

Peer Review Plan

Date: 2/6/2014

Source Center: U.S. Geological Survey (USGS)
St. Petersburg Coastal and Marine Science Center
600 4th Street South
St. Petersburg, FL 33701

Title: Anthrax and the geochemistry of soils in the contiguous United States.

Subject and Purpose: This report identifies geochemical tools to aid in anthrax outbreak and case investigations. Soil geochemical data from sample sites located in counties that reported cases or outbreaks of anthrax in wildlife and livestock since 2000 were evaluated against counties within the same States (MN, MT, ND, NV, OR, SD and TX) that did not report cases or outbreaks. These data identified the elements Ca, Mn, P and Sr as having strong positive correlations with cases and outbreaks. Threshold values based on the lowest geochemical concentrations of each of these elements (Ca = 0.43 wt. %, Mn = 144.0 ppm, P = 180.0 ppm and Sr = 51.4 ppm) and the lowest significant average correlation concentrations (Ca = 1.3 wt. %, Mn = 463.18.0 ppm, P = 580.83 ppm and Sr = 170.77 ppm) were identified as prospective investigative tools in determining whether an outbreak was 'potential' or 'probable' at any given geographic location in the contiguous United States. While these elemental threshold values are preliminary in nature, they present preliminary investigative tools that can be refined through future high-resolution studies and present a path forward for understanding the geochemical constraints of other pathogens. The report is authored by USGS and U.S. Environmental Protection Agency (EPA) scientists and will be submitted to *Science Magazine* for publication.

Impact of Dissemination: This product is considered by the USGS to be Influential Scientific Information.

Timing of Review (Including Deferrals): December 2013 – January 2014. Deferrals are not anticipated at this time.

Manner of Review, Selection of Reviewers, and Nomination Process: Review will be by individual letters and supporting documents. USGS will select the peer reviewers pursuant to requirements in Survey Manual chapter 502.3—Fundamental Science Practices: Peer Review (<http://www.usgs.gov/usgs-manual/500/502-3.html>). Additionally the report is being cleared through the EPA Homeland Security publications system.

Expected Number of Reviewers: Anticipate two peer reviewers.

Requisite Expertise: Microbiology and geologic-editorial.

Opportunity for Public Comment: No opportunity for public comment is formally incorporated for this product.

Agency Contact: peer_review_agenda@usgs.gov.