

Industrial Stormwater Program



State of Oregon
Department of
Environmental
Quality

Industrial Stormwater

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restoring, maintaining, and
enhancing the quality of
Oregon's air, land, and
water.*

1200-Z Rulemaking Advisory Committee Meeting No. 3

Wednesday, Nov.13, 2019
DEQ Headquarters, floor 3 conference room
700 NE Multnomah St.
Portland, Or 97232

List of DEQ attendees

- Justin Green
- Christine Svetkovich
- Krista Ratliff
- Courtney Brown
- Michele Martin
- Diane Lloyd (DOJ)
- Becky Anthony

List of Committee Member attendees

- Ada Banasik
- Alan Flemming
- Chris Rich
- Jamie Saul
- Jonah Sandford
- Debbie Silva
- Kathryn VanNatta
- Michael Campbell
- Norma Job
- Stacy Hibbard (Chair)

Meeting materials

Please refer to the webpage for this rulemaking under 1200-Z Permit Rulemaking Advisory Committee Meetings / [Meeting 3](#)

Alternative formats

DEQ can provide documents in an alternate format or in a language other than English upon request. Call DEQ at 800-452-4011 or email deqinfo@deq.state.or.us.

Agenda

Time	Topic	Presenter
8:30 am	Welcome and logistics	Michele Martin
8:40 am	Follow-up from meeting No. 2 <i>DEQ Meeting 3 Presentation</i>	Christine Svetkovich
8:50 am	Impairment Analyses presentation and discussion <i>PG Environmental WQBEL Analyses Presentation</i> <i>PG Environmental WQBEL Analyses Tables Appendix</i> <i>PG Environmental Impairment Analyses Memo</i>	PG Environmental
9:45 am	Break	
10:00 am	WQBELs considerations <i>DEQ Meeting 3 Presentation</i>	Krista Ratliff
11:30 am	Lunch	
12:20 pm	TBELs data presentation and discussion <i>PG Environmental TBEL Analyses Presentation</i> <i>PG Environmental TBEL Analyses Tables Appendix</i>	PG Environmental
1:20 pm	Continue presentation and discussion <i>DEQ Meeting 3 Presentation</i>	Krista Ratliff
2:20 pm	Break	
2:35 pm	Informal Public Comment Opportunity	Michele Martin
2:45 pm	Continue discussion as needed and next steps	Krista Ratliff
3:30 pm	Adjourn	

Meeting Summary

Note: Several attendees were on the phone for this meeting. DEQ was unable to capture all phone attendee names and affiliations.

Michele Martin (MM):

- Welcome, logistics, ask questions at any time;
- Public comment period will be provided at the end of meeting (currently no one on the phone);
- Acknowledge technical difficulties with meeting materials;
- Started meeting recording
- Review agenda

Christine Svetkovich (CS): Provided a brief follow-up from meeting No.2. Mentioned new member, Norma Job from Durkee, Eastern Oregon, Ashgrove Cement. Mentioned PG Environmental working on DEQ-supplied data; a topic of today's meeting. Reminder about scheduled meetings for the remainder of this rulemaking: Jan 22, March 18, and May 13.

Michael Campbell (MC) Question: Both for this rulemaking and going forward does DEQ have a policy for when it will adopt general permits by rule vs. by order? Commented that the default until now has been by department order.

CS: There is no written policy [for this permit to be renewed by rulemaking or order]. Commented that she will update the EQC on this rulemaking on Friday morning, November 15th. The reason that DEQ is renewing this permit as a rule vs. an order is because DEQ has many facilities statewide that are covered by this permit (over 850) and a rulemaking provides a transparent process for all interested in the topic, and because considering benchmarks vs. limits is a policy consideration that should be brought to the EQC for their approval.

Today we will be doing a deep dive into the data. DEQ wants your thoughts and feedback so we can bring elements to you for consideration in permit renewal. We will take your thoughts and put together recommendations for the January meeting; we hope you will participate and share your thoughts today. Thank you for coming and for your time.

Diane Lloyd: There is clear authority for either approach [rulemaking or order].

Audrey Signorelli, PG Environmental: Oregon 1200-Z General Permit: impairment analysis presentation.

PG Environmental is a water resources company primarily contracted with EPA and state agencies to implement the Clean Water Act and NPDES programs.

- Audrey has experience working under EPA's office of wastewater management to work on renewal of Oregon's 1200-Z permit
- Main objectives: 1) parameter evaluation of impairment data that exceed reference concentration; 2) water body evaluation; 3) sector evaluation; and 4) provide understanding of WQBEL for copper, lead, zinc, and TSS

- Overview of data used for analysis: used DEQ's database, used all available data Jan. 2000 - Dec. 2018. In spite of some varying outdated methods, provided a robust and conservative data set
- DEQ's database has data reported by permittees; used all monitoring results regardless of drivers for monitoring
- Certain qualifiers excluded from evaluation: waivers and no sample
- Estimate qualifier was included – e.g., if failed to field filter – were included in data set
- Only wanted to include data for discharges to impaired waterbodies – so had to choose appropriate 303(d) list – these are updated every two years
- When the 2017 permit became effective, the version in effect was the partially approved 2012 303(d) list – DEQ uses this version to assign impairment monitoring
- Dec. 2018, EPA-approved the final 2012 version of 303(d) list which was used by PG Environmental it because reflects current state of impaired waterbodies; only used cat.5 waterbodies
- Draft 2018/2020 303(d) list is anticipated to result in changes because of new methodologies: new listings and delistings
- Reference concentrations: used to compare stormwater data; DEQ assigns reference concentrations; uses acute, if no acute then uses chronic, if neither then use the human health criteria; if quantification limit; surrogate monitoring was used for some parameters (e.g., E. coli used for fecal coliform)
- Reference Concentrations: Metals: four geo-regions – compared data to applicable geo-region; dissolved form of metals: calculated for total and dissolved to compare; used default conversion factor for all metals except cadmium and copper

Question from a member of the public by phone: Regarding the partially approved list.

Audrey commented: The 2012, 303(d) list was partially approved in December 2016; then in 2018 EPA issued final approval with different listings than the partial – for impairment analysis PG Environmental used the final approved version from 2018.

Michael Campbell (MC): How many waivers were excluded from the data set? Leaving waivers out will skew the data by biasing it high and that will affect conclusions. (It is assumed that if data existed for the facilities with waivers that it would be at or below the reference concentration.) Including waivers would have driven down the percentage of exceedances.

Kathryn VanNatta (KVN): potential issue with listings - DEQ admitted that they incorrectly evaluated certain dissolved, total metals; I want to flag that the analysis; [*Clarification*: converts the dissolved metals back into total form]

Becky Anthony (BA): In 2012 total concentrations were used where we didn't have dissolved concentrations; wouldn't characterize it as incorrect, but a more conservative assumption; it was overly conservative (and we did not convert metals using conversion factors)

Alan Fleming (AF): Would have liked to have seen percentages with waivers and no sample data included in the analysis; with dissolved, standard conversions break down at higher levels, result in more variability

Audrey: For copper, Oregon doesn't include a conversion factor in water quality standards so used EPA's default conversion factor

- Analysis results, exceedances by parameters for metals:
 - Objective: to evaluate impairment data exceeding reference concentrations
 - Looked at percent of results that exceeded each reference concentration – not by how much they exceeded, but the number of samples that exceeded
 - 10 to 25 percent considered “moderate” level of exceedances – in red in tables (in presentation)
 - Greater than 25 percent of exceedances considered “significant” – in yellow on presentation
 - Range of detected results summarized
 - For metals: significant exceedances reference concentrations for total copper iron and total and dissolved zinc; moderate for total cadmium, dissolved copper, and total lead;
 - A lot of data points for: copper, total cooper, and total and dissolved zinc, and iron
 - Demonstrated that industrial stormwater is not a significant contributor of arsenic
 - Conventional and nutrient – only pH(min) exhibited moderate
 - Industrial stormwater not a significant contributor of ammonia
 - E. Coli: used either e. coli or fecal coliform – showed a significant level of exceedances – seems to be an issue there with E.coli

KVN: How did you handle the fact that DEQ changed the water quality standard for bacteria during time of analysis?

Audrey: Used reference concentration of 406 counts/100 ml

Krista Ratliff (KR): The actual number didn’t change; the new bacteria standard in 2017 designated the fecal coliform away from freshwater to coastal estuarine so the actual criterion didn’t change

KVN: So the analysis is all in freshwater?

KR: We have not historically looked at marine in benchmarks; their analysis was all based on impairments using freshwater standard

Chris Rich (CR): Looking parameter by parameter – I don’t understand minimum and maximum verse a mean; can you expound?

Audrey: I agree that the averages could be useful; primarily looking at the exceedance rate and provided range as an information item; would take significant amount of work to calculate means and averages especially with the non-detect results, so not available

- Exceedances of polynuclear aromatic hydrocarbons (PAHs) includes 12 individual parameters, each were less than 2% exceedances; industrial stormwater not a significant contributor to PAHs
- Pesticides, included 11 parameters: some had more robust datasets than others – for all pesticides saw less than 5% exceedances – industrial stormwater not a significant contributor
- Other parameters: many ethylenes – showed less than 1% exceedances, industrial stormwater not a significant contributor

- Significant exceedances of copper, E. coli, iron, zinc total and dissolved
- Moderate: cadmium total, copper, dissolved, lead total and pH minimum
- Exceedances by impaired waterbody/receiving water:
 - 51 water bodies or 65% of waterbodies in the analyses have one or more pollutants with more than 10% exceedance of water bodies (slide 16 of WQBEL presentation)
 - Looked at percent of results that exceed the reference concentration
 - 11 pollutants with greater than >10% exceedances in one or more waterbodies:
 - Metals
 - Conventional and nutrient-related parameter (ammonia, BOD, pH, TSS);
 - Other parameters (e. coli)
 - Exceedances by Impaired water body: Metals (slide 17 of the WQBEL Analyses Presentation) table shows all metals except copper and iron; dissolved lead was significant in Umatilla; total zinc exceedances in three waterbodies
 - Copper and iron was more prevalent – higher rate of exceedances, significant in 10 waterbodies; Iron significant in 18 waterbodies

KVN: How did you deal with change in Oregon's copper standard during the time of analysis and which standard were you using?

Audrey: For copper, we used the geo-region reference concentrations from presentation slide 8; for iron used 1.0 mg/l, the chronic standard

KR: We are looking at the information we have based on current; the concentrations are accurate; this is a water quality based conversation

KVN: Information has changed; we are using data; as the water criteria changed so did the test method; to use that now and look back and draw conclusions is inappropriate

KR: This is part of the bigger conversation

AF: For Umatilla, with 100% exceedances of dissolved lead – how many permittees? Have you tracked? What if one permittee? Then not meaningful

Audrey: Only 2 sample results; limited data

KR: This is the type of continued analysis that I can do for next meeting; some of these things have not yet been looked at and we can present that at next meeting

Audrey: Conventional parameters, moderate to significant for BOD, min pH and TSS – BOD in four waterbodies and significant in two waterbodies, low pH in 12 waterbodies, significant in 6 waterbodies, for TSS moderate in three and significant in one waterbody

- Nutrients: only saw exceedance in one waterbody of ammonia – in Tualatin river
- E. coli: more widespread from e. coli; significant in eight and moderate in six waterbodies

KVN: Question regarding E. coli; DEQ said it did not look at estuarine areas but Yaquina and Coos Bay, Depot Slough are in there – ocean dischargers, these values were up above tidal influences areas?

KR: No. We are saying that we did not evaluate any estuarine areas against the current marine bacteria standard and we will talk more about this later.

Audrey: Exceedances by Sector: Metals (WQBEL presentation slide 21): Looking at percentage of results that exceed a reference concentration; used same rates of exceedances (10%-25% = moderate; significant was 25% or more)

- Most or all sectors contributed to moderate or significant of copper, iron, and zinc suggesting that these are ubiquitous and can't be attributed to certain sectors
- Only certain sectors contributed cadmium and lead
- No sectors contribute to arsenic
- Closer look at 6 sectors contribute to cadmium: sector N scrap and waste, sector P land transportation and house, and sector T treatment works;
- Contributors to lead: sector K hazardous waste, sector M motor vehicles, Sector N, scarp and waste
- Copper: moderate and significant across most sectors
- Iron: moderate and significant across most sectors
- Zinc: significant exceedance across many sectors
- Conventional and nutrients: 68% of sectors contributed to low pH – can't contribute low pH to certain sectors; only certain sectors contributing moderate; no sectors contributing to moderate or sign of aquatic weeds or algae
 - pH: minimum saw numerous sectors contributing (WQBEL presentation slide 28)
 - Ammonia, total nitrogen used as a surrogate
 - E. coli: 32% of sectors contributed – some sectors could benefit from additional analysis: Sector A, P, R, and U were significant contributors

KVN: Remind me if your analysis is for continuously operating facilities during the time period – if a facility closed did you *not* include that in data?

Audrey: Yes, I believe some data is for facilities no longer discharging

KVN: This is important because pulp and paper has closed facilities during the time frame

Audrey: Impairment Analysis Summary (WQBEL presentation slide 32): There were 51 waterbodies with moderate or significant levels of exceedances and 11 pollutants with >10% exceedances in more or more waterbodies

- By Sector – most or all sectors contributing to moderate or significant exceedances of copper, iron, zinc, and pH (minimum)
- Only certain sectors contribute to cadmium and lead, ammonia aquatic weeds, BOD and E. coli
- No sectors contributing to moderate or significant of arsenic or algae
- Effluent limit considerations: General understanding of water quality based effluent limitations (WQBEL)
 - When you develop a WQBEL have to consider both the technology available to remove the pollutant and the water quality standards that apply
 - If technology based effluent limitation (TBELs) not effective then you have to develop WQBEL

- Where a TMDL exists with a wasteload allocation (WLA) then numeric WQBEL is based on WLA; if no TMDL then based on performance or current loading until TMDL developed (WQBEL presentation slide 34)

Ada Banasik (AB): Regarding ignoring monitoring waivers – most clients have some waivers – we are ignoring a huge chunk of data; it is worth comparing the percent exceedance to the ones that included the waiver if any decisions are based on what is a moderate or significant exceed. Also the dissolved to total translators are really conservative numbers based on laboratory experiments not based on real receiving waters; Washington Ecology came up their own translators, using effluent and receiving waters total to dissolved pairs- that are more realistic and very different than OR's administrative code translators. The conservative nature of the translator values used in this analyses would impact the moderate and significant exceedance numbers.

BREAK

KR: Let's go over what we just saw and be intentional about what additional analysis we would like to see; I heard: Omitting data with waivers has skewed the data – suggestion how to deal?

AB: Count them as not exceeding; you could actually look at the four samples used to get the waiver and see how many of those exceeded versus those that didn't and get a statistical value.

KR: Does everyone agree with that approach for furthering discussion?

Jamie Saul: Even for facilities that get a waiver still have to monitor – right?

CS: Yes, that is included in this – everyone had to monitor for the first full year of the permit

Jamie: How does that skew the data then? Also with facilities closing, not sure it's a concern that needs addressing.

KVN: If you are going to do sector specific analysis and come to conclusions, need to look at continuously operating facilities because the facilities that closed a long time ago – judging current facilities by the past performance of older facilities that might not have been operating under current permit is not appropriate.

KR: We won't get anywhere assigning effluent limit based on sectors – because it was all over the place; analysis was the best given what we have; based on what PG Environmental presented how can we go forward?

MC: I agree with that – for WQ-based limits this information is helpful but it's a snapshot of if facilities had a reference concentration that turned into a limit how big of a problem would that be for facilities? Conclusion is some facilities would have a hard time meeting those but exceedances in waterbodies that are actually impaired drops way off – a lot of facilities are discharging above what they may have for a reference concentration but not causing a problem in the stream. This information is at a crude level: which pollutants might industrial stormwater discharges create impairment problems so focus further on those things but we need a more granular level before we talk discharge limits based on water quality such as a pilot to figure out those complexities – to figure out on a broad scale – too many variables to figure out using this information.

CR: A lot of decisions were made to categorize the exceedances as moderate or significant because with variations in what was included (number of samples, waivers, etc.) could change

the categories; the degree of exceedances from reference concentrations – hard to get from the dataset anything more than that information – dataset should not drive action state-wide – policy decisions must be driven by something the room has consensus

KR: Going to clear up some misstatements from last time regarding Washington’s permit and talk about impairments and water quality standards and options we might consider. I will go slowly; to capture some input for what the room wants to see for next time in terms of data gaps. Next meeting we hope to bring you some recommendations.

- Jamie had asked about Washington’s equation – Ada helped with the copper range – it was based on a hardness of 14 mg/L – so Washington assigned receiving waters specific limits; there is a waterbody with a limit that is extremely low.
- Dissolved and total conversion factors – a lot of information – will be a continued conversation – it’s a big deal.
- Washington set a WQBEL at the water quality standard – Washington’s draft permit recently closed for public comment and comments are posted online– concerns have been raised that not enough facilities assigned limits for impairments; we want to ensure transparency and clear implementation in Oregon.
- Regarding copper and the need for ease of implementation; we want whatever we establish to be easily replicated by public and industry so that they do not have to hire an engineer – this is do-able but a little complicated for a general permit.
- Washington looked at three options: 1) statewide assumption of 50th percentile hardness (hardness is a factor of metal toxicity so may establish something not too restrictive or too much; 2) establish site-specific WQBEL effluent limits – estimated 200 facilities (5%) discharge to impaired waterbodies – narrowing the scope of pollutants for reasonable potential. They decided it was not possible to set a site-specific WQBEL, and option 3) hybrid – some set in permit some set at time of coverage – in Oregon we estimated 534 facilities out of 898 – nearly 60% of facilities discharging to impaired waters, though a lot will change based on proposed 2018/2020, 303(d) list.
- The pollutants Audrey indicated in the moderate to significant range: cadmium, total copper, dissolve copper – consistent with other published documents regarding where we thought there were pollutants in stormwater.
- Total cadmium – EPA promulgated our acute criteria for cadmium – only South Umpqua was exceeded – preliminary cross-walk with delistings and facilities; DEQ has identified the assessment ID’s for each waterbody with exceedances; for the South Umpqua we are proposing to delist it for cadmium where there are 11 industrial stormwater dischargers currently.
- Last advisory committee (from 2012 permit) materials – this would be easy for us to model (passed around) – “the number of facilities discharging to impaired waterbodies segments.”
- Total copper: Biotic Ligand Model (BLM) (Washington has not adopted) – EPA’s recommendation for states to adopt this model to use a site-specific ambient data – there are 10-13 inputs. Note: a lot of times we use defaults but the defaults are based on actual data in that waterbody or geo-regions.
- The BLM results are in dissolved; regional defaults are based on 20% concentration in Cascade coastal; 15% for eastern region.

- Renewal for industrial permit – added Columbia Slough and separated out the Portland Harbor.
- Delisting picture for copper: 5/10 are slated for delisting – includes entire reach of the Willamette River.
- Listing won't be adopted until approved by EPA.

KVN: Why BLM (Biotic Ligand Model) is superior – in that it's a better predictor of affect on fish.

KR: It's a better model because of the site specific parameters going into the model – output is more protective of aquatic life.

- For E. coli: we use instantaneous standard 406 counts/100mL
- Regarding E. coli, there are different concerns based on beneficial uses, e.g., shellfish, recreation; data showed E. coli is ubiquitous in environment – in all sectors and all waterbodies
- For waterbodies impaired for fecal coliform, DEQ established surrogate E. coli sampling; presence of E. coli in water indicates presence of fecal coliform
- The assessment team in next integrated report will look at the freshwater listings for fecal coliform – using E. coli standard to possibly remove fecal coliform
- Freshwater fecal coliform listings do not really align with bacterial water quality standards

CR: State's perspective on this? For industrial clients – fecal coliform is not one of their outputs – usually flyover wildlife – has DEQ thought of ways to tackle what is frustrating for industrial permittees?

KR: Minnesota study: bacteria may multiply in catch basins.

CS: We hope you will help us think about it.

KVN: Note that when DEQ prepared materials and EQC adopted the bacteria standard – it was recognized during adoption that there are different ways to look at E. coli – you can do DNA sampling, there are sources of wood that mimic E. coli.

KR: E. coli is complicated; water quality standard did change, though just the designations and which indicators are appropriate in varied types of water bodies.

- Total lead: used acute; geo-regions and median hardness; 37mg/l median hardness for regional – we pulled in the four geo-regions.
- In first the first draft permit 2017, we did have a draft with all the geo-regions (7) – we determined too complicated so came up with reference concentration with a default conversion factors used; dissolved sampling began in 2017 which includes field filtering.
- Iron – iron will take head-scratching to figure out – used to be based on drinking water standard, is now based on chronic aquatic life – background why: acts as flocculant, the 1.0 mg/L was when it could smother rocks and decrease dissolved oxygen – has to do with spawning and dissolved oxygen; none of the 2018/2020 impairments are proposed for delisting; iron is naturally occurring; Portland facilities have had impairments for iron since 2012.

- EPA does not consider iron a priority pollutant; in 2011 was removed as a human health concern; 20 waterbodies in Oregon exceeding.

MC: Note for iron that this [iron] is not an acute criterion so if coming up with a discharge limit have to think about the episodic nature of stormwater discharges and how a limit would fit; some stormwater discharges might go for 96 hours but, for iron [chronic standard] have to think about episodic nature of stormwater.

KVN: When we revised iron it was based on smell, look and taste – it is in groundwater and all around.

KR: Low pH: 6.5-7 basin-specific ranges; half of current pH listings will be impacted (delisted); pH benchmark is 5.5 lower than these low end reference concentrations.

MC: Do we have a sense of how many listings were for high pH versus low – PG Environmental analysis showed most problems are on the low side; problems for industrial facilities will be on the low side; a low pH discharge into a waterbody that's listed for high pH might not be a bad thing?

KR:

- TSS: Did not come out as exceeding 10% but it's good to know where our TSS numbers come from – a lot of metals combine with sediment, only 137 exceedances attribute to TSS being one of the parameters we grant waivers for; used as a surrogate for sedimentation and turbidity – no sediment standard; TSS target came from EPA-derived benchmark; EPA has not assessed their benchmarks since first version of permit (Reference: 1983 Nationwide Urban Runoff Program research project); was mostly based on urban MS4 (municipal discharge) data
- Zinc: Although data showed the highest percentage of exceedances for zinc – three waterbodies with 31 dischargers the 2018/2020, 303(d) listing is proposing to de-list all of those water bodies; the draft 2018/2020, Integrated Report is the biggest change in methodology to date in Oregon
- Water quality standards: August 2017 bacteria standard: revised to protect recreation and shellfish – can still be an impairment but based on the standard for estuarine where there's shellfish harvest – breakdown of three bacteria; the standards team at DEQ made estuarine use maps – we can use to make sure we are basing industrial discharges based on right standard
- E. coli: A lot of unknowns when it comes to E. coli and exceedances – leaf piles, inside catch basins, storm-sewer cleaning might be something to consider. The delistings for E. coli in South and Northern Yamhill River and Willamina are about half
- Copper BLM: Looks at more than just water column and bio-availability – looks at the geology, climate, elevation, etc. and uses water chemistry to give a more accurate copper bio-availability – provides more site-specific acute and chronic
- DEQ has a draft 2000-J general permit – includes an effluent limit based on BLM – for pesticides – impacts irrigation and water control districts – copper-based pesticide application around waters of the state
- Goal today: To consider options based on possible limitations; look at aquatic criteria only? Regional or waterbody?

Jamie: Would that exclude copper?

KR: No, it would not exclude copper; the BLM model provides output for both acute aquatic life and chronic aquatic life; there are challenges as MC pointed out using conversions and the episodic nature of stormwater.

MC: Comment in response to Jamie and Jonah, I understand why you'd be opposed to narrow things down but it would be difficult to sell to clients an across the board WQBEL even for impaired water bodies because [it] would be a very simplistic and overly conservative approach; even the hardness based metals are extremely complicated to apply to stormwater; my folks could maybe support effluent limits for water quality standards, but need to be sold on whether it will move the dial in terms of water quality – if industrial discharges are actually contributing to the problem? Using pH as example, any water body an effluent limit based on water quality criteria – I think we need to focus down quickly, to get to yes we need to define the scope quickly.

Jonah: Thank you for follow up on Washington's permit. We talked about manpower issues; can Ada or Alan talk about what would go into making the copper hardness based calculation work in Oregon?

AB: Just hardness, but to do the limit calculation, a huge driver is the background – the receiving water or area-wide limit is crazy because the background will be different even in different waterbody segments; if we pick one conservative number it will not be achievable; in Washington the waterbodies impaired for copper are the ones with low hardness; default value if you don't have hardness data is 100.

KR: Coefficient variable when you set limit – depends on number of samples you have – the variation is very big in stormwater so portion of the equation is trying to predict the variation; this is where stormwater gets erratic.

- Next meeting we will present a complete picture of proposed delistings.
- Another way to limit scope besides picking a water quality standard that aligns with stormwater which is generally the acute (based on 4 hour)
- Saw breakdown of waterbodies, maybe not super helpful without breakdown of industrial stormwater dischargers in each waterbody but we could limit this to highest exceedance or most number of exceedances, as a way to get to smaller scope
- Keep in mind court order regarding temperature TMDL – set a schedule for DEQ to replace temperature TMDLs in many basins around the state; when setting an effluent limit there's a continuous discharge in CFRs (Code of Federal Register) and a separate set of rules for non-continuous discharge
- DEQ is finding we don't have the full picture – no flow data or size of the storms to set something as a mass. We may need more information to calculate a correct limit as we have been concentration based in stormwater
- Possible options: Assign a WQBEL looking at reasonable potential, is complex. Reminded group of the charter, this is the third meeting, three more meetings left – hoping that after today we have enough discussion to bring back recommendations
- I'd like to hear from the Group how to move the conversation forward and what other information or analysis will be helpful: PG Environmental is a resource

- Something to think about: using the Tier II framework for impairments – now it is geo-mean based on one year of samples; in 2012 it was a new permit condition, second iteration of permit kept the second-year of evaluation, in 3rd permit iteration makes less sense to hang on to it assessing Tier II based on the second-year data only based on what we know now
- DEQ will be looking into having the corrective action to be more of a succession – in Washington, one exceedance in three out of four quarters triggers level 3 – then a re-set after new year; so in moving from a static year do you keep it as a rolling evaluation?
- The federal draft permit was sent for federal review to the Office of Management and Budget on Oct 4, 2019. If the draft permit is posted for comment before our next meeting, we will look at it. Another idea from National Academy report was to create an alternative mechanism for a facility to prove they are not impacting water quality
- One missing piece to evaluate mass is flow rate – a facility would have to do some flow rate monitoring, take in-stream flows of receiving water to account for background - do composite sample or full-storm samples and then EPA makes determination if exceedance

AF: It's complicated even for a single site; even Tier II process is difficult enough.

MC: Conception of last advisory committee is that water quality standards as part of the permit is hard. Iterative process would focus on biggest problems; now permit says comply with water quality standards and everyone ignores it until there's a problem. One approach is to have a path identify problems and focus on facility causing problems- that doesn't get us to the settlement decree to focus on limits. Is there a waterbody that is impaired which DEQ thinks 1200-Z dischargers are a significant contributor? This would be a more focused discussion. Either focus on problem pollutant or take more generic approach where we structure in permit that would lead to on the ground work – what are you going to do to reduce pollutants but also what is your actual contribution to those pollutants. Tier II example – benchmark is the goal but kind of like a limit; my folks could support a more focused analysis for what to do to reduce pollutants; focus on waterbodies where industrial dischargers are contributing to impairment.

KR: The limit model would be informed by the number of facilities.

Jamie: Data may be coarse but this should be the starting point then find a methodology that can be applied in various circumstances 51 water bodies exceeding over 10% ; it might be pollutant-specific and applied to various waterbodies – is there a methodology that is defensible and protective that inputs can be put in? Seeing the data, it is hard to see how a defensible permit for facilities that discharge to moderate or significant impairments *doesn't* include a limit – finding methodology should be the charge.

CR: Litigants have history, the people I'm talking to are not on board – this is a general permit – it is a mistake to treat a general permit more like individual permit. We have data, but we have not considered; the iterative approach has been functionally working on a facility-by-facility basis. There is no evidence to justify throwing out this approach – then at Tier II ratchet up requirements to show you are reducing pollutants; concerned about DEQ's ability to staff a big change to the permit. The permit must be implementable. Going to WQBEL may result in undue burden to facilities and needs to be focused to really have an effect on water bodies. Maybe we should focus on areas and parameters that should be of elevated concern and then use adaptive management to document improvement and hold facilities to improvements for water bodies.

AF: TSS data looking better than expected – maybe because the adaptive management process is actually working – TSS is easier to address than some other pollutants.

Lunch Break

Dan Connelly, PG Environmental Technology Based Effluent Limitation (TBELS) Analysis

- PG Environmental perspective: we only work with regulatory agencies, do not work with industry.
- I have been writing NPDES permit since 2001; currently assisting EPA to work on National Academy of Sciences report recommendations.
- Objectives: Oregon requests: 1) analyze relationship between TSS and metals; 2) provide description of TBEL develop process; and 3) determine if numeric TBSLs can be developed.
- Oregon provided data for analysis (same as Audrey's), large dataset and spans large timeframe – over time stormwater controls have improved – would expect that in some sectors controls are better now; hard to make that conclusion for any given sector.
- Data compiled from DMRs – impairments and benchmark and sector specific – analysis focused on copper, lead TSS; excluded qualifiers if not representative; did use E-qualifiers (estimate values when pollutant concentrations are below test method; J flag (meaning the reported result is an estimate); not quantifiable).
- Methodology: Addressed data qualifiers – some data was non-detect, how you handle this can have a big impact; you can't throw data out – used half – but did not identify strong correlations and this did not impact conclusion of none or weak correlation.
- Evaluate data based on SIC, sometimes averaged daily values.
- Limited analysis to total recoverable.
- Large datasets are better.
- R2 – correlation coefficient – how strong is the relationship between two variables – a statistical measure that shows the extent to which one variable affects another – e.g., how well can we predict copper concentrations based on TSS, never more than 1.
- Acknowledge limitations of the analysis: summary of data – first 25th percentile is very tight because of how we handled non-detects. Some data had questionable quality, e.g., incorrect units, used data as reported; some samples had total and dissolved reported and equal to each other – only a handful of those instances so should not greatly influence; outliers: identify reasons, we could not identify reasons so could not exclude.
- R2 values – values closer to one indicate a higher correlation; could not find any correlation between TSS and metal; highest potential correlation Sector M and Furniture and Fixtures.
- If there was a strong correlation we would see copper go up as TSS goes up – not a strong correlation.
- TSS and zinc: absolutely no correlation.
- Conclusion: could not predict metals based on TSS.
- TBELs background: CWA goals and policy direction, goal is zero discharge by 1985; protect fishable and swimmable and no discharge of toxics in toxic amounts; as technology improves we can ratchet down the discharge of pollutants.
- WQBELs are not about what's achievable technologically but what's protective of water-body.

- WQBEL: have to determine appropriate TBEL and see which is most stringent of the two.
- TBELS: performance based pollution controls – developed independently of impacts on receiving waters; based solely on available technology to remove pollutants; must reflect pollutant reductions that can be achieved; controls are referred to as ELG (effluent limitations guidelines) numeric TBELS may be developed by a permit writer.
- Developing TBELS for a specific industry – do in-depth assessment of available technology; consider industry, loadings and removal, costs and non-water quality effects; EPA selects the model technology – must apply to whole sector.
- The model technology and determined long-term average, use that as the standard, consider what time of variability occurs within the dataset L1 (LI is daily max effluent limit) based on 99th percentile; monthly average is at 95th percentile, to manage the variability in the dataset.
- Stormwater has a lot of variability: intermittent, high flows occurring over short time intervals, sectors include a lot of industrial activities under single umbrella – increases potential variability – makes establishing a max daily limit as very high.
- Other contributors to variability: multiple activities occurring under one sector; or within a drainage area; size of a facility; imperviousness; nature of precipitation.
- All things that contribute to mass amount of variability in stormwater: Coefficient of variation (standard of deviation divided by the mean); this is the method used to run RPA (reasonable potential analysis); EPA’s CV is 0.6 if limited data (this is the expected variable).
- Performance based effluent limitations – within sectors – the 99th percentile which is what you would use for limit – if you were to use the data we have – to establish a limit using the traditional method would end up with a limit many multiples higher than average concentrations – results in huge multipliers that will not be drivers for facilities.
- Max daily value as compared to the mean – calculated limits are much higher than what’s really being discharged.
- 100% of numeric TBELS (the 99th percentile) are greater than the applicable reference concentrations – so not protective of water quality.
- Unless you can assume significant dilution TBELS won’t be drivers.
- Conclusions: too much variability to come up with usable and compelling; to properly evaluate sectors and gather data will be costly and time-consuming.

KVN: When you say need more data from facilities – if we were to do that would you have enough data to set a TBEL?

Dan Connelly (DC): Highly dependent on the variability within data sets; also can do a literature review to see if what we are seeing in Oregon is representative of the sector. Without just the data, need to characterize the sector and the type of discharge likely to occur. It is a high bar which is why you do not see this in stormwater permits. It would be a multi-year effort for each sector.

AF: Data are both treated and untreated stormwater, do you need a dataset for each?

DC: Yes, would have to filter the data- we would want this to further evaluate the data right now that is the problem we do not know the treatment that is being employed at each site and what the stormwater looks like prior to going into a treatment process.

Jamie: past iterations of permit DEQ did this high level analysis (specifically facilities with passive treatment) – have you seen this data and analysis – I think DEQ was looking at BMP database – could this be a model?

DC: Yes, a number of resources out there – several databases – need to make sure those BMPs are implementable and appropriate for the type of stormwater. Need to prioritize the sectors where there is likely to be less variation to do that as we cannot move forward with what we currently have without further characterization of sectors.

AB: International BMP database – bulk of that data is not industrial, and data is lumped together (e.g., all sand filters together; all swales together)

DC: Database is a good starting point to identify – but would have to do further characterization:

- EPA’s ELG development process: e.g., airport de-icing 1997-1999: collected site visits, review existing data and permits, stakeholder outreach; continued to evaluate with more site visits; field sampling; questionnaire of select facilities; done in 2006; 2012, technical document released with economic analysis (if achievable in the industry); published rule.
- Coal bed methane example – ultimately EPA unable to establish ELG after seven years due to economic analysis.

AF: How many parameters did you look at?

DC: There are ELGs concerned with one or two pollutants and ELGs that cover 10+ pollutants

- Data needs: to reduce variability we will need a lot more data; sub sector categories: identify activities associated with each outfall, flow and pollutant concentrations and loading in runoff before and after BMPs, BMPs implemented for each outfall location, characterization of drainage area (e.g., impervious surface), consideration of drainage areas, storm event intensity and size, historic rainfall (rain prior to your storm will result in less pollutants).
- How to move forward? Prioritize sectors, determine impact to receiving waters, potential for success, stakeholder input.
- Once you have prioritized sectors and further characterize them – then do the data collection component then evaluate BMPs performance by sub-sector and industrial activity.
- I like the idea of trying to narrow down variability by trying to characterize the industrial activities at the subsectors – evaluate select BMPs technology implementation throughout sub-sectors – look at applicability, feasibility, effectiveness and cost.

Moving forward: prioritize initial investigations then continue to address new or subsectors based on prioritization, we will be industry leaders because this analysis has never been done. TBELs are unlikely to result in limits that are lower than WQBEL and you can’t establish numeric TBELs that are less protective of water quality; WQBEL are likely to be more stringent.

KR: E-Reporting and Data Needs:

- Variability of TBELs is problematic – we have an opportunity to collect more specific data that would be beneficial to us in the future
- DEQ is working with a contractor to do e-reporting, time to design that is now – now the tool is designed to upload SWPCPs, EPA’s tool has drop down for more specific information (e.g., Discharge points, various sectors under one facility)
- Flow is a data point we may want to start collecting
- With effluent limits, the point of discharge is compliance point but in settling the limit, the impairment could be based at a time when the discharge isn’t occurring (e.g., Impairment is seasonal but stormwater discharge is in winter)
- Any ideas on data we should collect? Goal is to have data that would better inform future permit cycles
- In California they let facilities make determination on what pollutants they discharge based on their industrial activities

AB: Would be helpful if we can track industrial activity by outfall. For example, a port may have multiple SIC codes and in Washington you have to pick one – now Oregon can do this manually but it will go away if we don’t have a tool to differentiate.

KVN: To build on what was just said on trying to figure out how to do a sub classification – Oregon’s land use policy encourages co-location of industries – if you want them to co-locate need to develop a program that is fair – think carefully about treating the same sectors fairly based on geographic location.

CR: No, facilities where you can really isolate a treatment technology – for facilities in Tier II they could have additional reporting on a metric for a percent of reduction – an opportunity to start building some state-specific knowledge, then can look back at what BMPs were used.

Jamie: Identify facilities that have a specific BMP or technology.

KR: For the current permit, Tier II has been triggered: 32/70 permittees in Eugene triggered; Portland had 54/205, Western Region 68/445 triggered, Northwest region had 23/147.

MC: How many facilities last time opted for volume reduction as opposed to treatment?

KR: Small percentage.

Stacy Hibbard (SH): 16 or 17 mass reduction waivers in Portland but very small percentage went with volume reduction.

KR: They are not required to sample influent into the system.

SH: If you start collecting that data, there is a lot of nuances: treatment trains, maintenance, upstream BMPs etc.

AB: Not all Tier II installed end of pipe treatment.

AF: Flow recording – we know variability through a storm – have to be careful how we define peak storm.

SH: If you require people to record flows will need really good guidance; equity issue.

AB: When we talk about flow are we talking about volume or rate? When talking about loading really talking about volume; pump or gravity systems will be very inaccurate if talking about rate; would need more rain gauges in rural areas.

KR: Total volume

KR: Risk-based Tiered Approach: major or minor class in permits:

- Idea is we could make distinction based on risk
- EPA's major/minor distinction – Majors have the ability to impact water quality;
 - Six factors in major category: 1) Toxic pollutant potential, 2) discharge flow to stream ratio, 3) conventional pollutant loading, 4) public health impact, 5) water quality factors, and 6) proximity to coastal waters
 - We want to identify SIC code and corresponding co-located facilities and substantially similar outfalls. Need to capture best management practices at each discharge point
- Anyone want to put tiers in our permits?

SH: Sounds like an implementation challenge.

KVN: If you were to do this, how would you judge they are no longer at the higher tier? How do you know you've been successful? How do you know you were not in a higher risk category?

KR: EPA recommendation is that it is for complex sites that cannot meet the benchmarks – we would have on the ground compliance information to help.

Jamie: Open to the idea: in Wisconsin had tiered approach, low tier was a nothing approach – if based on rational factors like benchmark exceedances, sites that are contributors to the problem could be helpful.

KR: We could ask for more information to help characterize. It a lot for DEQ to track and implement.

AB: If we had a tiered approach based on benchmark compliance, would like to see lower tiers back off mandatory BMPs (e.g., enforcement for not closing dumpster lids when spending a lot of money on mandatory treatment).

MC: We kind of have a tiered system now – with Tier I and 2 and waivers. Some is perfunctory, but needs to go both ways – incentive for folks to do well so they get out of requirements not needed. It is a struggle to fit this into the framework of what we are talking about with limits; if we have a limit, we should expect we don't have to do the other stuff.

KR: Yes, this is on the technology-based side; based on Dan's presentation that shows the data highly variability.

BREAK

KR: Alternative approaches to assess waterbodies and reduce loading.

- National Academy of Sciences report encouraged volume reduction; when looking at water quality benefits corresponding from mass loads its more on a large scale – why it works best for municipal stormwater

- If we want to look more at waterbodies that are mostly impacted; for WQBEL and TBELs if we can make some assumptions on where we want to focus geographically and then collect more data. Then we can do an escalation to a numeric limit, could give credits for infiltration; California gives alternative compliance option based on capture and infiltrate 85%, also require 24 hour draw down. Infiltration should be an option; also discussion on sampling before infiltration. If we think Tier II mass reduction is working well we can leave that alone or we can explore other ways to incentivize infiltration

MC: A lot of my clients like the mass reduction option – it's beneficial but need to set better criteria – 2 issues: 1) we are still sampling and need to figure out what to do with sampling, 2) sampling itself – variances - need more expectations built into the permit.

Debbie Deetz-Silva (DDS): mass volume reduction waiver is vital; cumbersome to continue to do analysis. Installed flow monitors to measure – but those are cumbersome and hard to manage and expensive.

SH: Flow metering is double edged sword because now it shows you had a discharge and you have to sample so be clearer about not requiring the samples; also there should be maintenance requirement or periodic infiltration testing.

MM: Interruption of the discussion for the scheduled public comment. *None in the room; none on the conference call*

KR: Jamie and Jonah – thoughts on using volume reduction as a pathway to excuse monitoring if there is a discharge; allow them to show they are reducing pollutants but incentivizing that in the permit?

Jamie: Yes, conceptually.

KR: We think reducing the mass load is a good idea but some concerns regarding mobilizing contaminants, system failure, etc., and I don't see DEQ coming out with a stormwater manual anytime soon.

- Sampling quality and frequency: National Academy Sciences report recommended composite samples, we've heard some limitations on using 18 years of data; statistically collecting a robust dataset: is four samples adequate – what does the committee think is a good minimum amount of samples?

AF: National Academy Sciences analysis on quantity samples was one thing I really liked about that report – to get statistically significant amount - message was: it's far more than we can take. Four samples is as many as permittees can reasonably take.

Norma Job: In the eastern region – lucky to get one sample each year.

DDS: If you were to increase the number of samples, waiting 15 days could be problematic.

KR: Any input on changing from grab to composite?

AF: Same concerns that apply to flow monitoring apply to composite sampling.

MC: No one uses composite – make it an option, not mandatory.

KR: Could we limit some of the 303(d) impairment sampling based on today's presentation?

AB: PAHs and pesticides had a low exceedance rate – also expensive. Is this sampling really necessary? Could we lower the bar for a waiver?

SH: I did not see anything on PCB?

KR: Legacy pollutants did not show exceedances in the stormwater data

KR: Next meeting we will come with recommendations that may include scaling down some impairment monitoring- top eight sectors by numbers: Sector A timber products 149, Sector P land transportation and warehousing, etc. I will present the facility within the each waterbodies, and crosswalk it with the 2018/2020 integrated report delisting and listings.

KR: Give the facility the option to assert that they are not impacting water quality based on more information they provide to us? *No comment*

- Charter talked about more analysis from PG Environmental – if there is anything you think we should have PG Environmental do let us know; otherwise I can do the analysis.

DDS: really going to consider extending tier II to impairment monitoring? I would want to know the basis for that and what in the data shows that is necessary?

KR: We will bring proposals and start that benchmark conversation next meeting. In the settlement, DEQ agreed to consider numeric TBELs and effluent limits and alternatively look at benchmarks. Any more comments or requests based on our discussion today?

AF: Calendar snapshot is meaningless – we should look at long-term data- maybe three year rolling averages to see how a site is improving over time. Could take it further and have the tiered approach – instead of treatment triggered - triggers enhanced monitoring, status of facility change as rolling average changes?

KR: That aligns with taking Tier II out of the second-year snapshot. Maybe base a monitoring waiver on more samples data

MC: The thing that drives clients crazy is E. coli, they don't know how to deal or where it comes from – whether its water quality or technology benchmark, I think the natural background was intended to deal with that but it's not a solution; need a different approach.

KR: Washington applied a narrative effluent limit to E. coli; we may be able to consider a similar approach?

AB: Need to look at iron as well

KR: Any other thoughts? *No comment*

3:30 PM, Adjourn