United States Department of the Interior

U.S. GEOLOGICAL SURVEY
Office of the Director
Reston, Virginia 20192

OCT 07 2016

The Honorable Louie Gohmert
Chairman, Subcommittee on Oversight and Investigations
Committee on Natural Resources
House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

Thank you for your letter dated September 23, 2016, requesting information related to two scientific integrity incidents that occurred at the U.S. Geological Survey (USGS) Energy Geochemistry Laboratory (EGL) Inorganic Section, which the USGS closed on March 1, 2016.

The USGS places the highest priority on the quality of our science. In response to these incidents we have taken and are continuing to take significant steps to enhance data quality assurance and quality control procedures. The Energy Resources Program (ERP) is developing a new, stronger Quality Management System (QMS) to replace current procedures; and, among other improvements, ERP established a permanent Quality Assurance manager, who will report directly to the ERP Program Coordinator, as well as two Quality Assurance Specialists who will oversee data quality in USGS Energy Science Centers in Reston, Virginia and Denver, Colorado.

The USGS promptly provided public notice of the initial incident of scientific misconduct once we understood the general extent of the misconduct. Your September 23, 2016 letter identified the announcement of the initial case of scientific misconduct on the ERP website as being posted in 2010. This notification was actually an April 10, 2010 update to the original announcement of the incident, which was posted on the ERP website on January 5, 2009. At all portions of the EGL, including the Inorganic Section prior to its closure, the Coordinator for the Laboratory Information Management System (LIMS) is responsible for maintaining the LIMS database and ensuring that all uploaded scientific data is retained. LIMS is a system for archiving data and quality control parameters for scientific data as well as tracking samples as they are received and processed by a lab.

The Department of the Interior (DOI) and USGS require robust Records Management and Scientific Integrity Training. The Federal Information Systems Security Awareness + Privacy and Records Management (FISSA+) training has been required since June 14, 2004 for all federal employees, pursuant to Federal Codes 5 CFR 930.301 and 36 CFR 1222.20. The purposes of that annual training is, in part, to ensure that employees can identify federal records and describe and implement best practices for federal records management. Since 2005, USGS employees have completed the FISSA+ training over 105,000 times, including 10,576 times during FY16 alone. Failure to complete the FISSA+ training results in a loss of internet and network access until training is successfully completed.

Scientific Integrity Training at USGS is required by a June, 2015 memo from USGS Director Kimball, in response to a March, 2015 memo from the Secretary of the Interior. The purpose of that training is to create a culture of scientific integrity, identify situations where scientific integrity may be at risk, define the roles and responsibilities of those who are obligated to uphold scientific integrity, ensure appropriate use and communication of scientific findings and data, and respond appropriately to potential violations of Departmental scientific integrity policy. All existing USGS employees were required to complete scientific integrity training by December 2015, and new employees are required to complete it within 90 days of employment at USGS. USGS Senior Executives, Science Center Directors and most scientists are required to renew their training every two years. In FY16, 94.97% of the 8,537 current USGS employees have completed Scientific Integrity Training.

The Office of the Inspector General (OIG) report[1] on the recent scientific integrity incident describes the procedures the analyst in question used to manipulate data. We have located and analyzed nearly all (greater than 95%) of the raw, unmodified data from the inductively coupled plasma mass spectrometer (ICP-MS), and have compared it to the reported, manipulated results. While the mechanics of manipulating the data are clear from this analysis, we have been unable to determine either the rationale for the data manipulation, or any consistent calculations that the analyst used in performing those data manipulations. Because the USGS does not have a document that would more adequately describe the former analysts' data manipulation, we would like to offer a briefing describing how ICP-MS data is produced and the ways that we have determined that it was manipulated.

We place great value in the scientific integrity of the USGS. To understand the impact of the incidents of misconduct at the EGL, the USGS has contacted customers of the Inorganic Lab and carefully undertaken a review of work products that could have made use of manipulated data. Fortunately, we have not identified instances where manipulated data was used to inform decision-making. The USGS is not aware of any federal or state statutes or regulations that were implemented based on data that was derived from the ERP Lakewood Laboratory's Inorganic Section during the time period in question. Likewise, you and your staff asked about an inquiry from the Arizona State Geologist into whether manipulated data was used in measuring environmental uranium levels in northern Arizona. As we have previously confirmed to the Arizona Geological Survey and your staff, no data from the Inorganic Section of the EGL was used in the 2010 USGS Scientific Investigations Report. Your letter also inquired about contracts or grants for projects undertaken by or affiliated with the EGL Inorganic Section. As a production lab, which provided chemical analysis for USGS employees and other outside groups on an as-needed basis, the Inorganic Section did not enter into those sorts of agreements. General information on the projects that made use of the Inorganic Section for the 2008-2014 period is available in the OIG Report (Appendix 2). We intend to supplement today's response with additional information. However, the intended

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[1] Office of Inspector General, U.S. Dep't of the Interior, Energy Resources Program, U.S. Geological Survey, 4 (May 13, 2015) *available at* https://www.doioig.gov/sites/doioig.gov/files/2016EAU010Public.pdf [hereinafter OIG Report]

use of analysis results (for example, if the customer was interested in uranium concentrations) was not necessary for, and therefore not collected prior to, the elemental analyses done by ICP-MS. Therefore, information regarding the use of ICP-MS for projects involving uranium analysis may not be available.

At the USGS, standard operating procedures (SOPs) are used in every laboratory throughout the Bureau, including the EGL Inorganic Section before its closure. Every scientific discipline has techniques and procedures that are unique to its particular arena of research, and correspondingly requires unique SOPs. Furthermore, different types of laboratories will have different SOPs depending on whether they work primarily on methods development and research activities, or whether they are production labs, such as the former Inorganic Section, which focus on a limited subset of specific and scripted procedures. As such, determining the efficacy of each of the SOPs at USGS in relation to the tasks performed will involve a unique set of criteria.

The building in which the EGL Inorganic Section was located, as communicated to your staff during previous briefings, was subject to swings in temperature and humidity. These sorts of problems are ongoing throughout the building where the EGL is housed, although that laboratory space did not experience many of the most egregious problems. This is a topic on which there has been much communication with the General Services Administration over a long period of time. Despite these environmental uncertainties, it has come to my attention that, for the vast majority of the time, ICP-MS analysis was possible, and indeed was performed successfully except when it was exceedingly hot and humid outside. Furthermore, there are internal standards to the ICP-MS machine used in these analyses that are put in place specifically to counteract the drift resulting from changing environmental (and other) conditions, which was mentioned previously as a potential contributing factor to the data manipulation.

Thank you again for your interest in this matter. We are working to compile potentially responsive information, and we intend to supplement this response on a rolling basis as responsive documents and information become available. We look forward to working with you and your staff to address your oversight interest in this matter.

Sincerely,

William H. Werkheiser
Deputy Director

Copy to: The Honorable Debbie Dingell, Ranking Member, Subcommittee on Oversight and Investigations, House Committee on Natural Resources.