

Revising Oregon's Industrial Stormwater General Permits Advisory Committee Meeting Notes

Meeting: Meeting 12 – BMP Evaluation
Date: November 16, 2010
Location: DEQ Headquarters, Portland

Attendees: Committee:

- Neil Alongi-Maul Foster & Alongi, Inc.
- Michael Campbell-Stoel Rives LLP on behalf of Oregon Industrial Stormwater Group
- Rick Fischl-Clean Water Services on behalf of Oregon Association of Clean Water Agencies
- Ayn Generes for Calvin Noling-StormwaterRx
- Dan Mensher- Pacific Environmental Advocacy Center on behalf of NEDC and Columbia Riverkeeper
- Doug Pennington-ATI Wah Chang on behalf of Oregon Metals Industry Council
- Michael Pronold-City of Portland, Bureau of Environmental Services
- Mark Riskedahl-Northwest Environmental Defense Center
- Dorothy Sperry-Port of Portland
- Eric Strecker-GeoSyntec
- Russell Strader-Boise Cascade

DEQ: Paula Calvert, Erich Brandstetter, and Annette Liebe

Chair: Commissioner Ken Williamson

Frequency of Additional Pollutant Monitoring: Paula Calvert presented DEQ's response to the committee's feedback on evaluation of monitoring frequency based on the goals of additional monitoring proposed by DEQ at the September meeting. This monitoring would be conducted in addition to pollutant monitoring performed by all facilities as specified in the current Oregon general stormwater permits, sector specific monitoring identified in EPA's Multi-Sector General Permit (MSGP), and impairment pollutant monitoring by facilities discharging to 303(d) listed waterbodies. Proposed additional monitoring includes mercury and PCB monitoring by EPA Sector M, automobile salvage yards corresponding to SIC code 5015, and Sector N, scrap recycling and waste recycling facilities corresponding to SIC code 5093. These sectors handle components containing mercury and PCBs but these pollutants are not required to be monitored according to EPA's MSGP. The monitoring data will be used to assess continued monitoring and determine the need for benchmark assignments for these sectors. Mercury and PCB should be monitored four times in the first year by Sector M and N facilities. PAHs should be monitored by all facilities twice during the first year to gather data that can assist the facilities and the DEQ in focusing pollution prevention efforts on the most appropriate sources of PAH pollutants. DEQ also proposed that all facilities monitor cadmium, chromium, and nickel to evaluate the appropriate use of copper, lead, and zinc as metals indicators. Benchmarks may be developed for any of the additional metals if copper, lead and zinc are not adequate indicators.

The committee members provided the following comments:

- Neil Alongi asked if the additional pollutants will be compared against benchmarks as they are monitored in the new permit. Paula Calvert responded that the additional pollutant monitoring will not have a associated benchmarks. Annette Liebe added that benchmarks will be referenced for those facilities in specific sectors for which the EPA has identified a benchmark for a parameter that also happens to be an additional pollutant.
- Russell Strader asked if the dilution to be applied in benchmark modeling for copper, lead, and zinc will also be applied to EPA's benchmarks. Paula Calvert replied that DEQ has not yet discussed this issue. Russell Strader commented that since DEQ is proposing application of EPA sector specific benchmarks similarly as the benchmarks carried over from the current permits, then why not incorporate the same dilution rate. For example, will the EPA benchmarks be subject to the same corrective actions? Annette Liebe responded that following internal discussions, this issue will be addressed at the January meeting concerning benchmarks.
- Dorothy Sperry inquired regarding the case in which a parameter has an EPA sector specific benchmark and a DEQ benchmark. Which benchmark value will be used? Dorothy Sperry gave the example of BOD5 for airports the EPA benchmark is 30 mg/L and the DEQ's 1200-COLS benchmark is 33 mg/L. Which value will be adopted in the new permit? Paula Calvert responded that the more stringent benchmark will likely be chosen. Annette Liebe added that internal discussions are needed to address the selection of benchmarks given the occurrence of different values from different sources for the same parameters. Dorothy Sperry referred to the TMDL basis of the 1200-COLS benchmarks. Paula Calvert commented that consideration of the TMDL source will be an important factor.
- Michael Pronold asked for clarification on sample collection during the first year or first two years. Are these years relative to when the permit is issued or when a facility receives coverage which could be during the second or third year of the permit cycle? Annette Liebe responded that it is from the date the facility receives coverage. Michael Pronold stated that if the DEQ was to conduct an analysis of the data soon after issuing the permit, data submitted in the fourth or possibly fifth year may not be used. Erich Brandstetter replied that an initial analysis could be done once the bulk of the data are received with updates to the analysis when additional data are received through the permit term.
- Michael Pronold asked why there are differing numbers of samples specified for the different additional pollutant sets. Paula Calvert responded that the different numbers of samples were needed to address different goals.
- Russell Strader inquired if sampling was to occur at all monitored outfalls for all the additional pollutants with exception of PAHs which will be monitored at a maximum of two outfalls per facility. Paula Calvert verified this and added that those outfalls designated as substantially similar will not require additional pollutant monitoring. Sample collection from a maximum of two outfalls per facility will not accomplish the monitoring goals established to examine the metals surrogates or mercury and PCBs in discharges from Sectors M and N.
- Michael Campbell asked what benchmarks, or points of reference, will be used for cadmium, chromium, and nickel when evaluating the adequacy of copper, lead, and zinc as surrogates? Dan Mensher commented that the evaluation would not necessarily require benchmark comparisons but could instead consist of a comparison between concentrations of the additional metals comprised of cadmium, chromium, and nickel, and corresponding concentrations of the surrogate metals comprised of copper, lead, and zinc. For example, are the surrogate metals concentrations low and the additional metals concentrations also low? Erich Brandstetter added that the criteria to be used in this analysis have not been established. If a point of reference cannot be defined, a statistical approach, such as a correlation, will be used.

- Rick Fischl stated that if EPA has identified cadmium, chromium, and nickel for benchmark monitoring by specific sectors, then the federal benchmark values must be used according to CFR 403, unless state or local levels are lower.
- Michael Campbell commented that there should be a way to evaluate the results of the surrogate analysis to assess if extra controls are needed for cadmium, chromium, and nickel.
- Dan Mensher commented that there are two questions being asked in the surrogate analysis. One question is, are copper, lead, and zinc good indicators for cadmium, chromium, and nickel? The second question is, are benchmarks needed for cadmium, chromium, or nickel? In following up Michael Campbell's comments, Dan Mensher then asked, what would these benchmarks be? Michael Campbell added that a third result may be that the metals do not track well with the surrogates but the concentrations of the additional monitored metals are at a level that would not be a concern.
- Russell Strader asked if DEQ is aware of whether or not there are enough labs in the area that have the capacity to process and analyze large quantities of samples for PAHs within the hold time and are the labs using the proper methods? Paula Calvert responded that DEQ will look into this issue.
- Commissioner Williamson stated the possible outcomes of the surrogate analysis include: discontinuing measurement of cadmium, chromium, and nickel; or concluding that acceptable concentrations of copper, lead, and zinc do not mean that concentrations of the other metals are also acceptable and will therefore require additional means of addressing the other metals. Paula Calvert and Annette Liebe agreed. Erich Brandstetter added that will not be taking an all or none approach in consideration of the three additional metals and provided an example that the surrogates may be representative of the additional metals with exception of cadmium. Therefore, monitoring would continue only for cadmium. Erich Brandstetter continued by saying that each of the additional metals would be evaluated separately.
- Karen Tarnow inquired about the possibility that some of the additional metals will continue to be monitored by specific sectors. Paula Calvert replied that DEQ has not discussed that possibility. Paula Calvert added that based on the work conducted by Michael Stenstrom with UCLA, it will be difficult to separate out specific sectors. DEQ's original intention is to have all facilities continue to monitor specific or all additional pollutants if the surrogates are not adequate. Russell Strader asked if the facilities' SIC code can be associated with the data for future analysis. Paula Calvert confirmed SIC codes can be matched to facilities' data.
- Mark Riskedahl asked why arsenic was not included in the list of additional pollutants to be monitored. Paula Calvert replied that arsenic did not appear in the literature review as a pollutant of concern in industrial stormwater runoff whereas cadmium, chromium, and nickel were called out by Stenstrom.

BMP Table: Paula Calvert presented an overview of the number of facilities that may be required to monitor specific pollutants based on monitoring expectations of all facilities according to the DEQ's current industrial stormwater permits in addition to potential monitoring based on the facilities' sector and discharge location on 303(d) listed waterbodies. Pollutants that may be monitored by at least 25 facilities were included as parameters in an evaluation of BMP ability. The evaluation results were shown as tabulated BMP outflow concentrations which were contrasted against reference concentrations such as current permit benchmarks, sector specific benchmarks, or water quality criteria. The table is not to serve as a guidance document. It is meant to be used as a tool to evaluate whether or not benchmarks and water

quality standards are achievable treatment BMPs. This evaluation will then guide development of corrective action responses.

The committee members provided the following comments:

- Rick Fischl asked if there will be an impact to the no exposure certification program considering the concern over the increased pollutant parameters that are to be monitored. Rick Fischl added that assessment of no exposure is tricky and there is the potential that, with consideration of a wider range of pollutant parameters, NECs will not be issued to facilities that may have otherwise qualified. Paula Calvert responded that DEQ has not yet considered the affect on NEC issuance.
- Ayn Generes suggested evaluating data in the discharge monitoring reports to look at information from industrial facilities considering the lack of a sufficient amount of stormwater data associated with industrial land use. Ayn Generes added that a measure of BMP performance can be obtained by contrasting DMRs corresponding to dates before versus after implementation of identified BMPs. Paula Calvert replied that DEQ did look at information provided by the City of Portland's Bureau of Environmental Services relative to dates of BMP implementation at specific permitted facilities. Based on the facilities' DMRs, it can be generalized that BMP use reduces pollutant concentrations based on results of grab sampling. Paula Calvert continued by stating that the reason the DMR data were not included in the BMP table is because grab sampling is not the best data on which to base a confident measure of BMP capabilities. BMP studies typically consider in flow and the corresponding out flow of each evaluated storm event. This type of direct relationship can not be established using DMR data.
- Neil Alongi asked about the statement, "no significant difference between influent and effluent," which is included in some table entries. Paula Calvert clarified that there is no signification difference between corresponding influent and effluent values, on a storm by storm basis, according to the International BMP Database. Neil Alongi inquired about a high effluent concentration associated with a coagulation BMP and posited that there may have been an associated high influent concentration.
- Ayn Generes stressed the importance of considering BMP influent concentrations to gauge BMP abilities. Influent concentrations of industrial runoff should be considered in evaluating BMP capabilities to go beyond an evaluation which only looks at effluent from BMPs used in commercial and urban applications. Ayn Generes suggested looking at the DMRs of sites that are not implementing BMPs to have an understanding of what the starting point is and what the potential pollutant reduction will be following BMP installation.
- Russell Strader asked what will be done with the information in the table and what is expected of the committee. Annette Liebe responded that the benchmarks, which are yet to be developed, will be evaluated in conjunction with the BMP effectiveness information to help inform permit language on corrective actions related to benchmark exceedances. DEQ would like feedback from the committee on whether or not the research DEQ conducted into BMPs is adequate and is the committee aware of other sources of data that should be considered.
- Dan Mensher stated a next step is to look at benchmark exceedances and BMPs, adding that it would be beneficial to have a tiered action approach similar to Washington state's industrial stormwater permit. Dan Mensher also commented that DEQ should develop a BMP manual which includes success rates for different types of BMPs and considering the information compiled in the BMP table, a lot of the work has already been done. Dan Mensher asked, in regard to influent information, if there is a means of collecting data which is reflective of the way a site controls its stormwater. Annette Liebe followed up Dan Mensher's comments by first stating that a BMP manual should be developed which

describes the anticipated success of BMPs relative to the corrective action approach established in the permit. Discussions will be held with the committee about DEQ's ability to develop a BMP manual. In regard to Dan Mensher's second point concerning influent data, Annette Liebe stated DEQ is not expecting facilities to collect BMP influent data.

- Paula Calvert stated that the International BMP Database has influent data associated with the BMP studies. Eric Strecker added that the only studies in the database are those associated with green roofs or BMPs where influent data are not gathered from rainfall. Paula Calvert commented that some statistical analyses for commonly measured pollutants were conducted and are available on the database website which is the source of statements in the table concerning statistical significance between influent and effluent concentrations. This can be interpreted as the BMP ability to change runoff concentrations. Eric Strecker stated as an example in the database that the influent dissolved copper concentrations are low which made it difficult to detect significant concentration changes by the BMP but that it shouldn't necessarily be concluded that the BMP was not working. Neil Alongi stated that an indication of differences between influent and effluent concentrations, such as specifying magnitude differences, would be helpful.
- Russell Strader prompted verification that this information will not be used in the permit but will serve as guidance document. Annette Liebe responded that this analysis was conducted in response to the committee's concern over agreeing to certain benchmarks without having a corresponding assessment on how achievable they are. This summary will help inform the discussion on benchmark achievability and the corrective actions expectations in the permit. Annette Liebe continued by stating that early on, there was a lot of committee feedback on unrealistic expectations of corrective actions to achieve low EPA benchmarks. DEQ's next step is to conduct the benchmark work and assess the results in conjunction with the BMP effectiveness information to evaluate how to the benchmarks and corrective actions will work in the context of the permit. Annette Liebe added that in cases where technologies are not able to meet benchmarks, DEQ would require a different kind of corrective action response. Eric Strecker asked that where BMPs can't meet benchmarks, would that be a basis for considering a best available technology (BAT) approach? Annette Liebe responded yes. Based on the information presented in the table, Commissioner Williamson and Annette Liebe feel that the data are encouraging in regard to BMPs' abilities to achieve target concentrations.
- Eric Strecker commented that the BMP Database does not only contain information relative to the best BMPs, best media mixtures, etc. BMP data have been included based on whether or not the studies were conducted right. Information corresponding to individual studies must be evaluated to separate out datasets corresponding to BMPs constructed closer to the design standard for which better performance would be expected. Michael Pronold asked Eric Strecker about how bypass is accounted for in the sampling procedures. Michael Pronold provided an example of not including bypass in effluent sampling which will provide a better evaluation of the BMP. Eric Strecker responded that there is a mix of sampling approaches relative to bypass flows. Eric Strecker added that not many wetlands or wet ponds have a bypass so parsing out data from larger storm events can help to analyze the affect of sizing. If only the underdrain is monitored for a BMP, such as a bioretention system, anything that overflowed would be in bypass.
- Ayn Generes stated that for some facilities it takes more than using a BMP to lower concentrations below benchmarks. Ayn Generes added that Washington's approach addresses sources controls in addition to structural modifications to help lower concentrations. Paula Calvert responded that DEQ would like to see that type of inclusive assessment be made by PEs for the corrective action responses. The PEs should not only focus on individual BMPs but should also consider non-structural BMPs, such as painting a

galvanized roof as a means of controlling zinc, and possibly multiple BMPs working in series.

- Karen Tarnow posed a question to Eric Strecker regarding his knowledge of a university or neutral body that is compiling and sorting through BMP studies for a public entity, thereby alleviating DEQ from performing this analysis. Eric Strecker replied that his group is currently finishing a relevant white paper but that there is not much stormwater data on pollutants such as pesticides, PCBs, and PAHs. Michael Barrett at the University of Texas has evaluated BMPs for TxDOT and Caltrans.
- Annette Liebe commented that copper was a focus of the committee during its initial meetings. The copper benchmark will be influenced by hardness in the modeling effort. Annette Liebe added that establishing the copper benchmarks will be the biggest challenge.
- Eric Strecker asked if the translator used for translating between dissolved and total metals concentrations will be adjusted for the modeling exercise to be reflective of what is commonly observed. Eric Strecker commented that the translator used to convert from a dissolved aquatic life criterion to a total is a very conservative value which assumes that, for example, 90 or 95% of total copper is in the dissolved form. But in examining stormwater data, the dissolved portion is a lot lower and is more in the range of 30 to 60%. Paula Calvert stated that because Oregon surface water standards for metals are in totals instead of dissolved, adjusting the translator would effectively alter the criteria. Eric Strecker reiterated his point by stating that datasets of urban runoff have nowhere near 95% dissolved.

Follow-up Items:

- Determine the ability of laboratories used by the facilities to process and analyze large amounts of samples for PAHs within the hold time.
- Examine appropriateness of applying a dilution rate to EPA benchmarks.