

Groundwater Quality Rules

Revisions to NR 140

Bruce Rheineck

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Navigation bar with icons for back, forward, and a grid of participants. Names visible: Jim Zellmer, fossd, Bruce. A phone icon and the number 14142173342 are also present.



Zoom meeting control bar. From left to right: Unmute (muted), Start Video (video off), Invite, Participants (9), Share Screen, Chat (circled in red), Record, Reactions, and Leave Meeting.

Participants list window titled "Participants (9)". It includes a search bar "Find a participant" and a list of participants with their names and status icons (mute, video, chat). The "Raise Hand" button at the bottom right is circled in red.

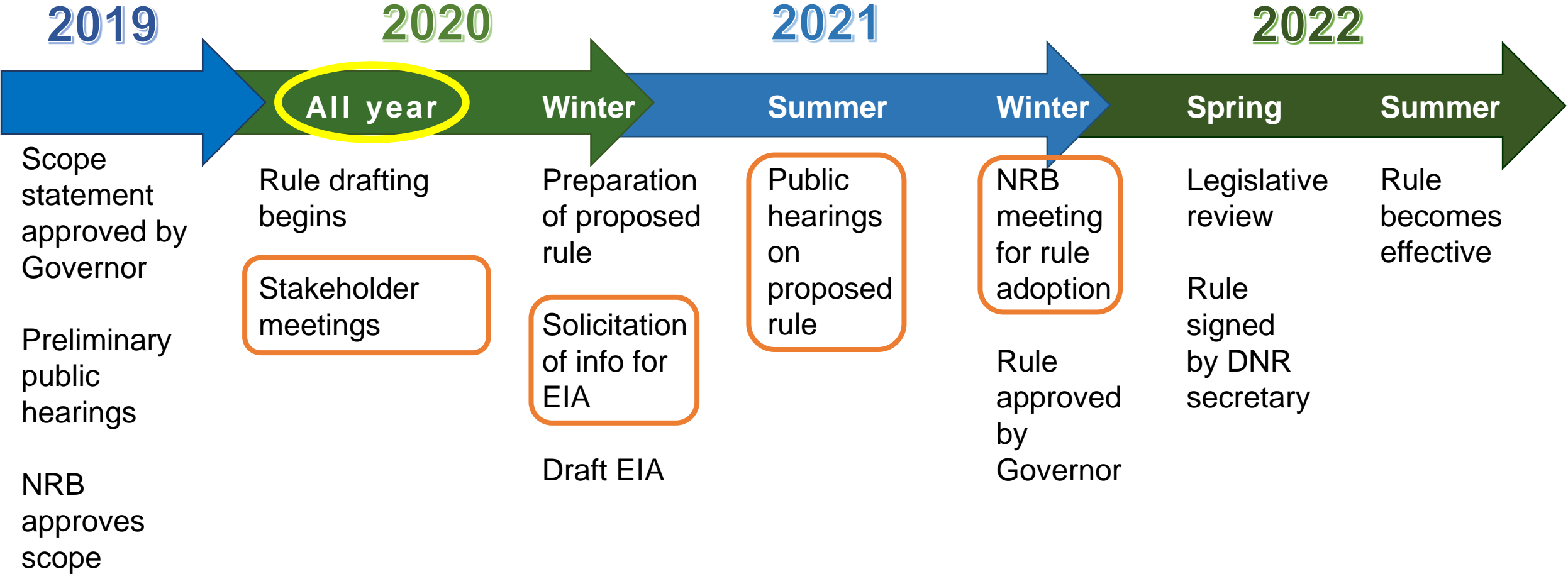
Name	Mute	Video	Chat
AD Adam DeWeese (Me)	Off	Off	Off
BJ Ben Jaster (Host)	On	On	On
JZ Jim Zellmer	Off	Off	Off
MW Meghan Williams	Off	Off	Off
F fossd	Off	Off	Off
BS Bart Sponseller	Off	Off	Off
B Bruce	Off	Off	Off
KM Kristi Minahan	Off	Off	Off
14142173342	Off	Off	Off



Today's Presentations

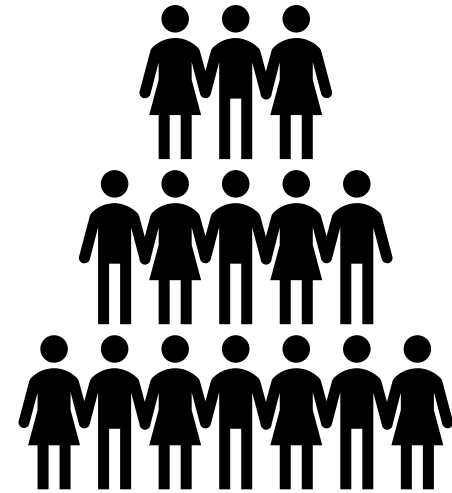
- Introduction – overview of rulemaking timeline
- Request for Metal/metalloid groundwater standards
- Basis for Recommended groundwater standards
- Comments

Rulemaking process and timeline



NR 140 Stakeholder meetings

- Information on upcoming meetings will be on the NR 140 update website.
 - [NR140 rule webpage](#)
- Formal comment period for draft rule will occur in 2021





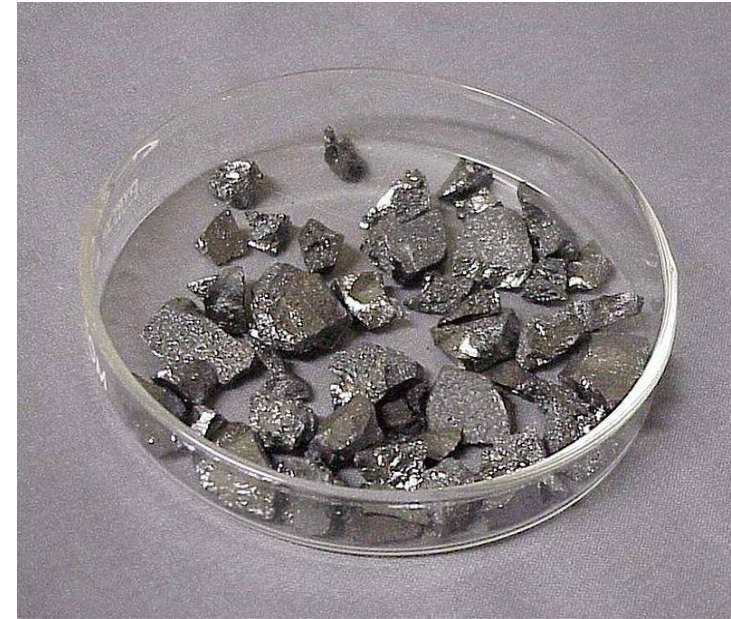
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NR 140 Stakeholder meetings

- Metals and Metalloids

- Hexavalent chromium
- Strontium
- Boron
- Molybdenum
- Aluminum
- Cobalt
- Barium



By James L Marshall - "Walking Tour of the Elements"

Cycle 10 Groundwater Quality Standard Revisions, June 9th, 2020



Philip Fauble, Beneficial Use Coordinator
Waste & Materials Management

NR 538 Wis. Adm. Code

The Beneficial Use of Industrial Byproducts rule (NR 538) was enacted in December of 1997:

- Established a streamlined approval process for the majority of beneficial uses of industrial byproducts by establishing standards for reuse.
- Intent is to ensure byproducts are legitimately and safely reused through testing and use standards.
- Existing standards were 22 years old; standards needed to be updated.

Appendix I

Rules require that industrial byproducts be tested for water leachability (ASTM-D3987) and compared to screening standards in Appendix I tables:

- The screening tables are based on the NR 140 PAL or ES values, sometimes with a multiplier
- The intent of the table values is to determine if use of a byproduct has the potential to cause a groundwater quality exceedance in certain uses especially if used as geotechnical fill
- If the byproduct has too much leaching potential, its uses will be limited

Code Revisions

Natural Resources Board authorized revisions to NR 538 on October, 2015

- The rule revision process required the formation of a technical advisory committee (TAC) from potentially affected parties.
- Over the course of 9 public TAC meetings, the DNR presented proposed rule language changes and discussed their merits.

Code Revisions

- At the December 8, 2016 meeting, the WI Utilities Association presented a recommendation for revised standards for aluminum, barium, boron, cobalt and molybdenum.
- The request was in the form of 5 “white papers” prepared by the consulting firm Haley & Aldrich which suggested alternate beneficial use baseline values for these parameters.
- Their Power Point presentation can be found at :
<https://dnr.wi.gov/topic/waste/documents/NR538/Presentation20161208-toxicology.pdf>

Focus of toxicological review

- Leachate standards for Aluminum, Barium, Boron, Cobalt and Molybdenum
- Reviewed existing toxicity values used in establishing the proposed NR 538 standards based on the Chapter NR 140 Groundwater Enforcement Standards (ES) which will be compared to ASTM water leach test results to assign beneficial use categories
- Conducted literature search of publically available toxicological data, reviews, and exposure factors to determine if more recent data has become available since WDHS ES derivations

Conclusion

- More scientifically valid toxicological studies and assessments are available for some constituents since the original ES were established
- Updated USEPA exposure factors and more applicable relative source contributions may be considered in the derivation of alternate beneficial use baseline values
- Constituent-specific adjustment factors to establish Category 2 standards may be considered based on the available data rather than using a 5 fold factor across all constituents

Follow-Up Actions

- After internal discussions, the Waste Program decided to keep the water leach screenings based on the NR 140 standards
- Offered WUA the option of sending their white paper findings to DHS as part of the Cycle 10 review; they agreed
- Some standards were updated; DHS recommendations have been incorporated into the NR 538 revisions (effective November 1, 2020)

Strontium

- Review was requested by the Waste Program separately from the NR 538 rule process
- Request was the result of the SE WI molybdenum groundwater studies which also found strontium
- Wanted to set some standards for strontium to help private well owners assess their water sample results

Questions?

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Questions or Comments

