



# NR 538 TAC: Proposed Code Changes, Appendix I

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# Appendix I, Table 1A

- Category 1, Water Leach Test
  - Set to NR 140 groundwater quality PAL limits
  - Preventative Action Limits (~10x less than the Enforcement Standards)
  - Cobalt added
  - Total Cyanide and Silver dropped
  - Some standard changes
  - Addition of FGD Gypsum and paper mill sludge





# Appendix I, Table 1A

- Table 1A Parameter Changes

- Standards are based on the s. NR 140.10, Table 1 and 2, Wis. Adm. Code Preventative Action Limit (PAL) values.
- Foundry sand parameters from Phase II Constituents of Concern per EPA Risk Assessment 530-R-14-003 (groundwater and ecological).
- Ferrous slag parameters from Charter Steel detects (2009-2014) in slag samples.
- Coal ash parameters from Appendix III and IV, 40 CFR 257 (CCR Rule) and Constituents of Concern for groundwater and surface water per EPA 530-R-14-001.
- Paper mill sludge parameters based on typical WPDES monitoring requirements for land spreading of conditioned sludge minus nutrients.
- Parameters for FGD gypsum based on values that were detected above Category 1 standards (2014 WE Energies).





# Appendix I, Table 1B

- Category 1, Total Elemental Analysis
  - U.S EPA risk-based screening level calculator
  - Removed silver and several PAH's
  - Sample for similar parameters as Table 1A
  - Note both increases and decreases based on calculations and new risk data
  - PAHs removed for coal ash (EPA, DNR data)





# Appendix I, Table 1B

- Screening Methods:

- The proposed standards are calculated using the U.S.EPA risk-based regional screening level web-calculator ([http://epa-prgs.omi.gov/cgi-bin/chemicals/csl\\_search](http://epa-prgs.omi.gov/cgi-bin/chemicals/csl_search)) utilizing the latest human toxicity values for each contaminant. Calculations were based on the default values in s. NR 720.12 Wis. Adm. Code, for soil direct-contact exposure in a residential (non-industrial) setting. The proposed standard for each contaminant is the least among the values calculated at a target cancer risk (TCR) of  $1e-6$ , at a non-cancer target hazard quotient (THQ) of 0.2 and, for volatiles, at its soil saturation index.

- 1996 –  $1 \times 10^{-7}$  at THQ of 0.2

- 2016 –  $1 \times 10^{-6}$  at THQ of 0.2

- NR 720 –  $1 \times 10^{-6}$  at THQ of 1.0





# Appendix I, Category 2 & 3

- ASTM Water Leach Test
  - NR 140 Enforcement Standards
  - Add cobalt and molybdenum
- Welfare standards (chloride, iron, sulfate, zinc) are 5x the ES in s. NR 140, Table 2, Wis. Adm. Code.
- Foundry sand parameters from Phase II COCs (EPA 530-R-14-003) for groundwater only.
- Ferrous slag from Charter Steel EAF slag (2009-2014) and Waupaca Foundry slag (3/23/2015) detects above Category 1.
- Coal ash parameter detects above Category 1 (WE Energies, various dates).
- FGD gypsum parameters from WE Energies, detects above Category 1, various dates
- Paper mill sludge parameters from Fox River Fibers, detects above Category 1, 4/14/2015





# Appendix I, Table 2B

- Total Elemental Analysis
  - Same parameters
- \*Arsenic is at the Background Threshold Value for non-outlier trace element maximum levels in WI surface soils from USGS Report 5202-2011 (s. NR 720 Wis. Adm. Code).
- All other values are Not-To-Exceed Direct Contact Residual Contaminant Levels (D-C RCLs) for a composite worker (industrial) setting from USEPA web-calculator (Chicago climate zone) and s. NR 720 Wis. Adm. Code.
- Table does not include contaminants whose Not-To-Exceed D-C RCL is at the ceiling limit concentration or default value (10% by weight) of 100,000 mg/kg.





# Appendix I, Category 4

- ASTM Water Leach Test
  - 5x ES for health 100x for welfare
  - Parameters based on historic data above Category 2





# New Table Concept

- New format – easier to follow?
- Category 3 has been removed/condensed
- Added Soil or Plant Additive/fully encapsulated embankment removed
- May add or change more later
- Based on concept of simplified re-characterization schedules





# Rule Language Changes

- NR 538.01 Purpose
  - Standards and practices have been established such that compliance with this chapter will not pose a reasonable probability of adverse effects on human health or the environment.
  - Mirrors U.S. EPA language





# Rule Language Changes

- NR 538.02(2), Note:
  - Landspreading regulations do not apply to industrial byproducts used as soil or plant additives or fertilizers under ch. ATCP 40.
- NR 538.03(2)
  - “Beneficial use” has the meaning specified in s. NR 500.03(19).
  - (“Beneficial use” or “beneficial reuse” means the utilization of a solid waste or an industrial byproduct in a productive manner)





# Rule Language Changes

- NR 538.03
  - “Flue gas desulfurization gypsum” means the material recovered from a lime or limestone-based reagent wet air pollution control scrubbing process that includes a forced oxidation system resulting in commercial grade calcium sulfate.
  - “Foundry sand” means silica-based molding and core sand used in the metal casting process. This includes foundry dry baghouse and wet collector sand fines collected during the metal casting process.





# Rule Language Changes

- NR 538.03

- “Impervious surface” means a barrier layer consisting of, at a minimum, 3 inches of asphalt or concrete, a clay capping layer constructed in accordance with s. NR 504.07(4), a geomembrane layer constructed in accordance with s. NR 504.07(5), or other impervious surface designs approved in writing by the department.
- "Industrial byproduct" means papermill sludge, ash from energy recovery including coal ash and slag, material captured in flue gas desulfurization systems, ferrous, ~~and~~ steel **and aluminum** foundry excess system sand and slag, lime kiln dust, or non-hazardous solid waste with similar characteristics as determined by the department. **To be considered under this definition, materials must have been generated as a byproduct of an industrial process and possess consistent physical and chemical properties. This definition does not include post-consumer waste or the byproducts of combusting or processing post-consumer waste.**





# Rule Language Changes

- NR 538.03

- “Productive manner” means any beneficial use of an industrial byproduct that:

- (a) provides a functional benefit,

- (b) substitutes for the use of a virgin material that must be otherwise obtained through practices such as extraction, and

- (c) meets relevant product specifications, regulatory or design standards when available, and not used in excess quantities.

- “Soil or plant additive” means a substance, intended for application to seeds, soil, or plants, that is designed for use or claimed to have value in promoting or sustaining plant growth, improving crop yield or quality, promoting or sustaining the fertility of the soil, or favorably modifying the structural, physical, or biological properties of the soil for agronomic or horticultural purposes in accordance with ch. ATCP 40, Subchapter III.





# Rule Language Changes

- NR538.03(10)
  - "Unconfined geotechnical fill" means a fill that is covered by native soils, gravel, crushed stone or other granular material provided it is necessary for the project purpose.



# Questions?

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