

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:

PROPOSED AMENDMENTS TO
GROUNDWATER QUALITY
(35 ILL. ADM. CODE 620)

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R2022-018
(Rulemaking - Public Water Supply)

NOTICE OF FILING

To: ALL PARTIES ON THE ATTACHED SERVICE LIST

PLEASE TAKE NOTICE that I have today electronically filed with the Office of the Clerk of the Illinois Pollution Control Board the attached **Dynegy's Index of Exhibits and Third Hearing Exhibits**, and a **Certificate of Service**, copies of which are hereby served upon you.

/s/ Sarah L. Lode

Sarah L. Lode

Dated: December 5, 2022

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DYNEGY'S INDEX OF EXHIBITS

Exhibit A Pre-filed Slides of Melinda Hahn

Exhibit B Pre-filed Slides of Lisa Yost

EXHIBIT A

TESTIMONY OF MELINDA HAHN

Regarding Proposed Amendments to
Groundwater Quality Criteria
(35 Ill. Adm. Code 620)

Before Illinois Pollution Control Board

December 7, 2022

Chicago, Illinois

RAMBOLL

Bright ideas.
Sustainable change.

Melinda Hahn, PhD Qualifications

Education

- B.S. in Physics, University of Texas at Austin, 1990
- B.S. in Mathematics, University of Texas at Austin, 1990
- Ph.D. in Environmental Engineering, The Johns Hopkins University, 1995

Experience and Expertise

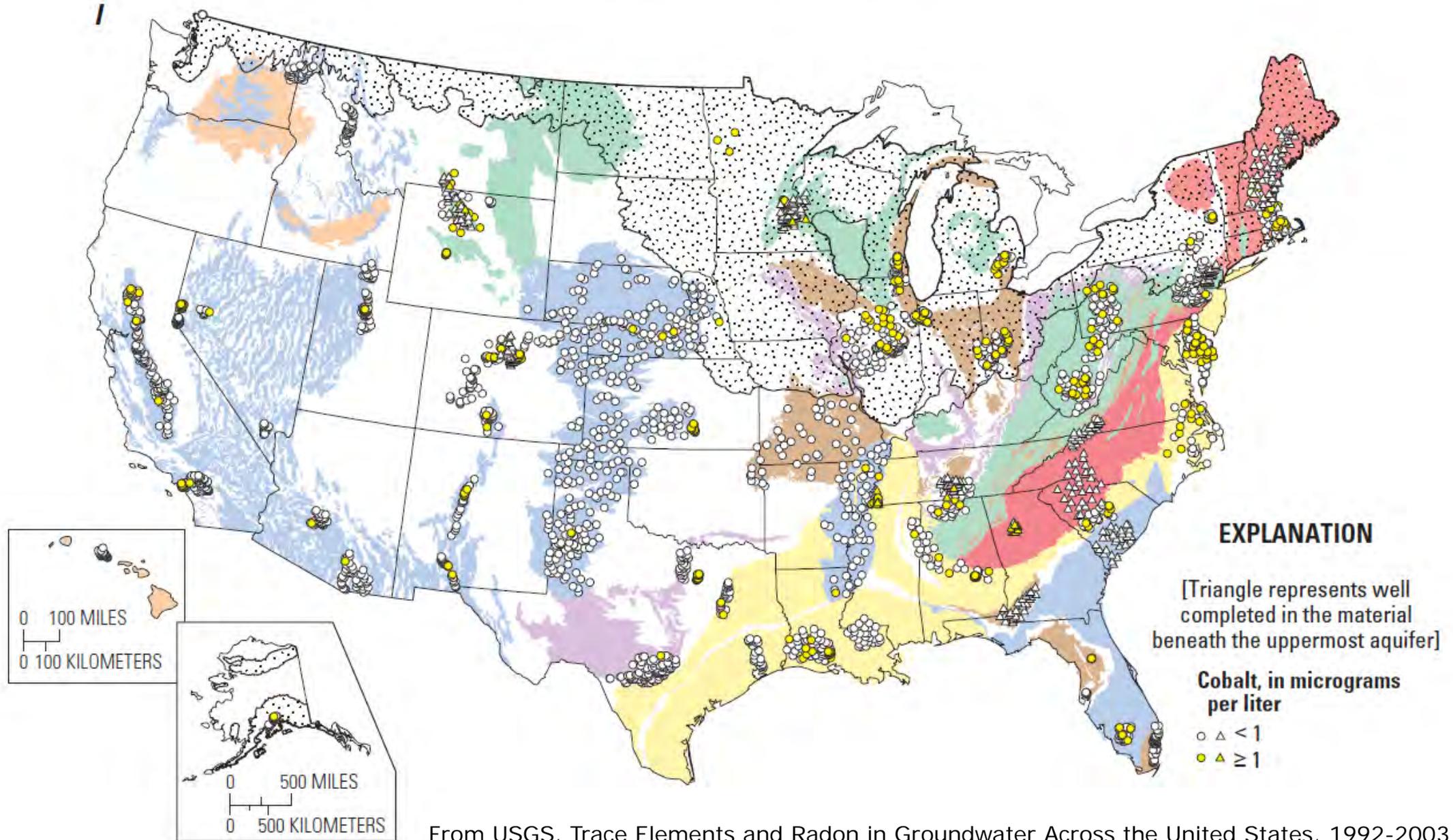
- 25 years in Environmental Consulting and Project Management
 - Site Investigation
 - Contaminant Fate and Transport, including Groundwater Flow and Contaminant Migration Modeling
 - Contaminant Fingerprinting
 - Site Remediation
 - Sectors: Energy, Manufacturing, Mining and Mineral Processing, Wood Treatment, Dry Cleaning

Part 620 Groundwater Standards Should Not be Set Below Background Levels

- Groundwater standards are used as remedial objectives or goals and are enforceable limits
- No requirement to remediate below background
- Actions/costs associated with groundwater samples above standards
 - Demonstration of consistency with background – well installation, sampling, analysis
 - Remediation
 - Deed restriction/lost valuation
 - Local ordinance, if one exists

Part 620 Groundwater Standards Should Not be Set Below Background Levels

- Burden falls onto property owners to make site-specific demonstrations
- IEPA/IPCB have access to USGS National Water Quality Assessment data and to unfiltered groundwater sample results reported to IEPA from project sites
- IEPA/IPCB can evaluate data, similar to the process for Part 742



USGS Database for Groundwater Quality - Illinois

Cobalt

- 24% of filtered groundwater samples exceed proposed Class I standard
- None of the unfiltered samples had reporting limits below the proposed Class I groundwater standard

Vanadium

- 55% of filtered groundwater samples exceed proposed Class I groundwater standard
- None of the unfiltered samples had reporting limits below the proposed Class I groundwater standard

Significant portions of the state will automatically be above the proposed limits and in danger of undergoing the economic and other burdens associated with proving exceedances are due to naturally occurring background

Elevated Reporting Limits for Unfiltered Groundwater Samples

The Class I groundwater standards should be above achievable laboratory reporting limits to avoid uncertainty regarding compliance and allow for practical application.

Compliance demonstration for cobalt and vanadium may not be possible for some samples even with low flow sampling procedures due to non-target analyte matrix interference that results in sample dilution and elevation of the reporting limit

The Board should set cobalt and vanadium standards based on background threshold values, which I estimate to be at 0.02 to 0.03 mg/L for both constituents

EXHIBIT B

TESTIMONY OF LISA YOST

Regarding Proposed Amendments to
Groundwater Quality Criteria
(35 Ill. Adm. Code 620)

Before Illinois Pollution Control Board

December 7, 2022

Chicago, Illinois

Credentials Ms. Yost, MPH, DABT

- Ms. Lisa Yost is a board-certified toxicologist with more than 30 years of experience assisting clients assessing human health risks related to exposure to a variety of chemical substances in environmental media
- She has conducted or supervised risk assessments under CERCLA, RCRA or state-led regulatory contexts
- Served on Technical Advisory Group providing input on selection of toxicity values as part of the Michigan: Part 201: Stakeholder Recommendations in Updating Michigan's Generic Cleanup Criteria for Michigan Department of Environment, Great Lakes, and Energy (EGLE)
- **Diplomate, American Board of Toxicology (DABT)** (certified in 1990; recertified in 1995, 2000, 2005, 2010, and 2015)
- **1980 Master of Public Health, Environmental and Industrial Health** University of Michigan, Ann Arbor, MI, United States
- **Professional Affiliations:**
 - Society of Toxicology
 - Northland Society of Toxicology
 - Invited Member and Chair, Advisory Counsel to the Minnesota Department of Health Environmental Tracking and Biomonitoring

- Proposed Class I and Class II of 0.02 mg/L for protection of forage crops irrigated with groundwater based on USEPA (1972) reference is not representative of Illinois:
 - Intended for continuous irrigation, or fine grained alkaline soils
 - The 0.02 mg/L value was recommended for fine grained alkaline soils “until greater information is obtained” reflecting uncertainty in this value
 - Locations where issues were identified are unlike Illinois agriculture: Oregon, Wyoming, New Zealand, and Denmark with a focus on “range plants”
 - Illinois agricultural resources identify a need for supplementation with selenium and do not identify issues with selenium in forage

Recommend maintaining current Class I and Class II standard of 0.05 mg/L for selenium, consistent with the MCL and livestock watering recommendation in USEPA (1972)

Fluoride

- Proposed Class I and Class II values of 2 mg/l for fluoride based on tooth mottling in livestock through drinking groundwater, a cosmetic dental effect:

“It appears, however, that as little as 2 mg/L may cause tooth mottling under some circumstances. *At least a several-fold increase in its concentration seems, however, required to produce other injurious effect.*” [USEPA 1972 emphasis added].

- Modification to address a cosmetic endpoint in livestock provides little benefit.

The current 4 mg/L Class I and Class II values are protective and are consistent with the enforceable MCL standard and is protective of livestock health

- The proposed Class I standard of 0.0019 mg/L is based on USEPA Integrated Risk Information System (IRIS) 1992 toxicity value derived from a flawed study in people (Koval'skiy et al. 1961) (e.g., issues with controls and measurement)
- More current analyses by ATSDR (2020) and European Chemical Agency (ECHA) rejected Koval'skiy et al. (1961) and relied on a study in rats (Murray et al. 2014)
- ECHA determined no adjustment was needed to use a subchronic study to evaluate chronic effects because there were no further effects with chronic exposure in NTP (1997)

RfD (mg/kg-day)	Study Basis	Resulting health-based value
0.005 (chronic)	Koval'skiy et al. (1961)	0.0019 mg/L
0.06 (intermediate)	Murray et al. (2014)	0.2 mg/L

- Class I standard of 0.2 mg/L is health protective.
- A groundwater molybdenum standard of 0.1 mg/L exists in Illinois in other regulatory contexts and the Board may wish to set a similar Class I standard for molybdenum.

Molybdenum Class II

- The proposed Class II standard of 0.050 mg/L is based on protection of animals foraging on crops irrigated with groundwater.
- Studies used as a basis for the proposed Class II molybdenum standard are not representative of Illinois agriculture
 - Molybdenum toxicity occurs primarily in the Western US, due to naturally occurring levels in soil and soil characteristics. Molybdenum is more readily absorbed in alkaline soils (Kaiser et al. (2005))
 - Illinois soils tend to be mildly acidic or neutral, while high salinity soils, mineralized soils and soils with a higher pH are more common in the Western US.

- Available evidence does not suggest the need for a standard to protect against this endpoint in Illinois.
- If a Class II standard for molybdenum is viewed as essential, it should be set no lower than 0.1 mg/L, consistent with other groundwater regulatory contexts in Illinois (see 35 Ill. Adm. Code § 845.600).

CERTIFICATE OF SERVICE

I, the undersigned, certify that on this 5th day of December, 2022, I have electronically served the attached **Dynegy's Index of Exhibits and Third Hearing Exhibits** upon the individuals on the attached service list. I further certify that my email address is Sarah.Lode@afslaw.com; the number of pages in the email transmission is 20; and the email transmission took place before 5:00 p.m.

/s/ Sarah L. Lode

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