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National Ground Water Association

Comments on

Centers for Disease Control and Prevention (CDC), Department of Health and Human Services

Proposed Data Collection Submitted for Public Comment and Recommendations titled “Assessment of Potential Exposure from Private Wells for Drinking Water”

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Date Submitted: November 18, 2019

Summary

The Centers for Disease Control and Prevention (CDC) invited public comment on a proposed information collection project titled “Assessment of Potential Exposure from Private Wells for Drinking Water.” The purpose of this generic information collection request is to assess the health risks associated with exposure to contaminants (i.e., arsenic and uranium) in drinking water from private wells across varied geographic areas of the United States in partnership with the requesting agency. The information obtained from these investigations will be used to describe health risks from exposure to the contaminants in drinking water from private wells within a defined time period and geographic distribution. This information will be used to inform public health protection activities conducted by the requesting agencies.

Comments of the National Ground Water Association

The National Ground Water Association reviewed the protocol and proposed questionnaire for the project to assess the potential exposure from private wells for drinking water. The NGWA appreciates the opportunity to provide input to this survey. The three NGWA reviewers have a combined experience of over 90 years in hydrogeology, environmental microbiology, drinking water supply protection and infrastructure surveys, with two reviewers having state licenses as professional geologists. The comments are presented first on the protocol (titled: Exposure to arsenic and uranium from private wells in Connecticut, New Hampshire and New Mexico) and then on the survey questionnaire (titled: Att1 Example Questionnaire 3-17-17 CLEAN) provided on October 15, 2019, by Dr.

Johnni H. Daniel of the Health Studies Section, Division of Environmental Health Science and Practice, National Center for Environmental Health, Centers for Disease Control and Prevention.

As an overall comment, NGWA is concerned about the sufficiency of attention to water well and chemical substance characteristics and information processes used to develop the survey. These characteristics information and processes significantly affect the questions asked, the responses, and the results of the survey. Insufficient knowledge of wells and their interaction with the surrounding environment on and under the ground and the associated data processes that were used to design the protocol and the questionnaire is very obvious to experts in the field of hydrogeology. This insufficient knowledge raises questions about the validity of the results that the Centers for Disease Control and Prevention would obtain from administering the survey questionnaire as proposed.

Protocol

- (1) More references supporting the survey are available than are listed and should have included citations for data collection at wells. For example, see Advisory Committee on Water Information, Subcommittee on Ground Water. 2013. A National Framework for Ground-Water Monitoring in the United States. https://acwi.gov/sogw/ngwmn_framework_report_july2013.pdf. Other data standards are also cited in this document for further reference.
- (2) Well logs, documents containing vital information on the history and stratigraphy of the well and the ground surrounding it, are not mentioned in the protocol but are vital to understanding the hydrogeology affecting the quality of the groundwater being drawn on by the wells being considered in the survey and assessment.
- (3) Prior to survey administration and in its development, an assessment of activities near the wells should be conducted to determine whether actions that could result in the presence of the contaminants of concern – arsenic and uranium – or the presence of bio-physico-chemical substances that could contribute to the occurrence of contaminants of concern may have taken place in the surveyed areas. A database search may be useful in conducting this assessment. Activities to search for may include:
 - a. Mining and mineral processing
 - b. Road salt application (CT, NH)
 - c. Chemical spills
 - d. Oilfield brine application to roadways for dust control (NM)
 - e. Other actions

As an example of our concern about other substances applied that could cause the release of uranium, monitoring in Delaware identified eleven groundwater-supplied water systems with wells between 75 and 450 feet deep receiving stormwater in their groundwater capture area to have statistically significant trends of increasing chloride. Four systems have radionuclide problems due to the high chloride concentrations. At current rates of increase, groundwater serving two systems will reach the 250 mg/L SMCL for chloride in about 10 years. With no suitable alternative sources of supply, these systems will need expensive treatment to remain viable. (Communication from Delaware Geological Survey, October 21, 2019)

- (4) While the USGS laboratories will analyze samples for arsenic and uranium and the CDC laboratory to analyze urine samples, the protocol does not cite the analytical methods to be used.
- (5) The protocol does not address sample collection procedures, particularly for well samples. Standard environmental sampling protocol should be followed.

- (6) Sample tests should run standard environmental sample tests, including general ion and chemical interactions.
- (7) The protocol should also state the level of data Quality Assurance and Quality Control (QA/QC) to be applied to the laboratory results and the statistical method to be used.
- (8) Regarding training the survey staff, it is not clear what “just-in-time” training is and how it contributes to a credible survey. We would expect survey staff to be trained in and have expertise in health surveys and analysis.
- (9) “Refused” should not be an accepted answer to any survey question. If the responder refuses to answer any question, the survey should be stopped or discarded and a new responder selected who will answer the questions.

Questionnaire

NGWA recommends inserting additional questions that will be provided below. Also, NGWA recommends that “pick lists” of potential responses to questions be used rather than open-ended questions. This latter approach facilitates both compiling and analyzing the results.

Recommendations for additional questions or their modifications will be presented by the question number.

Question/Recommended change or addition

10a – Do you have a well log describing the well, geology and site?

[A well log will provide the depth, age and stratigraphy of the borehole. It should also state what material the well casing is as the material could influence the presence of heavy metals.]

10b – How far from the well is the on-site wastewater system?

[Chemicals in the wastewater may become concentrated in the on-site wastewater system release area and if too close to the well may affect groundwater quality of the well.]

13a – Do you check for possible sources of potential contamination of your well around the area of the well? Yes No

13b – What sources of potential contamination did you find?

Fertilizer

Pesticide

Waste

List other contamination sources that may have arsenic or uranium exposure

Other (please describe)

13c – What did you do with the potential contamination source(s) (check all that apply)?

Applied to lawn

Put in trash

- Burned source
- Recycled through local recycling process
- List other contamination source disposal or recycle method(s)*
- Other (please describe)

20 – *The question should have check boxes listing the professions that may be associated with handling or use of arsenic and/or uranium. Alternatively, the question could be re-formulated as:*

Do you use radiation, pesticides, oil field brines or *[other substances or practices associated with arsenic or uranium]* in your work? Yes No

21 – e. Essential Oils *[these oils may include arsenic as an ingredient]*

22 – Do you engage in any of the following activities? Check all that apply.

- Ceramics
- Jewelry making
- Painting
- Stained glass assembly
- Smoking
- Application of pesticides
- List other activities that may have arsenic or uranium exposure*

26 – During the past year, have you been concerned/worried about the quantity of water your well provided for household uses for any of the following reasons (check all that apply)?

- Drought/dry season
- Low water pressure at tap
- Variable water flow at tap
- List other reasons associated with arsenic or uranium or the survey objectives.*
- Other (please describe)

27 – During the past year, have you ever been concerned/worried about the quality of your well water for any of the following reasons (check all that apply)?

- Strange Taste
- Odd Color
- Plants died

Slimy feel

Illness

Indigestion

List other reasons associated with arsenic or uranium or the survey objectives.

Other (please describe)

29a – Do you have the laboratory report for the last test results of your well water? Yes No

31a – Can you provide us with a copy of the last test results of your well water? Yes No

35 – What did you do in response to receiving the test results for your well water quality (check all that apply)?

Contacted health department

Stopped drinking or cooking with well water

Stopped bathing with well water

Used bottled water for drinking or cooking

Installed water filter or treatment system

List other possible actions.

Other (please describe)

Basis for the Interest of the National Ground Water Association (NGWA) in Exposure to Household Drinking Well Water

NGWA, the largest trade association and professional society of groundwater professionals in the world, represents over 10,000 groundwater professionals within the United States and internationally. NGWA represents four key sectors: scientists and engineers, employed by private industry, by the consulting community, by academic institutions, and by local, state, and federal governments, to assess groundwater quality, availability, and sustainability; water-well contractors responsible for developing and constructing water-well infrastructure for residential, commercial, and agricultural use; and the manufacturers and the suppliers responsible for manufacturing and providing the equipment needed to make groundwater development possible. NGWA's mission is to advocate for and support the responsible development, management, and use of groundwater.

Over 34 million people in the United States rely on private wells and 87 million are served by groundwater from community water systems. Seventy-one percent of groundwater withdrawn is for irrigated agriculture. Additionally, forty percent of baseflow of streams is contributed from groundwater discharge through streambeds.

NGWA views groundwater and the subsurface as significant natural resource that should be sustainably managed for current and future use. The subsurface environment should be considered from an

integrated resource perspective. The natural resources extant in the subsurface environment with proper management can provide fresh groundwater for drinking, industrial and manufacturing applications, food production, and ecosystem support.

Thank you for the opportunity to review this proposed survey and questionnaire. The National Ground Water Association is available for consultation on this proposed survey and/or its analysis.

For further information and followup, please contact:

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