. 2000. Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health. EPA- 822-B-00-004, October 2000.

USEPA. 2002. National Recommended: 2002. Human Health Criteria Calculation Matrix.

USEPA. 2012. 2012 Recreational Water Quality Criteria. EPA - 820-F-12-061.

USEPA. 2015. Review of Coliphages as Possible Indicators of Fecal Contamination for Ambient Water Quality. 820-R-15-098.

WEFTEC 2014. Bacteriophage/Viruses Water Quality Criterion: Information Meeting. New Orleans, Louisiana.

WERF. Fact Sheet on Molecular Methods for Pathogen Detection.

http://www.werf.org/c/FactSheets/Fact_Sheet_Molecular.aspx.

6. Toxics

While toxics are one of the original permit issues, there are contemporary issues for which guidance to permit writers should be provided. As also mentioned under human health water quality criteria, there are recent and pending updates to metals criteria. The Biotic Ligand Model (BLM) is a tool used in aquatic toxicology that examines the bioavailability of metals in the aquatic environment and the affinity of these metals to accumulate on gill surfaces of organisms. This model continues to be expanded to include additional metals. Metals are an important issue in Idaho given the geology of the state.

Some toxics cannot be treated with current technology and numeric effluent limitations are infeasible. In those cases best management practices and toxic management plans are appropriate to control or abate the discharge of pollutants. Permit writers need guidance on selecting appropriate pathways such as source tracing, source reduction, and/or other methods in connection with setting effluent limits.

References:

Biotic Ligand Model, User's Guide and Reference Manual.

40 CFR 122.44 - Establishing limitations, standards, and other permit conditions.

HDR Engineering. 2013. Treatment Technology Review and Assessment: Washington Ecology Revised Human Health Water Quality Criteria (HHWQC). Association of Washington Business, Association of Washington Cities, Washington State Association of Counties.

Oregon Department of Environmental Quality. 2011. Table 40: Human Health Water Quality Criteria for Toxic Pollutants, Effective October 17, 2011. Available on-line at: http://www.deq.state.or.us/wq/standards/toxics.htm.

[OACWA] Oregon Association of Clean Water Agencies. 2008. SB 737 background information summary of listing processes for persistent, bioaccumulative, and toxic chemicals: Final report. Salem (OR): Oregon Association of Clean Water Agencies and League of Oregon Cities.

[ODEQ] Oregon Department of Environmental Quality. 2009. Senate Bill 737 - Development of a priority persistent pollutant list (P3L) for Oregon. Portland (OR): Water Quality Division. Available from: http://www.deq.state.or.us/WQ/SB737/.

Oregon Department of Environmental Quality. 2012. Internal Management Directive: Reasonable Potential Analysis Process for Toxic Pollutants Version 3.1. DEQ 11-WQ-020-IMD.

USEPA (1991) Technical Support Document for Water Quality Based Toxics Control. EPA 505/2-90-001.

http://water.epa.gov/scitech/swguidance/standards/handbook/upload/2002_10_25_npdes_pubs_owm0264.pdf.

7. Other Issues including Emerging Contaminants, Endocrine Disrupting Chemicals, Pharmaceuticals and Personal Care Products

While these are contemporary issues that are still evolving, the guidance should recognize them as important issues with the potential need for future directions for permit writers. Environmental groups are pressing for EPA to develop water quality criteria for chemicals with alleged endocrine-disrupting effects.

References:

Treating Contaminants of Emerging Concern EPA-820-R-10-002.

Center for Biological Diversity. 2010. Petition to the Environmental Protection Agency to regulate Endocrine Disrupting Chemical Pollution under the Clean Water Act Section 304 of the Clean Water Act, 33 U.S.C. 1314.

Clark, D.L. 2010. Monitoring, Regulation, and Management of Endocrine Disrupting Chemicals (EDCs) in Wastewater Treatment and Effluent Discharge. Pacific Northwest Clean Water Association (PNCWA) Annual Conference.

European Union. 2015. Proposed Regulation of Contraceptive EE2 and Anti-inflammatory Diclofenac.

USEPA Inspector General. 2011. Evaluation Report: EPA's Endocrine Disruptor Screening Program Should Establish Management Controls to Ensure More Timely Results. Report No. 11-P-0215.

USEPA. 2015. Hazardous Waste Pharmaceuticals Proposed Rule. Federal Register Vol. 80 Friday, No. 186 September 25, 2015.

http://www2.epa.gov/hwgenerators/proposed-rule-management-standards-hazardous-waste-pharmaceuticals.

USEPA. 2010. Treating Contaminants of Emerging Concern A Literature Review Database. EPA-820-R-10-002.

Washington Department of Ecology. 2012. Draft Pharmaceuticals, Personal Care Products, Hormones, and Sterols Detected in Process Water and Groundwater at Three Reclaimed Water Treatment Facilities in Washington. Publication No. 12-03-0xx.

WERF. 2007. Fate of Pharmaceuticals and Personal Care Products in Municipal Wastewater Treatment Processes. Water Environment Research Foundation (WERF). 03-CTS-22UR.

8. Blending, Bypassing, Split Flow Treatment, Filtered and Unfiltered

Federal regulations prohibit bypassing, which is defined as the intentional diversion of waste streams from any portion of a treatment facility. There are mandatory bypass prohibitions included in all NPDES permits. Typical permit bypass provisions are as follows:

> *"3. Prohibition of bypass.*
>
> *a) Bypass is prohibited, and the Director of the Office of Compliance and Enforcement may take enforcement action against the permittee for a bypass, unless:*
>
> *(i) The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;*
>
> *(ii) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance; and*
>
> *(iii) The permittee submitted notices as required under paragraph 2 of this Part.*
>
> *b) The Director of the Office of Compliance and Enforcement may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed above in paragraph 3.a. of this Part."*

The NPDES regulations also state that the prohibition of bypass applies even where the permittee does not violate permit limitations during the bypass. However, bypasses for essential equipment maintenance may be allowed if effluent limitations are not exceeded.

Effluent filter sizing is controlled by hydraulic loading rates and the peak flow routed to effluent filtration generally governs sizing. Since effluent filtration is an expensive tertiary process to capitalize and operate, it is desirable to avoid unnecessary oversizing of the effluent filters based on treating extreme peak flows that rarely occur. This is especially the case with microfiltration membranes, which can be very effective in producing very low effluent phosphorus, but have a narrow band of peak to average flow capabilities (approximately <1.5:1 on a maximum day flow basis).

The guidance should describe different flow paths that may occur within a treatment facility including when and why these may not be allowed in regards to set effluent limitations. Permit writers generally should not prescribe operations within the facility other the regulations do allow for some requirement. Guidance should be provided for when these additional requirements are appropriate. These are current issues that continue to be debated.

References:

U.S. Environmental Protection Agency (EPA). 2009. Draft Guidance on Preparing a Utility Analysis.

U.S. Environmental Protection Agency (EPA0. 1994. Combined Sewer Overflow Policy.

9. Receiving Water Monitoring by Permittees

The guidance should provide permit writers reasonable approaches to setting monitoring requirements. Permittees continue to see a shift towards more monitoring that was previously conducted by other entities, a greater frequency in monitoring requirements, more parameters, and lower detection limits. All these monitoring issues result in a greater cost to the permittee and its customers. Excessive monitoring is costly while not providing additional information. Alignment of monitoring requirement with the frequency of effluent limitations, alignment with other monitoring programs, and other alternatives should be considered.

10. Analytical Laboratory Methods and Compliance Reporting

Effluent and receiving water monitoring includes setting requirements for standards methods, data quality requirements, data management, and compliance reporting.

Current NPDES permits include an Appendix A table that provides values for Minimum Levels (defined as the lowest calibration standard value). The Minimum Levels (MLs) indicated in the typically included in the appendix are more aptly labeled as Method Detection Levels (MDL's), as they are often lower than laboratories calibrate. The desire for lower detection levels is outpacing the abilities of laboratories to reasonably achieve such low limits.

EPA's proposed draft Method Update Rule (MUR) seeks to increase the MLs (and MDLs) for many of the parameters listed in Appendix A to reflect "real world" water quality and analytical conditions (e.g. matrices ranging from clean receiving waters to "dirty" receiving water,) instead of ultra clean and unrealistic matrices (e.g. MLs for a pollutant in distilled water).

Effluent limitations should not be set lower than the quantifiable limits for EPA approved analytical methods. An impossible situation of demonstrating compliance is created when limits are lower than the laboratory levels achievable with approved analytical method. The solution of just reporting Method Levels is a tenuous proposition that does not properly address the statistical accuracy of approved laboratory techniques.

References:

EPA's proposed draft Method Update Rule (MUR).

11. Nondegradation

The term nondegradation means that in no case will standards allowing for less than existing water quality be acceptable and all discharges shall receive the best practicable treatment or control (DOI, 1968). Section 303 (Title 33 of United States Code [U.S.C.] 1313) of the CWA requires states and authorized tribes to adopt water quality standards for waters of the U.S. within their applicable jurisdictions. Water quality standards must include, at a minimum: 1) designated uses for all waterbodies within their jurisdictions; 2) water quality criteria necessary to protect the most sensitive of the uses; and 3) antidegradation provisions. The federal term "antidegradation" is equivalent to "nondegradation" (MPCA, 2008). Nondegradation has been addressed in other discussions as it relates to nutrient management (Clark, 2010). The goal of nondegradation is to maintain existing water quality conditions that are superior to the water quality standards.

The guidance should provide permit writers information on how to interpret a nondegradation review along with what and how to integrate that information into the permit.

12. Anti-backsliding

Anti-backsliding refers to statutory and regulatory provisions that prohibit the renewal, reissuance, or modification of an existing NPDES permit that contains effluent limitations, permit conditions, or standards less stringent than those established in the previous permit (EPA, 2010b). When a permit writer determines that effluent limits for a pollutant in permit renewal, or that any of the permit limitations are less stringent than the previous permit, an anti-backsliding analysis must take place. Exceptions do exist where less stringent limitations are acceptable, but the determination of applicability requires careful examination of both statutory and regulatory provisions.

The guidance should provide permit writers information on how to interpret anti-backsliding along with what and how to integrate that information into the permit.

References:

CWA, Section 402 National Pollutant Discharge Elimination System, includes a prohibition on backsliding in Section 402 (o)(1).

13. Reuse

Idaho has specific Recycled Water Rules (IDAPA 58.01.17) regarding reuse. The interconnection between a discharge and reuse may require special permit conditions for which permit write guidance will be needed. A discharger may seek either indirect potable reuse or direct potable reuse, which will require additional permits.

14. Integrated Watershed Planning

EPA has stated watershed-based NPDES permitting provides potential for flexibility and innovation to achieve new efficiencies and environmental progress in watersheds. This approach has been supported for nearly two decades. The guidance should provide permit writers with details concerning permit development that fits into an overall watershed planning and management approach.

Recognizing that many US cities were struggling to sufficiently fund their wastewater and stormwater programs to comply with CWA mandates and facing even more expensive EPA enforcement and/or legal challenges by third party entities, the US Conference of Mayors (USCM) and the National Association of Clean Water Agencies (NACWA) lobbied EPA for a more flexible, community-driven, affordable approach. In June 2012, EPA released an Integrated Municipal Stormwater and Wastewater Planning Approach Framework to help local governments meet CWA water quality objectives and prioritize capital investments using an Integrated Planning and Permitting Policy (IP3) approach.

Integrated planning encourages the use of sustainable and comprehensive solutions, including green infrastructure, to protect human health, improve water quality, manage stormwater as a resource, and support other economic benefits and quality of life attributes that enhance the vitality of communities. Through the six-step Integrated Planning process, these solutions are prioritized, taking into consideration stakeholder input and community values, the cost and benefits of water quality improvement projects, and the community's ability to afford these costs over time.

References:

Watershed-Based National Pollutant Discharge Elimination System (NPDES) Permitting Technical Guidance EPA 833-B-07-004.

15. Water Quality Trading
DEQ has water quality trading framework and guidance for the state and some individual plans for specific watersheds. The guidance should provide specifics on how to write the trade into the permit.

References:
Idaho's Water Quality Pollutant Trading Guidance.

Regional Recommendations for the Pacific Northwest on Water Quality Trading.

Water Quality Trading Toolkit for Permit Writers EPA 833-R-07-004.

Doyle, M.W., Patterson, L., Chen, Y., Schnier, K., and Yates, A.J. (2014) Optimizing the Scale of Markets for Water Quality Trading, Water Resources Res., 50, doi:10.1002/2014WR015395.

http://dukespace.lib.duke.edu/dspace/bitstream/handle/10161/9151/Doyle_Optimizing%20the%20scale%20of%20markets%20for%20water%20quality%20trading.pdf?sequence=1.

Environmental Trading Network (2014) Environmental Trading Network, State Programs.

http://www.envtn.org/State_Programs___Rules.html#Interstate_Programs.

EPA (2004) Water Quality Trading Assessment Handbook, EPA 841-B-04-001.

http://water.epa.gov/type/watersheds/trading/upload/2004_11_08_watershed_trading_handbook_national-wqt-handbook-2004.pdf.

EPA (2007) Water Quality Trading Toolkit for Permit Writers, Office of Wastewater Management.

Geosyntec Consultants (2013) Nutrient Trading in Missouri: Critical Policy Factors and Program Recommendations.

http://www.mocorn.org/wp-content/uploads/2012/09/CIG_Nutrient-Trading-in-Missouri_Feb2013.pdf.

MT DEQ (2012) Montana's Policy for Nutrient Trading, Circular DEQ-13.

VA DEQ (2014b) 2013 Nutrient Trading Report.

http://www.deq.virginia.gov/Portals/0/DEQ/Water/PollutionDischargeElimination/NutrientTradesReport2013.pdf.

Willamette Partnership (2014) Draft Regional Recommendations for the Pacific Northwest on Water Quality Trading.

http://willamettepartnership.org/wp-content/uploads/2014/09/PNW-Joint-Regional-Recommendations-on-WQT_ThirdDraft_2014-08-05_full1.pdf.

16. Implementation Tools
Permit writers will need multiple implementation tools to be available to meet the complex array of permit scenarios. These tools include: compliance schedules, site specific criteria, use attainability analysis, variances and other options. Guidance will be necessary to understand when to use these tools and how to incorporate them into permits.

A variance is a temporary change to the water quality standards for a single discharger, a group of dischargers, or a waterbody. Variances establish a time-limited set of temporary requirements that apply instead of the otherwise applicable water quality standards and related water quality

criteria. Variances may be used where attaining the designated use and criteria is not feasible immediately, but may be feasible in the longer term. They can be targeted to specific pollutants, sources, and/or waterbody segments.

Regulations found in 40 CFR 131.10(g) establish six circumstances under which a Use Attainability Analysis, or a variance, might be appropriate. They are:

1. Naturally occurring pollutant concentrations prevent attainment of the use.

2. Natural, ephemeral, intermittent or low flow conditions or water levels prevent attainment of the use, unless these conditions may be compensated for by discharge of sufficient volume of effluent discharges without violating State water conservation requirements to enable uses to be met.

3. Human caused conditions or sources of pollution prevent attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place.

4. Dams, diversions or other types of hydrologic modifications preclude attainment of the use, and it is not feasible to restore the water body to its original condition or to operate such modification in a way that would result in attainment of the use.

5. Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses.

6. Controls more stringent than those required by Sections 301(b) and 306 of the Clean Water Act would result in substantial and widespread economic and social impact.

References:

Freedman, P.L., Dupuis, T., Holmberg, H., McGovern, P., Terry, L,., Stewart, M. 2008. Factors for Success in Developing Use Attainability Analysis. Water Practice. Vol. 2 No. 1 2008 Water Environment Federation • doi: 10.2175/193317708X281389.

Variances from Idaho Water Quality Standards: http://www.deq.idaho.gov/water-quality/surface-water/standards/variances.aspx.

Montana (2014) Nutrient Standards Variances. Montana Department of Environmental Quality, Department Circular DEQ-12B. http://deq.mt.gov/wqinfo/Standards/PDF/NutrientRules/CircularDEQ12B_July2014_FINAL.pdf.

Oregon (2010) Compliance Schedules in NPDES Permits. Oregon Department of Environmental Quality DEQI0-WQ-0040-IMD Version 1.0.

http://www.deq.state.or.us/wq/pubs/imds/ComplianceSchedule.pdf.

Oregon Variance Compendium: http://www.deq.state.or.us/wq/standards/docs/toxics/humanhealth/rulemaking/VarianceCompendium110124.pdf.

Oregon Issue Paper: Implementing Water Quality Standards for Toxic Pollutants in NPDES Permits, Human Health Toxics Rulemaking (2008-2011): http://www.deq.state.or.us/wq/standards/docs/toxics/humanhealth/rulemaking/NPDESIssuePaper.pdf.

USEPA. Water Quality Standards Handbook - Chapter 5: General Policies (40 CFR 131.12) - Section 5.3 Variances from Water Quality Standards: http://water.epa.gov/scitech/swguidance/standards/handbook/chapter05.cfm#section3.

USEPA. Discharger-specific Variances on a Broader Scale: Developing Credible Rationales for Variances that Apply to Multiple Dischargers: http://water.epa.gov/scitech/swguidance/standards/upload/Discharger-specific-Variances-on-a-Broader-Scale-Developing-Credible-Rationales-for-Variances-that-Apply-to-Multiple-Dischargers-Frequently-Asked-Questions.pdf.

Washington Department of Ecology. 2013. Draft White Paper for Variances, Ecology Water Quality Program.

WA Dept. of Ecology Supplemental Material from Policy Forum #3 (Feb. 8, 2013) - Application of variances and compliance schedules to existing, new, and expanding dischargers/discharges: http://www.ecy.wa.gov/programs/wq/swqs/SupMaterialVariancesComplianceSched.pdf.

WERF. Collaborative Water Quality Solutions: Exploring Use Attainability Analyses. 04-WEM-7.

Development Process and Implementation

DEQ should consider not only topics to include in the guidance but also issues related to its development, implementation, and integration into the IPDES program.

Development Process

DEQ has undertaken an open public process to the IPDES program development. DEQ has held open meetings and requested comments on multiple documents and program materials including the guidance for effluent limit and reasonable potential analyses. Other document production considerations may be beneficial to gathering and integrating information as part of building the guidance document. Sharepoint or other collaboration platforms could be used by all stakeholders to merge collective knowledge and viewpoints.

Another element of the IDPES program linked to the guidance is permit writers tools. How will items such as a reasonable potential analysis (RPA) spreadsheet, effluent limits calculators, and other electronic tools be linked to and explained in the guidance document. Integrating guidance with permit writers' tools is an important part of the development process.

DEQ's request for comments should have identified the agency's purpose and needs for document(s) regarding IPDES guidance for effluent limit and reasonable potential analyses. For example, Who is the intended audience? What is the intended level of detail for the guidance: high level concepts, detailed steps such as a cookbook, or somewhere in-between? What format should the document be: all text, many numerical examples, more graphical with figures and diagrams? The 2002 Guidance is written for an audience with many years of experience with the NPDES process, presents high level concepts, and is nearly all text. New permit writers in the IDPES program would likely struggle to apply this guidance. However, DEQ did not indicate the type of guidance document desired.

DEQ should consider a preference for the life of the document. For example, How often will the document be updated? How should references to other documents and updates to those documents be dealt with regarding this document? How should a guidance document properly reference state laws, standards, and other guidance documents? The 2002 Guidance includes numerous citations and references to other documents. The 2002 Guidance is out dated and does not contain current information on many issues.

References:

http://www.ecy.wa.gov/programs/wq/permits/guidance.html.
http://www.deq.state.or.us/pubs/reports.htm.

Implementation

DEQ should consider how the various elements of the IPDES program fit together. The permit writer may need to pull various source of information and understand how they connect. Or, the permit writer may have many of the elements and processes electronically linked. DEQ should consider the pros/cons of automated production of permits and fact sheets. Such automation could include links with electronic reporting and automated permit renewals. While the initial costs and efforts of such automation could be greater, the long-term benefits of maintaining permit renewals on schedule with a focus on technical rather than administrative issues could be significant.

DEQ should consider how the document will be used by permit writers in connection with other materials. For example, What data are needed? How does that data need to be prepared for analysis? How should the data be interpreted? What might the data look like and what issues to consider? Will there be a supporting website with additional tools, such as a standard RPA spreadsheet? The 2002 Guidance provides some information about outliers but does not go into much depth on compiling and assessing data before using it in RPTE and WQBELs analyses.