

# **Exposure to Arsenic and Uranium in Private Well Water in Connecticut, New Mexico, and New Hampshire**

## **Assessment of Potential Exposure from Private Wells for Drinking Water Generic Information Collection Request**

**OMB Control No. 0920-1173**

**Expiration Date: 3/31/2020**

### **Supporting Statement Part B**

**June 2019**

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## B. Collections of Information Employing Statistical Methods

### B.1. Respondent Universe and Sampling Methods

We will create a grid over the identified geographic area for each state (referred to heretofore as “area”) and randomly choose cells from each grid. For each cell, we will work with our state partners to identify private well owners residing within the cells as well as their contact information. Assuming a 30%-50% recruitment rate based on previous U.S. Geological Survey (USGS) experience, we will contact approximately 200-300 randomly selected households per area to recruit one household per cell for a total of 100 households per area. From each enrolled household, we will collect well water and tap water samples to assess arsenic and uranium concentrations. We will also ask an adult from each household to provide a urine specimen to assess arsenic and uranium concentrations and respond to a short exposure survey.

**Table B.1.1.** Respondent sampling universe and corresponding sample

Sampling Universe	Corresponding Sample Size
Geographic area of interest defined by each state	300

### B.2. Procedures for the Collection of Information

This investigation will involve collecting information from respondents using a survey (Attachment G). USGS reports that they recruit about 30% to 50% of people who receive notification of an upcoming water quality study like this (personal communication, Joe Ayotte, May 2018). Thus, we will send out letters and prepaid postcards to the identified households in the 100 cells (approximately 200 – 300 households) in each state to recruit one household per cell for a total of 100 households per state. We anticipate that 40% of households receiving notification of our study will complete the Response form (part of the Screening form, Attachment C – Screening Survey) and send it back to us. We estimate that 80% of those who respond to our invitation letter will be eligible, and one adult from each household will self-select to respond to the survey.

Team members on any given investigation will be trained public health professionals and will include CDC staff, staff from state, or local, health agencies, and/or staff from USGS. Team members will be trained to administer questionnaires and collect appropriate environmental samples and/or clinical specimens. A code book will be created before the team goes into the field for an investigation. Data will be collected during an in-person interview using a laptop computer and survey software (Epi Info) with appropriate skip patterns built into the survey. All computerized files will be password-protected.

#### *Unusual problems requiring specialized sampling procedures*

CDC does not expect unusual problems requiring specialized sampling.

### B.3. Methods to Maximize Response Rates and Deal with Nonresponse

USGS reports that they recruit about 30% to 50% of people who receive notification of an upcoming water quality study like this (personal communication, Joe Ayotte, May 2018). Thus, we will send out letters and prepaid postcards to the identified households in the 100 cells (approximately 200 – 300 households) in each state to recruit one household per cell for a total of 100 households per state. We anticipate that 40% of households receiving notification of our study will complete the Response form and send it back to us. We will assess non-response bias by following up with households that do not complete the Response form and asking them to complete it or why they did not complete it. We estimate that 80% of those who respond to our invitation letter will be eligible.

### B.4. Tests of Procedures or Methods to be Undertaken

New Hampshire has an ongoing biomonitoring program that collects tap water samples, urine specimens, and questionnaire responses from their participants. We will use their data collection instruments (Survey and Food Log) as they have been approved by their Institutional Review Board and have been tested extensively in the field. They will be modified only by changing the insignia and contact information for each state partner if needed. The questions about bathing are from a previously approved study of arsenic exposure (Assessment of Exposure to Arsenic Through Household Water, OMB No. 0920-0472, Expiration Date 06/03/2003).

### B.5. Individuals Consulted on Statistical Aspects and Individuals Collecting and/or Analyzing Data

The investigators leading the data collection and analysis will be trained in biostatistics and epidemiology. Investigators will collaborate extensively with health officials of the agency throughout the process of data collection design, implementation, and analysis. All investigations will be supervised by CDC's experienced epidemiologists. Additional statistical resources will be available at CDC.

Because the investigations will not be research studies, data analysis will be largely descriptive. Statisticians will be consulted if sampling or a more complicated analysis is needed.

## List of Attachments

- A. Letters of Collaboration
- B. Invitation Letter
- C. Screening Survey
- D. Consent Form
- E. Food & Bathing Log

- F. Urine Collection Directions
- G. Survey
- H. Participant Results Letter
- I. Research Determination Form