

MEETING MINUTES
SENATE BILL 325 RULEMAKING COMMITTEE
Monday, December 12th 2016
2:00pm to 3:00pm
Metcalf Building
1520 E. Sixth Ave, Helena, MT 59620

PRESENT

Committee Members Present:

Bud Clinch
Adam Haight
Derf Johnson (phone)
Tammy Johnson (phone)
Peggy Trenk

Montana Department of Environmental Quality Staff Members Present:

Tim Davis
Myla Kelly
Melissa Schaar
Timmie Smart
Amy Steinmetz
Mike Suplee
Eric Urban

Ms. Amy Steinmetz called the meeting to order at 2:05 pm. The meeting commenced with introductions followed by a re-cap of the November 15th meeting, where Ms. Steinmetz summarized the non-degradation rules and explained that nothing in the current rules fits a scenario where site specific criteria are based on non-anthropogenic conditions. She said language will need to be added so that DEQ can apply nondegradation and nonsignificance reviews appropriately to be able to use these new water quality criteria and fit under the anti-backsliding exemption. Also at November's meeting, Tonya Fish from EPA recommended a change in terminology, saying it's better to not define terms that EPA has already defined. Ms. Steinmetz explained that the parameters the workgroup has been talking about could go in a lot of different directions. Ms. Fish recommended that instead of performance-based method using something like site specific criteria method for nonanthropogenic conditions or source. Ms. Kelly also discussed the path forward with arsenic, starting with the Madison, moving to the Upper Missouri and as DEQ develops and refines the method for determining non-anthropogenic and the selection of the criterion, they will continue to develop specificity for a product that hopefully EPA will approve and can be used for a performance based method on other areas. Ms. Steinmetz also recapped Ms. Melissa Schaar's slideshow presentation on proposed arsenic criteria, development and preliminary modeling results, explaining that criteria changes will likely occur in conjunction with use refinement. Ms. Schaar also broke the Madison down into 3 segments for reclassification and criteria development and gave some preliminary results of how anthropogenic sources can be subtracted to come up with a non-anthropogenic condition. Also at last month's meeting, DEQ said they would check to see if the Ennis wastewater treatment plant has an affluent limit for arsenic. It was found that Ennis does monitor

but they don't have an effluent limit because they don't have reasonable potential to exceed the water quality standards.

Ms. Steinmetz asked for any questions that may have stemmed from that meeting. There were none. She next asked if people went over the minutes and said there was one change to correct the spelling of a name. The minutes were approved and will be posted on the website.

Ms. Steinmetz moved to the next item on the agenda of Ms. Schaar explaining the conceptual model of site specific criteria method for nonanthropogenic condition.

Ms. Schaar started by saying what she was presenting is a summary of what she went over at the last meeting, but putting it into a conceptual model of what the process is. Looking at arsenic as the pilot project it's known that ambient concentrations exceed the water quality criterion that falls under SB325. Ms. Schaar said this process can be done with any parameter when you have a natural condition.

Ms. Schaar went through her flow chart by starting with the question: Is there evidence of a natural condition? If no, there is no change to the applicable standard. If yes, then DEQ has to do a Demonstration of Natural. Ms. Schaar has already done this with arsenic and presented to the work group that she has sufficiently demonstrated to EPA that there is a natural condition. With any other parameter DEQ would have to show that it's a natural condition vs. anthropogenic.

Ms. Schaar said this brings us to the next question: Is it Defensible and Valid? If yes, you need to calculate a natural background criterion, which is what DEQ is working on right now. Ms. Schaar explained that there are two different processes talked about, the first being site specific criterion method, which before was called a performance-based method and they are very similar just different wording. The other is the site specific criterion, both of which have to be approved by stakeholders, DEQ and EPA. Ms. Schaar said that the pilot project, or the arsenic Madison, is undergoing the site specific criterion.

Ms. Schaar continued by saying along with this criterion development there could also be a use change happening at the same time. This brings up the question: Are beneficial uses being protected? If yes, there is no applicable use change. If not, as in this case, you would have to go through a Use Change which has to go through stakeholder, BER and EPA approval. Then you adopt a natural criterion or the method, and/or the use change.

Ms. Schaar asked for questions. There were none.

Ms. Schaar moved to her next flow chart on Site Specific Criterion (2nd flowchart), which is what DEQ is doing right now and what the workgroup decided to go forward with, hoping to develop a Site Specific Method. Ms. Schaar said a Site Specific Criterion is very similar to the demonstration of natural. First, you have to define a hydrologic region, which is the Madison River. The different regions will be broken up by hydrology. Ms. Schaar moved to the next question: Is there specific data? Yes, there is so we ask if there is a USGS Gage. Ms. Schaar explained that if there is, there is a lot of hydrology and data to go through Loadest Modeling, which is a way of coming up with a total arsenic load at a specific site. If there is not a USGS Gage you have to go through a Synoptic Load Analysis, which is a basic way of coming up with the same answer but with less data. Ms. Schaar said that after you get your load, you

have to subtract the anthropogenic loads which are point sources and includes permitted discharges, a mining or industrial point source, groundwater input/Non-Point Source, Runoff and Tributaries. Ms. Schaar said that DEQ is working on the methodology to calculate this and create a report that has ways to determine all of this. She reminded the workgroup that this is just a conceptual model and the flow chart will have text behind it. Once you subtract the anthropogenic loads you have what's called a nonanthropogenic load, which is the natural condition. Ms. Schaar said from this you can look at annual or seasonal loads and calculate a concentration from those loads. This is your nonanthropogenic condition, which then goes through Stakeholder Input, BER Approval and EPA Approval to Adopt Natural Criterion.

Ms. Schaar asked for questions. Ms. Peggy Trenk clarified that if for each criterion you'll have to go through the BER and EPA approval, not just the model. Ms. Schaar said yes, regarding the individual site specific criteria you have to go through BER and EPA each time. She said if the process used to develop the individual site specific criteria works really well, DEQ can develop that into a Site Specific Criterion Method (3rd flowchart) where you define a watershed and go through the same proven methodology for a specific parameter, but you need BER and EPA approval on the method, not the criterion. Ms. Schaar said once approved DEQ adopts the Site Specific Criterion Method and uses the approved process to calculate criterion. This can then be used to change a standard to a natural condition, which includes public participation afterwards. Ms. Schaar said that this method would be used on the pilot project/Madison to demonstrate that it works, and then do it exactly the same way on another watershed. She said this would only be approved for arsenic.

Ms. Trenk gave an example of going one time through the process with a parameter for a stream body. Then later for another stream body, Ms. Trenk wanted to confirm that you wouldn't have to go through the process but can get the number from the model. Ms. Myla Kelly said as long as DEQ can get the model approved, which isn't a total guarantee, but as long as EPA is completely comfortable with the process. Mr. Suplee added that the number could be completely different than the number on the other stream site. Ms. Schaar said this would essentially be the site specific criterion model BER would adopt and DEQ would run it through this process every time. Ms. Kelly clarified that there would be a model for each parameter. Ms. Schaar said this is the conceptual model for adopting criteria and also serves SB325 well if a stakeholder or permittee believes they have a natural condition; they can use this model and go through the process to demonstrate the natural condition. It would be the exact same process that DEQ does. Ms. Steinmetz said the models are specific to arsenic but DEQ would make the guidance that goes with it more general. Then as DEQ is able to adopt the site specific criterion method for different parameters, they would make each one specific and adopted into rule.

Mr. Adam Haight asked if Ms. Schaar could touch on the use attainability analysis (UAA) and how it interplays. He asked what would be a beneficial use change. Ms. Schaar said for arsenic the use is drinking water with conventional treatment and that on most of the river that has arsenic exceedances this use is protected. She said that DEQ is looking to change the use to arsenic limited where the beneficial uses are still protected it's just an arsenic limited area. Ms. Schaar added that in some areas conventional treatment may not be applicable, especially when arsenic concentrations are over 100 ug/L. This could mean a use change to arsenic super limited with specific treatment and would go along with the site specific criterion. Ms. Schaar said the interplay would change depending on the parameter.

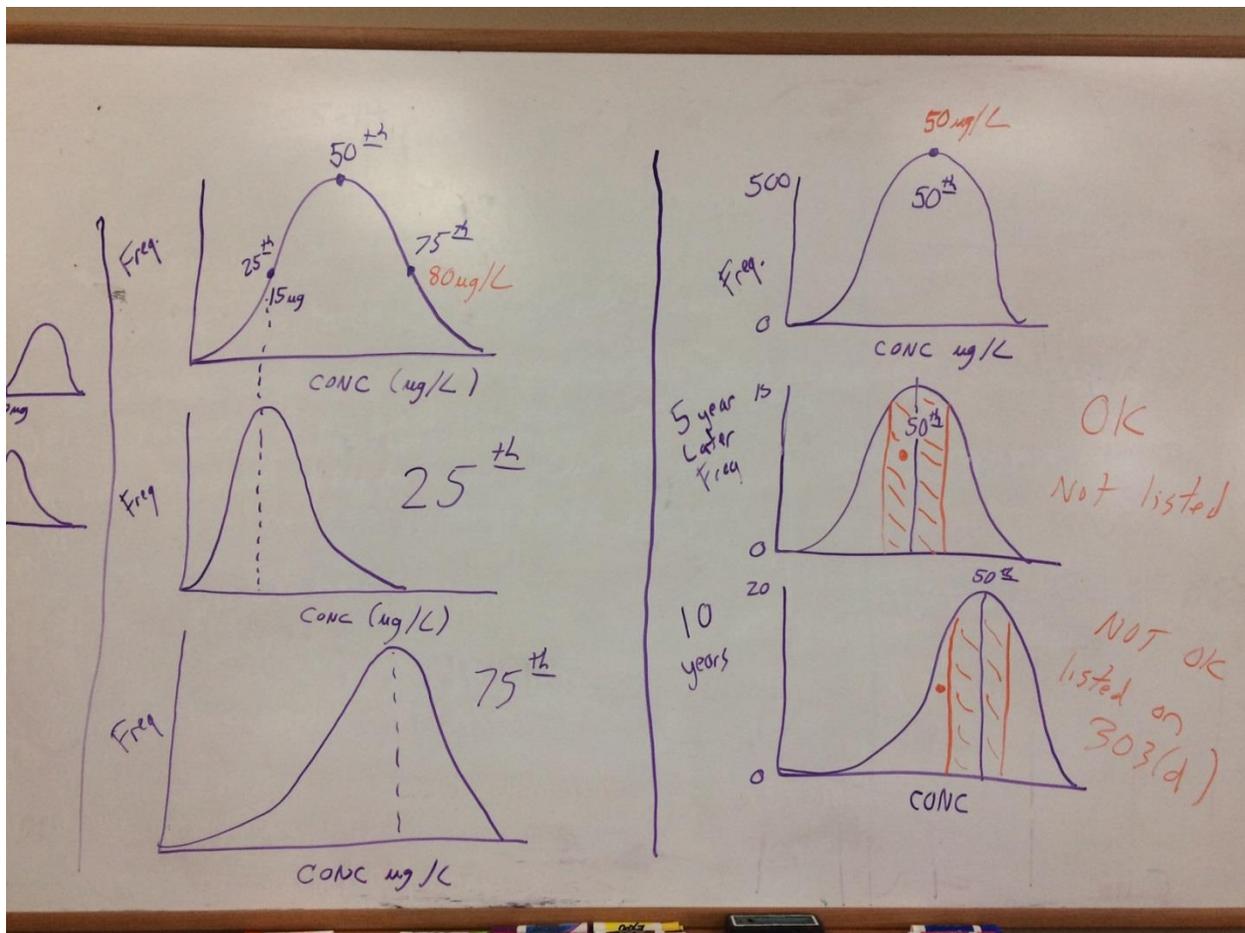
Ms. Schaar asked Mr. Suplee if he could think of a situation where the beneficial use would not be protected. Mr. Suplee brought up the example of iron and how in a small sub ecoregion had very high iron levels, above the 1000 ug/L. If for some reason DEQ were to adopt the local iron concentrations for that little zone the numbers are well above the dose-response type study effects showing that 1000 ug/L is what you need. Mr. Suplee said you have some kind of adapted aquatic life and in this circumstance the use might change to iron-limited aquatic life, for example. Ms. Trenk asked if this was so much a use change, to which Mr. Suplee said yes, that the criterion change accompanies it. He explained that in the absence of culling that out it's assumed that the water quality standards as found in DEQ-7 can be met. It's an exception for natural reasons.

Ms. Kelly said that as the workgroup moves forward, the concepts laid out at these meetings would be articulated in the guidance. She said the guidance will have it in writing, not just the flowcharts being shown in different sections. Ms. Kelly sees it dividing into 3 different sections, one being a very general concept of the process and using it with different parameters. The second section would ask; what is the exact method to use for arsenic? The final section would show how DEQ is using this method on a site specific example. Ms. Schaar added that this is applicable to everything DEQ is doing on the Madison and would be applicable to the Missouri and the Yellowstone. She said going forward they are keeping smaller streams and different portions of the Yellowstone in mind and how it translates in different areas. Ms. Schaar asked what happens when they get to an area where they don't have a lot of data, so DEQ is coming up with ways to calculate the appropriate minimum data set number. Ms. Trenk asked for the flow charts to be posted on the website in order to get other perspectives and feedback. Ms. Kelly said these will be posted and DEQ will start on the guidance document. Ms. Schaar also pointed out that currently DEQ is at the Subtract anthropogenic loads in the flow chart for the Madison, which is fairly far along and might be ready to present to the workgroup next month.

Ms. Steinmetz moved to the next item on the agenda which was Dr. Suplee talking about criterion selection and when certain situations may or may not work. Dr. Suplee started by covering how you pick a criterion after going through the anthropogenic demonstration: How do you choose the number? Dr. Suplee explained that what has been done is looking at the data collected (see the photo below), you will have some kind of distribution of data with the concentration on the x-axis in ug/L and how many data points there are on the y-axis. What is commonly done is people will select some number between the 25th percentile and the 75th percentile to become the new criterion that represents the natural condition, or anywhere in between. Dr. Suplee said these are the most common places where people start. He then asked: How do you pick which one? There are two ways to do this:

1. Think about what use will be affected by this change.
2. Think about what the implications are in the long term for the ones you pick.

Dr. Suplee thought the best way to explain this was to illustrate what a stream or a river might look like in the long haul if dischargers begin to move to the discharge at the concentrations as shown.



He gave the example of selecting the 25th percentile for the concentration (second drawing, first column). Dr. Suplee gave an example of 15 ug/L. He explained if there are a lot of dischargers who begin to discharge at this concentration, the data distribution will coalesce around the 25th percentile and the degree to which this will happen depends on the size of the stream, the number of dischargers, among other factors. Dr. Suplee said if you're in a big river like the Yellowstone the movement toward that direction will be minimal. But in a relatively small stream where the discharge is a significant proportion of the stream, it will move that way through time, up to 10 or 20 years later. Dr. Suplee moved to picking the 75th percentile, explaining the same thing will happen but move toward that direction (last drawing in the first column). The distribution will move and coalesce and become more concentrated around the 75th. Dr. Suplee told the workgroup these are the things that they, along with DEQ and EPA should think about when picking a number in this zone. He said there is the range that they often work in, that they don't work in the tails because even with a good size data set the numbers shift around a lot. The inner quartile range is quite stable over the long haul. Dr. Suplee said the implications of the number, through time, are greater in smaller waterbodies where the data will coalesce around the number that represents the percentile originally picked.

Ms. Kelly said that one thing that has not been discussed is if there would be any kind of revisiting clause; if they would need to relook at this data through this process every 10 or 20 years. If so and we pick the 75th percentile and look at it 10 years down the road and we choose the 75th percentile again,

she said we would be choosing a different number and it would be a higher concentration. Dr. Suplee agreed, but said the difference could be if this were the result from dischargers, DEQ wouldn't be looking at it this way. He said they would subtract out the anthropogenic and you can see if it shifted just because of natural reasons; for example climate change and getting lower water every year and less dilution.

Dr. Suplee next spoke about a tool that Colorado developed and DEQ has looked at. He said for whatever number they pick for arsenic, and gave the example of 80 ug/L, (first drawing, first column) this number goes into permits and there's no assimilative capacity and no degradation. Essentially, the discharger doesn't have to discharge at 10 anymore but their discharge at the end of the pipe is 80 ug/L. Dr. Suplee moved to the monitoring and assessment group, who goes out and decides if a stream is impaired and exceeds water quality standards. Dr. Suplee said they will do the following (1st drawing, 2nd column), starting with the same situation as in the 1st drawing, 1st column:

- For the criterion development, DEQ calculates a concentration based on the frequency distribution of the data that's natural (using arsenic for this example)
- A lot of samples (500 that DEQ is using)
- DEQ picks the 50th percentile as the standard, equal to 50 ug/L (for simplicity sake)

In 5 years (2nd drawing, 2nd column), Dr. Suplee said the monitoring and assessment people go out to the Yellowstone to assess the river. They would collect a much smaller data set (e.g. 15 samples) and also come up with a frequency distribution for their data and calculate a 50th percentile. They will want to know if it's 50 ug/L or not. It can bounce back and forth because of statistical noise, but DEQ can use a technique called a confidence interval (orange row) and you decide where this original number fits in this test data set that was collected a few years ago. If it lands in the orange row, it's ok and not listed on the 303d because it's within the confidence span on either side of the median.

Dr. Suplee's next scenario was in 10 years with monitoring and assessment going back and taking another small data set, again around 20 samples. (3rd drawing, 2nd column). But for this time, let's assume there is something that is human caused that has shifted the data to the right, moving the place of the 50th percentile with the confidence interval. Where does the originally adopted standard fit in the new distribution? It is now outside the orange row, making it not ok and listed on the 303(d) list as impaired for arsenic. The concentration has shifted with a known confidence beyond the median. Dr. Suplee said the nice thing about this process is that it doesn't have to be built exclusively on the 50th. It can be developed on any percentile in the whole distribution. Dr. Suplee gave another example, saying if for some weird reason it was decided the 60th percentile is the correct number for the standard, DEQ can build confidence intervals around the 60th percentile or anywhere in between.

Mr. Suplee thinks this is a really nice tool and avoids the problem they had in Colorado where they established a natural based number and when it was assessed five years later and find it's just over, so it's on the 303(d) list, and ten years later it's just under, so it's off the 303(d) list. They didn't consider that with a small data set it's going to jiggle around a little bit. Mr. Eric Urban asked about Dr. Suplee's example on the right and said it protects you from the example on the left ever occurring. He said you have an iterative process that you'll see if you're shifting the distribution, so you don't have to worry too much about which percentile and change in distribution. Dr. Suplee agreed, saying that over time it will be more around the 75th, but that you'll have to go way beyond the 75th for it to become a problem. He

said you can also control the width of the confidence interval. Ms. Schaar added that the confidence interval width varies depending on the new assessed dataset; the more data you have the narrower you can get the confidence interval. Dr. Suplee said yes, it's custom fit for each dataset.

Dr. Suplee summarized his discussion:

- There isn't a number picked, but DEQ has a place where they go to start thinking about a number.
- DEQ comes up with a number and they know how it's going to behave in permitting, it's very straightforward.
- In Monitoring and Assessment- going forward they don't have a number that will be constantly flip flopping on and off the 303(d) list.

Mr. Urban asked what happens if you pick something on the extreme ends, like in the scenario we're in today with arsenic where you have a standard of 10, which almost never occurs. Or you have the opposite, where you chose the standard outside of the distribution. Dr. Suplee said that DEQ is usually concerned with a lower confidence limit, so he believes if you pick 10 ug/L which doesn't occur very often and you have a lot of discharger discharging at 10ug/L through time the data will coalesce around 10. Dr. Suplee said this would be a little stream where it's effluent dominated. But he said it would do the same thing as the other cases. Dr. Suplee knows that the tool is best operated in the middle zone. Mr. Urban said that he was trying to make the point that in the Yellowstone it would be almost impossible to permit enough sources of arsenic to slide it. Dr. Suplee agreed. But that DEQ knows they are going to apply this in other places if the method gets approved, like smaller streams.

Ms. Schaar and Dr. Suplee discussed that it's possible that a scenario could arise in the future, even if a discharger is doing what they're supposed to do, where the distribution begins to shift because of climatic change. In a situation like this, the onus would be on DEQ to research the source of the shift and to re-calculate the criterion if appropriate.

Ms. Steinmetz noted caution on selecting something that's too high on the distribution is to be careful not to extend the exceedances further downstream because we have to protect downstream water quality standards. Ms. Kelly reminded the workgroup that this would be written up in the guidance. Ms. Schaar offered to present a real world scenario on a test data site.

Ms. Trenk said that as a member of the public with concern for the whole process, she wanted to know what to take away from Dr. Suplee's examples. Mr. Suplee said that depending on where the criterion is selected, and right now DEQ is assuming it will be in the inner quartile range between the 25th and 75th, the worst case scenario is that a small, highly effluent dominated stream down the road may be able to discharge at level higher in the distribution (like the 75th), and the resulting distribution may shift so that higher levels of arsenic will exist in the stream. Dr. Suplee said the other side is that once the number's picked we have a tool to make sure the stream is correctly assessed and if something goes awry DEQ will pick it up. He noted that if this happens and the permittees say they have been doing everything correctly and have the data to back that up, then it's possible that the natural condition has shifted and the onus is back on DEQ's standards group to fix that. Ms. Trenk said working through this process should all be transparent.

Ms. Steinmetz moved to the next agenda item of picking the first 2 meetings of 2017. She tentatively set some dates for January and February:

- Tuesday, January 17th 2:00pm
- Tuesday, February 21st 2:00pm

Mr. Tim Davis requested to avoid Monday, Wednesday and Friday afternoon during the legislature, which is when natural resources committees meet.

Ms. Steinmetz said that DEQ will get the flowcharts posted to the website and the minutes will include some graphics of what Dr. Suplee talked about with distribution and confidence intervals. Ms. Steinmetz will also work on the general part of the guidance. Also for the next meeting Ms. Schaar will talk about some preliminary suggestions and results for criteria and also examples of confidence intervals using real world test datasets. Ms. Kelly said that if DEQ gets a decent head start on the guidance they will try to distribute it before the next meeting.

The meeting adjourned at 3:06 pm.