

# Subcommittee on Oversight and Investigations

Louie Gohmert, Chairman

Hearing Memorandum

December 2, 2016

To: All Subcommittee on Oversight and Investigations Members

From: Majority Committee Staff, Subcommittee on Oversight & Investigations  
Sang Yi and Christopher Santini, 5-7107

Hearing: Oversight hearing titled “*Examining Decades of Data Manipulation at the United States Geological Survey*”

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The Subcommittee on Oversight and Investigations will hold an oversight hearing titled, “*Examining Decades of Data Manipulation at the United States Geological Survey*” on **December 6, 2016 at 10:00 a.m. in Room 1324 Longworth House Office Building**. The hearing will focus on the U.S. Geological Survey’s failures to prevent scientific misconduct and data manipulation for nearly two decades at the Energy Resources Program (ERP) Geochemistry Laboratory in Lakewood, Colorado.

## Overview

- Two consecutive cases of continuous scientific misconduct and data manipulation were exposed at the Inorganic Section of the U.S. Geological Survey (USGS) Energy Resources Program (ERP) Geochemistry Laboratory in Lakewood, Colorado between 1996 and 2014.<sup>1</sup>
- The two cases share similar facts of continuous, intentional data manipulation by USGS personnel and failures by ERP management to implement effective quality controls, allowing years of unchecked scientific misconduct.
- While USGS suffers a negative impact on its reputation due to its role in facilitating manipulated data to its customers, the motives behind the data manipulation and its impact on any resulting policy determinations or decisions remain uncertain.
- In response to the Subcommittee’s September 23, 2016 document request letter, the Department of the Interior (DOI) and USGS have provided full responses to seven of 30 different document requests. While 15 document request items are partially fulfilled, eight items remain completely unanswered.

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<sup>1</sup> Scientific Integrity Review Panel Report, *cited in* OFFICE OF INSPECTOR GENERAL, U.S. DEP’T OF THE INTERIOR, SCIENTIFIC INTEGRITY AT USGS ENERGY GEOCHEMISTRY LABORATORY, 4 (June 15, 2016) *available at* <https://www.doioig.gov/sites/doioig.gov/files/2016EAU010Public.pdf> [hereinafter OIG, SCIENTIFIC INTEGRITY INCIDENT 2016].

## Witnesses Invited

Mr. William Werkheiser\*  
Deputy Director  
U.S. Geological Survey  
Reston, VA

\*USGS Director Suzette Kimball was invited, but unavailable to attend

## Background

### *History of Nearly Two Decades of Data Manipulation*

The mission of the United States Geological Survey (USGS) is to “provid[e] reliable scientific information to describe and understand the Earth; minimize loss of life and property from natural disasters; manage water, biological, energy, and mineral resources; and enhance and protect our quality of life.”<sup>2</sup> The vision of USGS is to serve as a “world leader in the natural sciences through . . . scientific excellence . . . .”<sup>3</sup> To achieve its mission, USGS “collects, monitors, analyzes, and provides science about natural resource conditions, issues, and problems.”<sup>4</sup> USGS also “provide[s] impartial scientific information to resource managers, planners, and other customers.”<sup>5</sup>

Terms such as “reliable” and “impartial” scientific information and “scientific excellence,” are paramount to USGS’s identity **as the sole science agency for the Department of the Interior (DOI)**. The exposure of nearly two decades of scientific misconduct and data manipulation at the Inorganic Section of the USGS Energy Resources Program (ERP) Geochemistry Laboratory in Lakewood, Colorado, however, diminishes public trust and brings into question organizational integrity at USGS.

The first documented period of scientific misconduct at the Inorganic Laboratory occurred between 1996 and 2008 when a laboratory worker improperly adjusted raw data generated by a mass spectrometer,<sup>6</sup> and failed to retest samples as required.<sup>7</sup> The worker’s data manipulation resulted in analyses “outside of acceptable standards by more than 20 percent” in “25 to 30 percent of the samples.”<sup>8</sup> The errors were significant enough for ERP to “notify individual customers and publish a formal statement” to warn users of potential data inaccuracies.<sup>9</sup> ERP, however, failed to post the notice until 2010, **almost two years** after the

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<sup>2</sup> U.S. GEOLOGICAL SURVEY, WHO WE ARE, <https://www.usgs.gov/about/about-us/who-we-are> (last visited Dec. 1, 2016).

<sup>3</sup> *Id.*

<sup>4</sup> *Id.*

<sup>5</sup> *Id.*

<sup>6</sup> The laboratory mass spectrometer was used to identify the chemical composition of samples of water, coal, and rock to aid in further analyses and assessments.

<sup>7</sup> 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.doiioig.gov/sites/doiioig.gov/files/CREVGSV00032014PUBLIC.pdf> [hereinafter OIG, ENERGY RESOURCES PROGRAM 2015].

<sup>8</sup> *Id.*

<sup>9</sup> *Id.*

discovery of data manipulation.<sup>10</sup> After another two years, in 2012, ERP contracted an external audit of the Inorganic Laboratory’s quality control practices. The external auditor’s report identified 29 quality control process deficiencies,<sup>11</sup> which potentially contributed to more than a decade of undetected scientific misconduct.

Overlapping with aforementioned events, additional scientific misconduct occurred at the same inorganic lab between fiscal years (FYs) 2008 and 2014. While the two cases share similar facts of repetitive, intentional data manipulation by USGS personnel and weak quality management procedures that allowed them to continue for years, the USGS describes these as separate events.

In September 2015, nearly a year after the second occurrence was discovered, a DOI Scientific Integrity Review Panel determined that the laboratory’s line-chemist “**intentionally manipulated**” data derived from the Inorganic Laboratory’s mass spectrometer. The panel also noted that the laboratory demonstrated a “chronic pattern of scientific misconduct” in its operations.<sup>12</sup> The latter observation was reinforced by the DOI Office of Inspector General (OIG) in a June 2016 report, which summarized its investigation of the second case of chronic scientific misconduct at the Inorganic Laboratory. OIG noted that USGS employees had “suspected quality-related problems with the laboratory for many years,” which was a sentiment that was also shared by many in the scientific community.<sup>13</sup>

### *Major Challenges in Maintaining Scientific Integrity*

In 2009, a year after the first iteration of data manipulation was discovered, USGS convened an internal working group that was tasked with reviewing the laboratory’s Quality Assurance (QA)/Quality Control (QC) protocols, including the lab’s Quality Control Manual (QCM).<sup>14</sup> Prior to 2009, the laboratory lacked formalized QA/QC protocols and Standard Operating Procedures (SOPs).<sup>15</sup> QA/QC protocols are formal policies that are designed to ensure the quality of lab data and analyses. The USGS working group gave its overall approval of the laboratory’s QA/QC protocols but noted, “[i]t is clear that the labs will need to demonstrate a track record of high data quality, transparency and reasonable turnaround times to retain (or in some cases, gain) the confidence of ERP.”<sup>16</sup>

Following the USGS working group’s report, an outside agency performed an audit of the lab’s QA/QC protocols and SOPs in November 2012.<sup>17</sup> The outside agency concluded that the “laboratory has a great deal of work to do to bring technical operations up to a consistent level of

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<sup>10</sup> U.S. GEOLOGICAL SURVEY, NOTICE – QUALITY ASSURANCE UPDATE (Apr. 10, 2010) *available at* <http://energy.usgs.gov/GeochemistryGeophysics/GeochemistryLaboratories/QualityAssuranceUpdate2010.aspx>.

<sup>11</sup> OIG, ENERGY RESOURCES PROGRAM 2015, *supra* note 7, at 6.

<sup>12</sup> OIG, SCIENTIFIC INTEGRITY INCIDENT 2016, *supra* note 1, at 4.

<sup>13</sup> *Id.* at 6-7.

<sup>14</sup> Document 0021, 20160923-USGS-BATCH010-DOC0001-REC-20192.

<sup>15</sup> *Id.* at 5.

<sup>16</sup> *Id.* at 7.

<sup>17</sup> Document 0098, 20160923-USGS-BATCH020-DOC0002-REC-20192.

performance required for analytical laboratories,” and issued USGS 29 separate recommendations in its final report.<sup>18</sup>

However, pursuant to a May 13, 2015 report issued by the DOI OIG, the USGS ERP, including the Lakewood, Colorado USGS lab, still lacked a functional QA/QC system for its laboratories, despite being in existence for more than 20 years.<sup>19</sup> In addition, the OIG also noted that USGS failed to implement 11 of the recommendations outlined in the outside audit report and did not take others seriously, despite the fact that the report was issued after two separate instances of sustained data manipulation were discovered to have taken place at the lab.<sup>20</sup> During a September 2016 briefing to Subcommittee majority staff, USGS officials represented that a fully functional QA/QC program for the Denver Lab was still not finalized and that one would not be put into place until approximately June 2018.

### *Impacted Customers, Policies, and Reputation*

The overall impact to the Inorganic Laboratory’s customers during the period between 1996 and 2014 is difficult to measure, but undoubtedly significant. The following excerpt from an untitled document produced to the Subcommittee by USGS illustrates the potential breadth of the data manipulation’s impact:

After going through all jobs submitted by [the chemist at the Inorganic Laboratory] from October 1st 2007 until April 25th 2008 the QA/QC officer and the lab manager did not find a single job without data manipulation and QA/QC values that were out of limits. This amounts to over 2500+ samples.<sup>21</sup>

According to the OIG, the customers “most directly affected by the scientific integrity incident were the researchers who submitted samples to the Inorganic Laboratory for analysis. The incident . . . placed at risk the validity of the determinations and conclusions made by these scientists.”<sup>22</sup> USGS, however, wrote the Subcommittee that the agency has “not identified instances where manipulated data was used to inform decision-making.”<sup>23</sup>

Additionally, USGS claims that the agency 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.”<sup>24</sup> USGS provided no definitive response when asked by Subcommittee majority staff during a September 2016 briefing why nearly two decades of research was conducted in the Inorganic Laboratory if none of the data was used to inform decision-making.

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<sup>18</sup> *Id.* at 17.

<sup>19</sup> OIG, ENERGY RESOURCES PROGRAM 2015, *supra* note 7 at 4.

<sup>20</sup> *Id.* at 11.

<sup>21</sup> Document 0023, 20160923-USGS-BATCH013-DOC0001-REC-80225 at 1 (emphasis added).

<sup>22</sup> OIG, SCIENTIFIC INTEGRITY INCIDENT 2016, *supra* note 1, at 6.

<sup>23</sup> Letter from William H. Werkheiser, Deputy Dir., U.S. Geological Survey, to Rep. Louie Gohmert, Chairman, H. Comm. on Natural Resources Subcomm. on Oversight and Investigations (Oct. 7, 2016).

<sup>24</sup> *Id.*

USGS's inability to identify any instances where data from the Inorganic Laboratory between 1996 and 2014 was used to inform policies, management decisions, statutes, or regulations is particularly troubling given that the "end users [of the lab's data] [were] numerous and diverse."<sup>25</sup> ERP's publications could have been used by the general public, academia, industry, or by federal or state governments.<sup>26</sup> Based on the OIG's inspection, "ERP's strategic plan lists more than 200 specific customers, partners, and cooperators of the program."<sup>27</sup>

The damage to the USGS's reputation as an impartial and reliable scientific organization remains a concern. In the OIG's September 30, 2016 Semiannual Report to Congress, the OIG highlighted the permanent closure of the Inorganic Laboratory on February 25, 2016.<sup>28</sup> The OIG also reported that of the 16 scientists interviewed as part of the inspection, "all stated in strong terms that they would not use the laboratory, even if it reopened. Many cited the impact on scientific morale, the undermining of public trust in USGS, and the reduced confidence felt by collaborators in USGS-generated data."<sup>29</sup> Moreover, even after the lab's permanent closure, USGS "still had not informed its many stakeholders about the misconduct and how it may have impacted them."<sup>30</sup>

### *Transparency and Accountability*

In USGS's October 7, 2016 response letter to the Subcommittee, the agency wrote that it has "been unable to determine either the rationale for the data manipulation, or any consistent calculations that the analyst used in performing those data manipulations."<sup>31</sup> While the chemist involved in the first period of data manipulation from 1996 to 2008 was replaced by the second chemist who continued the practice of data manipulation from 2008 to 2014, it remains unclear if any significant adverse administrative actions were taken against either employee or supervisor.

After an initial letter from the Subcommittee to USGS on August 29, 2016 that requested the agency to preserve documents related to the matter, the Subcommittee majority staff received a briefing from USGS personnel on September 6, 2016. Based on the briefing, on September 23, 2016 the Subcommittee wrote USGS a document request letter specifying 30 different requests.<sup>32</sup> USGS responded to the Subcommittee's letter on November 8, 2016, more than one month past the deadline established in the document request letter, with 180 documents, of which 28 were duplicates. In total, only seven of the Subcommittee's 30 requests are fulfilled by the November 8, 2016 document production, while eight request items remain completely unanswered.

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<sup>25</sup> OIG, SCIENTIFIC INTEGRITY INCIDENT 2016, *supra* note 1, at 7.

<sup>26</sup> *Id.*

<sup>27</sup> *Id.*

<sup>28</sup> OFFICE OF INSPECTOR GENERAL, U.S. DEP'T OF THE INTERIOR, SEMIANNUAL REPORT TO CONGRESS FOR THE PERIOD ENDING SEPT. 30, 2016, 59-60 (Sept. 30, 2016) *available at* [https://www.doioig.gov/sites/doioig.gov/files/DOIOIG\\_October2016SemiannualReportToCongress.pdf](https://www.doioig.gov/sites/doioig.gov/files/DOIOIG_October2016SemiannualReportToCongress.pdf).

<sup>29</sup> *Id.*

<sup>30</sup> *Id.*

<sup>31</sup> Letter from William H. Werkheiser, Deputy Dir., *supra* note 23.

<sup>32</sup> Letter from Rep. Louie Gohmert, Chairman, H. Comm. on Natural Resources Subcomm. on Oversight and Investigations, to Suzette Kimball, Dir., U.S. Geological Survey (Sept. 23, 2016).

One of the eight completely unanswered items is a request for “[d]ocuments sufficient to show all adverse personnel actions, including reassignments, taken against any employees attributable to the scientific integrity incidents at the ERP Lakewood Laboratory’s Inorganic Section.”<sup>33</sup> Another unanswered request item includes “[a]ny and all USGS Employee Performance and Appraisal Plans (or equivalent) and personnel records for [both chemists involved in the two continuous data manipulation periods].”<sup>34</sup>

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<sup>33</sup> *Id.*

<sup>34</sup> *Id.*