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SUBJECT: Addendum to the Report of Investigation INV202300001 for the Administrative Investigation of the Beltsville Agricultural Research Center (BARC)

On March 29, 2024, the U.S. Department of Agriculture (USDA) submitted a report detailing the findings of an administrative investigation into accepted whistleblower disclosures concerning the Agricultural Research Service (ARS), Beltsville Agricultural Research Center (BARC) facility that had been referred to the Department by the U.S. Office of Special Counsel (OSC) – i.e., OSC File Nos. DI-23-000706, -000708, and -000719. A multi-disciplinary team led by the USDA Forest Service (FS) and Departmental Administration's Office of Human Resource Management (OHRM) conducted the investigation into the whistleblowers' claims that BARC leadership had failed to properly maintain facilities, resulting in an unsafe work environment and improper handling of research. On September 5, 2024, OSC requested that USDA clarify its findings concerning *Allegation #3* in which the whistleblowers alleged that [BARC's] "unsafe and deteriorating conditions have resulted in the loss and improper handling of scientific equipment, research, and data."

The initial Report of Investigation, dated March 25, 2024, provided multiple examples within the section addressing *Allegation #3* where equipment, research, and data had seemingly been negatively impacted by conditions within specific buildings at BARC (Ex. 37-7,8,9,20,23). It was clear that the physical condition of numerous facilities has damaged scientific equipment, derailed and delayed research studies, and resulted in increased costs to research operations at BARC. Whereas the investigative team (Team) substantiated negative impact to the research process due to unsafe and deteriorating facility conditions, we were not able to substantiate a quantifiable loss of scientific data or research that was permanent and irretrievable. It is common protocol in laboratory research environments to build redundancy into research projects and studies including replicating samples and data to provide backup to sampling and information. Such redundancy of existing samples and data, even with the loss of some samples, enables the research projects to continue. As such, the Team placed particular emphasis on defining the word

'loss" as equating or being synonymous to an irretrievable or permanent unavailability data occurrence.

Despite employing a consistent line of questioning attempting to elicit dispositive information concerning *Allegation #3* throughout all interviews conducted, BARC and NEA officials – including scientific, administrative, and facilities staff – were not able to provide artifacts reflecting direct and quantifiable occurrences of irretrievable loss of data due to facility conditions. When loss of data and/or equipment was acknowledged or inferred in referenced memorandums of conversation and exhibits, it was subsequently determined that the perceived "loss" was typically retrieved due to either data backups and redundancy or the ability to shift work to other existing similar equipment or laboratory environments. Aging equipment that staff believed was lost to lapsed or insufficient maintenance was anecdotal and no independent review by the Team was possible that could substantiate that such alleged loss was caused by a specific event in the facility or action/inaction by leadership or management.

Additional Explanation on Provided Examples:

- The Acting BARC Center Director (Ex. 37-7) acknowledged that an undated incident of a lack of power caused animals to be too cold and therefore unusable for data collection; the nuance of our position is that this event did not constitute irretrievable loss of data, but rather a loss or compromise of the ability to collect data in that event.

- The Acting BARC Assistant Director (Ex. 37-9) stated that he lost equipment due to excessive heat, but was always able to salvage the contents, so research materials were not lost. Also, it was not possible to substantiate that the alleged excessive seasonal heat was the cause of the failure of the equipment. It was acknowledged that the cold boxes "have not worked properly for years" and from visual inspection by the Team, the units were several decades old. It was not possible to determine the level of preventative maintenance performed (if any) on the cold boxes over their life, and preventative maintenance responsibility in a research organization commonly falls to a mix of scientists, research staff, facilities maintenance, and leadership/administrative personnel. Without knowing the history of the maintenance of the cold boxes, we could not substantiate that the alleged excessive heat was the sole cause of the equipment loss.

- The Research Leader (Ex. 37-20) spoke of research being lost or damaged because of contracting problems, heating and cooling system failures, and power outages. However, he consistently maintained that his research was more negatively impacted by poor contracting than facility deficiencies. Further, he was not able to provide any information or artifacts about lost samples or data that could not be retrieved from redundant sources.

- The NEA Director stated (Ex. 37-23) that there was a concern that research progress was definitely impacted as insect colonies had to be moved following the Building 007 (B007) flooding event. To prepare this Addendum submission, the Team requested any additional information related to those specimens from the NEA Director. On September 18, 2024, the NEA Director provided additional information on the impact of the flood to

the insect colonies in B007. Three insect colonies were being reared in B007 under quarantine/containment conditions when the flood event occurred December 2022. Two of the colonies were destroyed at the time of B007's closure and not reestablished at BARC, though records demonstrate that identical specimens are available for both colonies from other accessible insectaries that ARS's Invasive Insect Biocontrol & Behavior Laboratory (IIBBL) program operates in California and the Virginia Tech campus. ("IIBBL-colonies-summary.xlsx"). The third colony which is comprised of the cotton seed bug (*Oxycarenus hyalinipennis*) was moved to a location that could provide quarantine/containment at Fort Detrick located in nearby Frederick, Maryland.

It is clear that these colonies were negatively impacted by the flood. Two were lost but not representative of irretrievable research loss as the specimens could be readily obtained from other insectaries. The cotton seed bug was not lost – irretrievably or otherwise – but a negative impact was experienced. Because the insect was under APHIS permitted quarantine, scientists had to move insects under great precaution to their new location while adhering to strict quarantine guidelines – i.e., insects were packed within containment; double-sealed in plastic containers inside of a sealed shipping box; moved in government vehicle to Frederick, where it was opened within their quarantine/containment and placed in an existing rearing chamber. Research was negatively impacted as documented in "IIBBL-colonies-summary.xlsx" where it was noted: "One major impact to IIBBL research is that no research could be conducted for over one year while cotton seed bug was in Frederick, only maintenance rearing to keep cotton seed bug alive". Although research was delayed for over one year, insects were not irretrievably lost. In the same excel document, 12 other non-quarantined insect colonies are also noted as having been affected by the B007 flood event. Nine of the colonies were moved to other locations, and 3 were abandoned but appear obtainable from other sources.

- The NEA Director stated (Ex. 37-23) that leadership paid for a forensic accounting of a reported loss of 17 years' worth of stored computer data in the building 007 flood event, but that all data was shown to be recovered. This follows the Team's position that research and data was negatively impacted, but not irretrievably lost.

Additional Clarification: BARC B007 Flooding and Impact to Research

BARC B007 housed two research units: Hydrology and Remote Sensing Laboratory (HRSL) and the Invasive Insect Biocontrol and Behavior Laboratory (IIBBL). For each of the impacted research units, there are 3 components to the aftermath of the BARC B007 flood in December 2022 that was caused by a frozen pipe burst.

Hydrology and Remote Sensing Laboratory (HRSL)

1. Initial Impact
    a. The flood damaged HRSL servers that contained 17 years of Long-Term Agroecosystem Research (LTAR) data.
    b. The research unit lost approximately $55,000 worth of servers and computer equipment due to flood damage and feared the LTAR data was lost as well.
2. Actions Taken and Adjustments Made
    a. Immediate action was taken to protect the remaining IT assets in B007.
    b. New equipment was purchased, and one alternative laboratory was made available.
    c. A data recovery contractor was hired to retrieve the data and all files have been recovered with no loss of data.
    d. Researchers have continued their work, but the restricted laboratory space has impacted sample preparation and some tasks. The unit has refocused on field and remote sensing work to meet project goals.
3. Impact and Lessons Learned
    a. The research unit has been able to maintain research efforts and productivity.
    b. Coordinating with ARS SCINET team to leverage offsite SCINET high speed computing and storage as back up. Alternative, off-site backup is very costly at the volume necessary to provide full backup.

Invasive Insect Biocontrol and Behavior Laboratory (IIBBL)

1. Initial Impact
    a. The research unit had 15 insect colonies in the building, four were APHIS permitted, and three of these were maintained under quarantine/containment conditions.
    b. The flood itself did not impact the colonies but IIBBL was required to destroy 2 of the colonies reared in quarantine because there was no APHIS approved quarantine/containment space at BARC outside of B007. One colony was moved to an alternate quarantine/containment site in Frederick, MD for one year and has since been moved back to BARC. Some tasks were not able to be resumed immediately, including insect pest pheromone attractant activities, insect pest chemical synthesis work, insect cell culture activities, molecular biopesticide research related to the destroyed insect colonies, and several aspects of tick research.

c. Of the remaining 12 colonies, 9 were moved to alternate locations at BARC and 3 were released or destroyed (these insects were endemic to the area).
d. The unit lost some laboratory equipment, supplies, computer equipment and peripherals.

2. Actions Taken and Adjustments Made
    a. Moved personnel to alternative office space.
    b. Incorporated IIBBL lab and office space needs in the renovation of two buildings (B002 and B005). The renovation began in FY2023 and will be completed in FY 2025 and FY2026 respectively.
    c. ARS invested $412,000 to replace the lost laboratory equipment, molecular reagents, computer equipment and peripherals in FY 2023.
    d. The research unit adjusted activities to use field collected insects for bioassays where appropriate, focused on tick research on field collections and monitoring, and conducted chemical ecology activities with collaborators.
3. Impact and Lessons Learned
    a. Project goals and milestones have been adjusted to reflect the lack of live insects needed to evaluate molecular biopesticides.
    b. Specifically for FY 2024:
        i. One IIBBL project met all milestones.
        ii. The second project has met 11 of 14 milestones and 3 were not met on time as a result of the flood.
    c. While the loss of the 2 quarantine insect colonies has impacted project timelines and the completion of milestones, overall, research in IIBBL is continuing and most milestones have been achieved.
    d. Fully funded BARC Master Plan Phase 1 will provide the infrastructure (steam and water) needed to reestablish the lost colonies in Headhouse B11 quarantine space.
    e. Planning should include critical contingency space such as wet laboratories and quarantined space to handle emergency situations.

Overall Lessons Learned

The flood occurred because fire suppression sprinkler pipes froze and burst. Several factors can contribute to frozen pipes. To prevent future instances, BARC has implemented new preventative maintenance protocols, has upgraded the boilers and steam supply, and ensured that fire alarm systems are working in all buildings.