OFFICE OF
INSPECTOR GENERAL
U.S.DEPARTMENT OF THE INTERIOR

OPPORTUNITIES EXIST TO STRENGTHEN COMPLIANCE WITH HEALTH AND SAFETY REQUIREMENTS AT THE GSTR LABORATORY

Report No.: 2016-WR-076 July 2017

OFFICE OF
INSPECTOR GENERAL
U.S. DEPARTMENT OF THE INTERIOR

Memorandum

JUL 0 5 2017

To: William Werkheiser
Acting Director, U.S. Geological Survey

From: Mary L. Kendall
Deputy Inspector General

Subject: Final Evaluation Report – Opportunities Exist To Strengthen Compliance With Health and Safety Requirements at the GSTR Laboratory
Report No. 2016-WR-076

This memorandum transmits the results of our evaluation of the U.S. Geological Survey's (USGS') compliance with health and safety requirements at the Geological Survey TRIGA Reactor (GSTR). We examined whether USGS managed the GSTR laboratory in accordance with established health and safety regulations and best practices.

We found that USGS did not manage the GSTR laboratory in accordance with established health and safety regulations. Specifically, we found incomplete job hazard analyses, insufficient accident and incident reporting, an outdated chemical inventory, unremedied program evaluation findings, and inconsistent self-audit safety questions. We make seven recommendations to address the noncompliance with USGS policies and procedures that allowed these circumstances to occur. Based on USGS' response to our draft report, we consider Recommendations 1, 2, 3, and 6 resolved and implemented; Recommendations 4 and 5 unresolved and not implemented; and Recommendation 7 resolved but not implemented. We will refer Recommendations 4, 5, and 7 to the Office of Policy, Management and Budget for resolution and implementation tracking.

If you have any questions regarding this memorandum or the subject report, please contact me at 202-208-5745.

The legislation creating the Office of Inspector General requires that we report to Congress semiannually on all audit, inspection, and evaluation reports issued; actions taken to implement our recommendations; and recommendations that have not been implemented.

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Results in Brief

Based on a request from the U.S. Geological Survey (USGS), we evaluated compliance with health and safety requirements at the Geological Survey TRIGA Reactor (GSTR) laboratory. This pool-type nuclear reactor is fueled by low-enriched uranium and used for scientific research, not power generation. Because of this design, the risk of a catastrophic failure or other incident is low. Nonpower reactors such as the GSTR are designed for research experiments on geologic, plant, and animal specimens.

Overall, we found that USGS does not manage the GSTR laboratory in accordance with established health and safety regulations. Specifically, we found incomplete job hazard analyses, insufficient accident and incident reporting, an outdated chemical inventory, unremedied program evaluation findings, and inconsistent self-audit safety questions.

We limited our review to compliance with health and safety regulations under the purview of the U.S. Department of the Interior (DOI) and USGS, from fiscal years 2013 to 2016. We consulted with the U.S. Department of Energy, the Occupational Safety and Health Administration, and the U.S. Nuclear Regulatory Commission and were able to rule out more serious health and safety issues.

Although concerns exist, GSTR management is aware of them and can correct them by taking action. We make seven recommendations to address the GSTR's noncompliance with DOI and USGS policy.

Introduction

Objective

The objective of our evaluation was to determine whether the U.S. Geological Survey (USGS) managed the Geological Survey TRIGA Reactor (GSTR) laboratory in accordance with established health and safety regulations and best practices, from fiscal year (FY) 2013 to FY 2016.

Our evaluation included two additional objectives focusing on security threats and clearance requirements for accessing the GSTR laboratory. We referred two security issues that we identified to the U.S. Department of the Interior's (DOI's) Office of Law Enforcement and Security. See Appendix 1 for our scope and methodology.

Background

USGS operates a TRIGA reactor[1] known as the GSTR, a pool-type nuclear reactor fueled by low-enriched uranium that is located at the Federal Center in Lakewood, CO (see Figure 1). The GSTR has been in operation since the late 1960s and is DOI's only reactor.

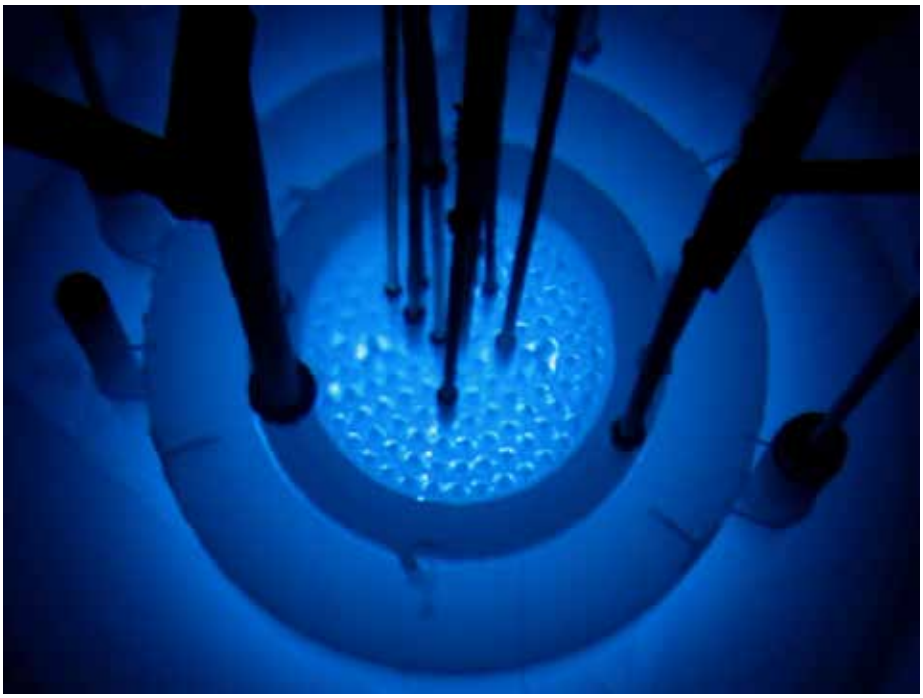

Figure 1. The Geological Survey TRIGA Reactor, located at the Federal Center in Denver, CO. Source: USGS, http://geology.cr.usgs.gov/facilities/gstr/index.html.

[1] TRIGA stands for a "training, research, isotope production, general atomics" reactor.

The GSTR is used for scientific research, not power generation. As such, the level of uranium enrichment and threats to safety are low. The unique design of TRIGA nonpower reactors makes them safe enough to be operated in universities by students. The risk is low for meltdown, contamination, and incidents.

The GSTR mission is to support USGS science by providing information on geologic, plant, and animal specimens. GSTR research experiments have analyzed soil from coral reefs, examined water samples from the Fukushima reactor accident in Japan, and determined the age and eruption risk of volcanoes in Oregon.

The U.S. Nuclear Regulatory Commission (NRC) regulates the reactor by issuing an operating license and performing compliance inspections; NRC does not, however, regulate the laboratory space that is colocated in the building and used for chemical handling tasks related to nuclear tests.

The USGS Occupational Safety and Health Management Branch (OSHMB) provides oversight of the laboratory. OSHMB conducts program evaluations every 3 years, in addition to external audits. In addition, the GSTR has a collateral duty safety program coordinator, who is required to perform periodic internal safety audits. During the scope of our review, the previous GSTR reactor manager was serving as the collateral duty safety program coordinator.

Findings

USGS does not manage the GSTR laboratory in accordance with established health and safety regulations and policies. We found—

- incomplete job hazard analyses;
- insufficient management of accident and incident reporting;
- use of an outdated chemical inventory;
- unremedied OSHMB health and safety findings; and
- inconsistent OSHMB self-audit questions.

These issues are policy violations and may lead to workplace injuries, workers' compensation claims, and lost productivity.

Job Hazard Analyses Were Not Completed for All Hazardous Jobs

We found that although the GSTR had completed job hazard analyses (JHAs) for certain activities, high-hazard situations existed without JHAs, including confined space entry. DOI and USGS policy require that JHAs be performed prior to any high-hazard activity to prevent unnecessary exposure to job-related hazards. The process of writing a JHA involves analyzing each of the job's steps or tasks to identify possible hazards, focusing on the relationship between the worker, the task, the tools, and the work environment.

USGS policy requires completion of a JHA for any job requiring entry into a confined space.[2] A certified safety and health manager from the General Services Administration determined that the GSTR has a confined space located outside the building, which is referred to as an exterior vault. GSTR employees access the space about once a month for maintenance-related activities. The certified safety and health manager recommended three safety improvements: safety extensions for the ladder, upgraded power outlets, and a buddy system for entry and exit. GSTR management had taken steps to address these recommendations, but without completing a JHA, other unidentified hazards may exist.

During our evaluation, we noted that the GSTR had two new JHAs for chemical handling activities, and we conducted a review of its chemical inventory and material safety data sheets (MSDSs). Issued by the chemical manufacturer, an MSDS contains information on the potential health effects of exposure to a particular chemical and guidance on safety procedures for handling chemical products. We identified four chemicals used in the GSTR laboratory for which the MSDSs recommend eyewash stations, yet the laboratory did not have an eyewash

[2] USGS policy defines a confined space as a work area that "has limited or restricted means for entry or exit, is not designed for continuous employee occupancy, has poor ventilation, could contain or retain hazardous atmosphere, or could pose an engulfment or entrapment hazard."

station. Although USGS does not require GSTR management to implement the recommendations in an MSDS, the JHAs for chemical handling should include a review of recommendations for personal protective equipment and other safety equipment from the MSDSs.

Without JHAs for high-hazard activities, employees may be exposed to increased health and safety risks.

Recommendations

We recommend that:

1. USGS ensure that JHAs are written for all high-hazard activities at the GSTR, including the confined space entry area; and

2. USGS ensure that JHAs for chemical handling at the GSTR include MSDS recommendations for personal protective equipment and other safety equipment.

GSTR Management Did Not Fully Report Accidents and Incidents

We found incomplete reporting in the Safety Management Information System (SMIS), which is the official system for reporting DOI-wide accidents and incidents. Specifically, the SMIS included two GSTR incident reports created between FYs 2013 and 2016, but employees told us about three incidents that should have been reported.

DOI policy defines reportable accidents as events resulting in "injury, illness, or loss of property" and reportable incidents as any "unplanned event involving departmental property, employees, volunteers, contractors, emergency fire fighters, the public or the environment that could have resulted in an injury, illness, or material loss but did not."

GSTR employees are required to write reports for NRC on contamination, irradiation, and other incidents, which are also included in quarterly reports to NRC. We found two incidents that had been included in NRC quarterly reporting but not entered into the SMIS, and one that was not entered into the SMIS until 2 years later. All incidents were below NRC radiation exposure limits but nonetheless should have been recorded in the SMIS because they qualified as incidents under DOI and USGS policy.

If workplace incidents and accidents are not reported in the SMIS, DOI and USGS safety managers may be unaware and unable to take corrective actions. In addition, GSTR management would be unable to implement preventative safety measures.

Recommendations

We recommend that:

3. USGS require all GSTR employees to review SMIS reporting requirements to ensure they understand DOI and USGS policy; and

4. USGS establish a process to reconcile the NRC reports to the SMIS to ensure that all accidents and incidents are reported in accordance with DOI and USGS policy.

The Chemical Inventory Was Not Current

We conducted judgmental testing of the GSTR laboratory's chemical inventory. We found a corrosive chemical in the laboratory that was not on the inventory list. In addition, we found a toxic chemical on the inventory list that we could not locate in the laboratory.

USGS policy states: "Current chemical inventories shall be maintained for all laboratories." In addition, USGS has a hazard communication policy that covers inventory requirements in more detail, which could be incorporated into the GSTR inventory. That policy states:

> A list of hazardous chemicals known to be present at each site shall be maintained and shall be periodically updated to reflect the chemicals at each site. The list shall include a product identifier that is referenced on the appropriate safety data sheet, the chemical name, chemical quantity/unit of measurement, location (building and room), chemical hazard classification, and the custodian name/telephone number.

In contrast, the GSTR inventory contains only the chemical name, hazard rating (for hazard classification purposes), and quantity. The GSTR currently requires the chemical inventory to be updated at least annually, but our findings suggest that a more frequent period may be warranted. An undetailed and outdated chemical inventory can result in unauthorized access to or misplacement of hazardous chemicals and does not identify hazards for GSTR staff and visitors.

Recommendation

We recommend that:

5. USGS establish a more frequent schedule to update the GSTR chemical inventory and ensure it includes for each chemical the location (building and room) and the custodian name/telephone number.

Findings From Past OSHMB Program Evaluations Were Unremedied

OSHMB's 2015 program evaluation included 13 findings, and the previous reactor manager closed 12 of the 13 findings without any evidence of appropriate corrective action being taken.

USGS policy requires OSHMB to conduct evaluations of each mission area every 3 years. The policy further requires the evaluated organization to prepare corrective actions to address deficiencies and findings within 60 calendar days. Program deficiencies are tracked quarterly at a minimum, with final abatement actions documented.

We found that OSHMB and the current reactor manager are working together to review the findings previously identified. Unremedied findings for health and safety issues increase the risk for accidents and incidents if GSTR management does not take action.

Recommendation

We recommend that:

6. USGS ensure that appropriate corrective actions are taken, including tracking and documenting final abatement actions, for the OSHMB program evaluation findings regarding the GSTR laboratory.

OSHMB Self-Audit Questions Needed Revision

We found inconsistencies in GSTR's self-audit questions for FYs 2013 – 2016. The questions selected for self-audit varied from year to year, and some questions were unclear or redundant.

USGS policy requires annual self-audits of safety and health responsibilities. The collateral duty safety program coordinator is responsible for identifying and selecting the GSTR self-audit questions, and then answering those questions, each year. Within the years we reviewed, the collateral duty safety program coordinator had answered some of the questions one year, but noted the same

questions as “not applicable” in a later year. When asked about these inconsistent responses, he explained that certain administrative changes made the terminology used in the questions invalid in the later year.

The self-audit questions are generated from a DOI database and originate from Occupational Safety and Health Administration regulations; some are unclear or redundant and therefore ineffective. As a best practice, questions should be relevant and consistent from year to year.

Because the collateral duty safety program coordinator may choose different questions from year to year, and because the language used in the questions may become outdated, the self-audit questions and answers have limited use or importance. Without clear and consistent questions from year to year, USGS cannot effectively track health and safety issues at the GSTR laboratory.

Recommendation

We recommend that:

7. USGS collaborate with OSHMB or DOI’s Office of Occupational Safety and Health to review, update, and standardize self-audit questions for the GSTR.

Conclusion and Recommendations

Conclusion

USGS did not manage the GSTR laboratory in accordance with established health and safety regulations and policies. The GSTR did not have job hazard analyses for all high-hazard jobs, sufficient accident and incident reporting in the SMIS, a current chemical inventory, remedied OSHMB findings, or consistent self-audit safety questions. As a result, these issues leave the GSTR laboratory in violation of DOI and USGS policy and may lead to workplace injuries, workers' compensation claims, and lost productivity. GSTR management needs to take a more proactive approach to ensuring compliance with established health and safety regulations.

Recommendations Summary

We issued a draft version of this report for USGS to review and respond to our findings and recommendations. USGS responses, along with our analysis, are summarized below. For the full text of the responses, see Appendix 2. Appendix 3 contains a table summarizing the current status of our recommendations.

We recommend that USGS:

1. Ensure that JHAs are written for all high-hazard activities at the GSTR, including the confined space entry area.

   USGS response: USGS concurred with our recommendation and has written JHAs for all high-hazard activities at the GSTR.

   OIG analysis: We consider this recommendation resolved and implemented.

2. Ensure that JHAs for chemical handling at the GSTR include MSDS recommendations for personal protective equipment and other safety equipment.

   USGS response: USGS concurred with our recommendation and has ensured that JHAs for all high-hazard activities at the GSTR include MSDS recommendations for personal protective equipment and other safety equipment.

   OIG analysis: We consider this recommendation resolved and implemented.

3. Require all GSTR employees to review SMIS reporting requirements to ensure they understand DOI and USGS policy.

   USGS response: USGS concurred with our recommendation and all GSTR employees have reviewed DOI and USGS policy.

   OIG analysis: We consider this recommendation resolved and implemented.

4. Establish a process to reconcile the NRC reports to the SMIS to ensure that all accidents and incidents are reported in accordance with DOI and USGS policy.

   USGS response: USGS' response did not address our finding or recommendation related to incomplete reporting in the SMIS. Although USGS stated that it includes such incidents in NRC quarterly reporting, we found two incidents that were not entered into the SMIS, and one that was not entered into the SMIS until 2 years later. We therefore concluded that USGS did not concur with our recommendation and has not established a process to reconcile the NRC reports to the SMIS.

   OIG analysis: We consider this recommendation unresolved and not implemented, and we will refer it to the Office of Policy, Management and Budget (PMB) for tracking of implementation.

5. Establish a more frequent schedule to update the GSTR chemical inventory and ensure it includes for each chemical the location (building and room) and the custodian name/telephone number.

   USGS response: USGS concurred with our recommendation and has updated the chemical inventory and will continue to update the inventory annually and when chemicals are used, received, or disposed of. USGS did not, however, establish a more frequent schedule (i.e., more than annual inventories) to update the GSTR chemical inventory.

   OIG analysis: Although USGS agreed to update the chemical inventory annually and on an as-needed basis, our findings suggested that a more frequent period may be warranted. We consider this recommendation unresolved and not implemented, and we will refer it to PMB for tracking of implementation.

6. Ensure that appropriate corrective actions are taken, including tracking and documenting final abatement actions, for the OSHMB program evaluation findings regarding the GSTR laboratory.

USGS response: USGS concurred with our recommendation and took corrective actions for all OSHMB program evaluation findings regarding the GSTR laboratory.

OIG analysis: We consider this recommendation resolved and implemented.

7. Collaborate with OSHMB or DOI's Office of Occupational Safety and Health to review, update, and standardize self-audit questions for the GSTR.

   USGS response: USGS concurred with our recommendation and is working with OSHMB and DOI's Office of Occupational Safety and Health to update the self-audit questions for the GSTR.

   OIG analysis: We consider this recommendation resolved but not implemented, and we will refer it to PMB for tracking of implementation.

Appendix 1: Scope and Methodology

Scope

The objective of our evaluation was to answer the following questions:

- Does the U.S. Geological Survey (USGS) manage the Geological Survey TRIGA Reactor (GSTR) laboratory in accordance with established health and safety regulations and best practices?
- Does USGS comply with Federal security clearance requirements for accessing the GSTR and related facilities?
- What is the security threat or risk of any unauthorized access to the facilities?

To answer these questions, we established baseline criteria from various Federal regulatory agencies and compared the criteria to observations and reports of GSTR practices. We researched USGS, U.S. Department of the Interior (DOI), U.S. Nuclear Regulatory Commission (NRC), and Occupational Safety and Health Administration (OSHA) health and safety regulations. In addition, we evaluated Federal security requirements for accessing the GSTR laboratory. We referred two security issues that we identified to DOI's Office of Law Enforcement and Security. We conducted our evaluation from August 2016 to December 2016.

We conducted this evaluation in accordance with the Quality Standards for Inspection and Evaluation as put forth by the Council of the Inspectors General on Integrity and Efficiency. We believe that the work performed provides a reasonable basis for our conclusion and recommendations.

We reviewed processes associated with safety and security incident reporting at USGS' GSTR facility. We did not review USGS' safety reporting system controls, as the primary objective of our review was to determine whether USGS had appropriately documented incidents occurring in the lab. We relied on computer-generated data provided by USGS, but our scope did not include verifying the data.

Methodology

To accomplish the evaluation's objective, we—

- gathered background information on the GSTR laboratory through prior reports, including those from USGS, NRC, and OSHA;
- identified and reviewed NRC, OSHA, and departmental and bureau policies related to health and safety;
- identified and reviewed laws related to the GSTR;

- obtained and reviewed past safety inspections from USGS, NRC, and OSHA;
- obtained and reviewed two job hazard analyses on chemical handling;
- obtained and reviewed a memorandum of understanding between USGS and the Colorado School of Mines;
- visited the GSTR and physically observed the identified confined space, the personal protective equipment and safety equipment in GSTR's possession, chemicals contained in the laboratory, and safety and security procedures for entering the facility;
- interviewed officials from USGS, NRC, OSHA, General Services Administration, Federal Protective Service (FPS), and the U.S. Department of Energy's Office of Inspector General;
- obtained and reviewed incident reports from the Safety Management Information System (SMIS) from fiscal years 2013 to 2016 and conducted interviews to determine whether any incidents had not been reported in SMIS;
- obtained and reviewed the FPS' February 2016 facility security assessment;
- obtained and reviewed the GSTR Chemical Hygiene Plan, including the chemical inventory;
- tested the inventory by selecting chemicals to test based on high-hazard ratings (per the Hazardous Materials Identification System), as well as chemicals we were told in interviews pose a hazard to personnel; and
- reviewed a sample of material safety data sheets for personal protective equipment recommendations for selected inventoried chemicals.

Appendix 2: Response to Draft Report

The U.S. Geological Survey's response to our draft report follows on page 15.

All response attachments have been reviewed, included in the assignment's working papers, and shared with the Department.

United States Department of the Interior

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

MAY 15 2017

Memorandum

To: Mary L. Kendall
Deputy Inspector General

Through: Principal Deputy Assistant Secretary for Water and Science

From: William H. Werkheiser, Acting Director

Subject: Office of the Inspector General (OIG) Draft Evaluation Report – Opportunities Exist to Strengthen Compliance with Health and Safety Requirements at the GSTR Laboratory, Report No. 2016-WR-076

In the subject report, dated April 5, 2017, the Department of the Interior (DOI), OIG, made seven recommendations to the U.S. Geological Survey's (USGS) TRIGA Reactor (GSTR) Laboratory. The OIG found that the USGS did not manage the GSTR Laboratory in accordance with established health and safety regulations. Specifically, they found incomplete job hazard analyses, insufficient accident and incident reporting, an outdated chemical inventory, un-remedied program evaluation findings, and inconsistent self-audit safety questions.

Recommendation 1. Ensure that Job Hazard Analyses (JHA) are written for all high-hazard activities at the GSTR, including the confined space entry area.

Response: JHAs have been written for all high-hazard activities at the GSTR. (See attached 7 JHAs).

Target Date: Closed

Responsible Official: Vito Nuccio, Associate Program Coordinator Energy Resources (303) 236-1654 or vnuccio@usgs.gov.

Recommendation 2. Ensure that JHAs for chemical handling at the GSTR include Material Safety Data Sheet (MSDS) recommendations for personal protective equipment and other safety equipment.

Response: All JHAs written for high-hazard activities at the GSTR include MSDS recommendations for personal protective equipment and other safety equipment. (See attached 7 JHAs).

Target Date: Closed

Responsible Official: Vito Nuccio, Associate Program Coordinator Energy Resources (303) 236-1654 or vnuccio@usgs.gov.

Recommendation 3: Require all GSTR employees to review Safety Management Information System (SMIS), reporting requirements to ensure they understand DOI and USGS policy.

Response: GSTR employees have been involved in multiple group discussions regarding the SMIS reporting requirements. Additionally, all GSTR employees have reviewed U.S. Geological Survey Manual (USGS SM) 445-2-H, Chapter 7 "Accident/Incident Reporting and Serious Accident Investigation." (See attached email receipts of acknowledgement).

Target Date: Closed

Responsible Official: Vito Nuccio, Associate Program Coordinator Energy Resources (303) 236-1654 or vnuccio@usgs.gov.

Recommendation 4: Establish a process to reconcile the Nuclear Regulatory Commission (NRC) reports to the SMIS to ensure that all accidents and incidents are reported in accordance with DOI and USGS policy.

Response: The "NRC reports" in question are memos written by the Reactor Health Physicist (HP) to "The Record" on an ad hoc basis, as a record of events that are unusual in nature. There is a requirement from the NRC to write quarterly reports detailing the results of any routine or non-routine air, water, personnel, or environmental monitoring performed. In the case of the GSTR, these reports are written from the Reactor HP to the Reactor Supervisor. The "NRC reports" or memos in question are included as supplemental attachments to these standard quarterly reports. The quarterly reports (along with the memos) are reviewed during our annual NRC inspection at the discretion of the inspector, and they are always reviewed by our Reactor Operations Committee during biannual meetings. The types of events recorded may or may not constitute an accident or incident as defined in SM 445-2-H, Chapter 7. All accidents and incidents appropriate for reporting within the SIMS are done so in accordance with DOI and USGS policy. (See attached email receipts of acknowledgement).

Target Date: Closed

Responsible Official: Vito Nuccio, Associate Program Coordinator Energy Resources (303) 236-1654 or vnuccio@usgs.gov.

Recommendation 5: Establish a more frequent schedule to update the GSTR chemical inventory and ensure it includes for each chemical the location (building and room) and the custodian name/telephone number.

Response: The GSTR chemical inventory has been updated and will be reviewed annually and/or updated as needed when chemicals are used, received, or disposed of. (See attached current Chemical Hygiene Plan).

Target Date: Closed

Responsible Official: Vito Nuccio, Associate Program Coordinator Energy Resources (303) 236-1654 or vnuccio@usgs.gov.

Recommendation 6: Ensure that appropriate corrective actions are taken, including tracking and documenting final abatement actions, for the Occupational Safety and Health Management Branch (OSHMB) program evaluation findings regarding the GSTR laboratory.

Response: Appropriate corrective actions have been taken for all USGS OSHMB program evaluation findings regarding the GSTR laboratory. (See attached certification from OSHMB official).

Target Date: Closed

Responsible Official: Vito Nuccio, Associate Program Coordinator Energy Resources (303) 236-1654 or vnuccio@usgs.gov.

Recommendation 7: Collaborate with OSHMB or DOI's Office of Occupational Safety and Health to review, update, and standardize self-audit questions for the GSTR.

Response: The DOI-hosted Inspection and Abatement System (IAS) has 38 compliance topics, e.g., radiation, confined spaces, laboratory safety, protective equipment, etc., and 339 mandatory and 176 optional assessment questions associated with those topics. The IAS system was designed to provide USGS collateral duty safety program coordinators flexibility in identifying compliance topics applicable to their organization's activities and operations to produce a tailored audit consisting of standardized questions under each topic to answer annually. Each question has web links to the OSHA standard or DOI/USGS policy requiring compliance and a "HELP" link detailing additional definitions or information about the question.

To ensure clarity and pertinence of the self-inspection questions, the OSHMB periodically reviews and updates the content of all self-inspection questions under a compliance topic. The OSHMB sent all IAS questions out to the Regional Safety Managers and Mission Area Points of Contact on March 10, 2017 asking for their review and to provide suggested changes no later than April 10, 2017. Suggested modifications will be made as appropriate within IAS by the end of the 3rd Quarter, fiscal year 2017.

Target Date: June 30, 2017

Responsible Official: David Choiniere. Reston Section Chief, OSHMB, (703) 648-7553 or dchoiniere@usgs.gov.

Attachments

Appendix 3: Status of Recommendations

Recommendation	Status	Action Required
1, 2, 3, and 6	Resolved and implemented	No further action is required.
4 and 5	Unresolved	We will refer these recommendations to the Assistant Secretary for Policy, Management and Budget to track their resolution and implementation.
7	Resolved but not implemented	We will refer this recommendation to the Assistant Secretary for Policy, Management and Budget to track its implementation.

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