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UC-20e

ANNUAL SITE ENVIRONMENTAL REPORT CALENDAR YEAR 2020

Iowa State University
Ames, Iowa 50011-3400

Prepared for the
U.S. Department of Energy
Under Contract No. DE-AC02-07CH11358

AMES LABORATORY
Creating Materials & Energy Solutions
U.S. DEPARTMENT OF ENERGY

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1.0 EXECUTIVE SUMMARY

The primary purpose of this report is to summarize the performance of Ames Laboratory's environmental programs, present highlights of significant environmental activities, and confirm compliance with environmental regulations and requirements for calendar year 2020. This report is a working requirement of Department of Energy Order 231.1B, *Environment, Safety and Health Reporting*. It includes descriptions of the Laboratory's site, mission, the status of its compliance with applicable environmental regulations, its planning and activities to maintain compliance, and a comprehensive review of its environmental protection, surveillance and monitoring activities.

Ames Laboratory is located on the campus of Iowa State University (ISU) and occupies 13 buildings owned by the Department of Energy (DOE). See the Laboratory's Web page for location and Laboratory overview. The Laboratory also leases space in ISU owned buildings.

In 2020, the Laboratory accumulated and disposed of hazardous waste under a U.S. Environmental Protection Agency (EPA) issued generator number. All waste was handled according to applicable EPA, State, and local regulations and DOE Orders. The Laboratory operates as a Small Quantity Generator (SQG) of hazardous waste.

There were no radiological air emissions or exposures to the general public due to Laboratory activities in 2020 (See U.S. Department of Energy Air Emissions Annual Report in Appendix A.). The Laboratory has an established Environmental Radiological Protection Program (Plan 10200.041) per DOE Order 458.1 requirements. Plans, policies, and procedures are in place to protect the public and the environment against undue risk from radiation associated with DOE radiological activities.

As indicated in prior Site Environmental Reports, formal pollution prevention awareness, waste minimization and recycling programs have been in practice since 1990, with improvements implemented most recently in 2017 with Iowa State University's shift toward single-stream recycling. Included in recycling efforts are items such as batteries, monitors, corrugated cardboard, lamps, miscellaneous electronic office equipment, mixed paper, newsprint, food/beverage containers, and laboratory glassware. Ames Laboratory also recycles/reuses salvageable metal, used oil, and foamed polystyrene peanuts, and encourages chemical redistribution and sharing among research groups.

Ames Laboratory reported its contractual performance to DOE-Ames Site Office (AMSO) through the Laboratory's Performance Evaluation Measurement Plan (PEMP), and a performance level of "A-" was achieved in 2020 for Sustained Excellence and Enhanced Effectiveness of Integrated Safety, Health, and Environmental Protection.

As reported in Site Environmental Reports for prior years, the Laboratory's Environmental Management System (EMS) has been integrated into the Laboratory's Integrated Safety Management System (ISMS) since 2005. The integration of EMS into Laboratory business practices allows the Laboratory to systematically review, address and respond to environmental impacts. In addition to DOE-identified objectives and targets, the EMS Steering Committee recommends annual environmental goals for the Laboratory.

Due to the COVID-19 pandemic and limited onsite work staff, goals of reducing water usage and travel/commuting to promote the reduction of scope 3 greenhouse gases were achieved. All contract deliverables and environmental compliance activities were still met during this time.

Ames Laboratory Integrated Safety Management System
Statement of Commitment

Ames Laboratory is dedicated to protecting the safety and health of each Laboratory employee. The Laboratory is committed to preventing accidental loss of resources and assets and protecting the general public and the environment through the prevention of pollution, property loss, or damage to the environment. Therefore, it is our goal to reduce to the greatest extent possible foreseeable hazards and maintain a safe and healthful workplace by hiring competent personnel, providing necessary training, following safe work practices, and encouraging an emphasis on continuous improvement. In addition, compliance with applicable Laboratory Contract requirements, Department of Energy Orders, and regulatory standards is a prerequisite for conducting Laboratory business and the responsibility of each employee.

In order to accomplish these goals, the Laboratory has incorporated the principles of Integrated Safety Management (ISM) and the practices of an Environmental Management System (EMS) into an Integrated Safety Management System (ISMS). Our ISMS provides mechanisms to ensure that we incorporate safety and environmental management into all aspects of our work, from planning to completion.

Every Ames Laboratory employee will participate in ISMS by complying with the Laboratory's environmental, safety and health requirements. Each level of line management has the responsibility to consider the impacts of their activities on the environment and workplace, and to support the performance and continuous improvement of effective safety and environmental practices, such as pollution prevention. This "team" effort is necessary to achieve a safe and productive research laboratory.

Dr. Adam Schwartz, Director
Ames Laboratory

2020 Ames Laboratory Site Environmental Report Feedback Form

This feedback form is provided to solicit public input on the development and improvement of future Site Environmental Reports. Public input is encouraged and appreciated. Remove and copy as needed. Attach additional pages as needed or send comments to fortmann@ameslab.gov.

Return to: Ames Laboratory
Environment, Safety, & Health
2408 Pammel Drive, Iowa State University
Ames, IA 50011-3400
ATTN: Don Fortmann

1. What prompted your interest in environmental activities at Ames Laboratory?

2. In what ways can this report document and/or format be improved?

3. Do you have any questions on specific items or issues in this report?

4. Do you have any other comments?

2.0 INTRODUCTION

2.1 Site Location

Ames Laboratory is a U.S. DOE facility located on the campus of Iowa State University (ISU) in Ames, Iowa. See the Laboratory's Web page for locations and Laboratory overview. Ames is a government-owned, contractor-operated (GOCO) facility. ISU is the Laboratory's contractor. The Technical and Administrative Services Facility (TASF) houses most of the Laboratory's management offices. The buildings owned by the DOE are listed below.

Building	Gross Square Feet
Spedding Hall	107,630
Metals Development Building	69,663
Wilhelm Hall	56,541
TASF	46,991
Campus Warehouse Building	16,506
Sensitive Instrument Facility (SIF)	13,304
Mechanical Maintenance Building	8,540
Paint and Air Conditioning Shops	4,998
Construction Storage Shed	4,440
Maintenance Shop Bldg.	7,503
Records Storage	1,689
Storage Shed 1	1,461
Storage Shed 2	1,702
Total DOE Owned	340,968

In addition to the buildings owned by the DOE, Ames Laboratory also leased space from ISU in 2020.

The City of Ames, Iowa, surrounds the ISU main campus. In 2020 the population of Ames was approximately 66,762, which includes the ISU student population of approximately 31,825. Ames is located in Story County, which has a population of approximately 96,941.

2.2 General Environmental Setting

The climate is temperate continental, and is subject to wide temperature and precipitation ranges throughout the year. Mean monthly temperature varies from an average low of minus -11.3 degrees Celsius (12°F) in January to an average high of 29.1 degrees Celsius (84°F) in July. Average rainfall equivalent precipitation varies from 1.8 centimeters (0.7 inches) in January to 12.6 centimeters (4.96 inches) in June.

The region's topography is gently rolling with a slight overall negative gradient to the southeast. Under the shallow topsoil, the soils are glacial till with a depth of approximately 19.8 meters (65 feet). This material is underlain by predominantly limestone bedrock. In the central campus area, the depth to first groundwater is approximately 3.0 meters (10 feet). Surface run-off flows into Ioway Creek, a tributary of the South Skunk River. The streams have a combined average daily flow of approximately 644 million liters (170 million gallons).

2.3 Site Mission

The mission of Ames Laboratory is to deliver critical materials solutions to the nation. The Lab has identified and is pursuing three long-term strategic directions: discovery for a sustainable future – critical materials and recycling science; making every atom count – atomistic and molecular design and control for energy and chemical conversion; and innovating for science and industry – novel synthesis to manufacturing. These long-term strategic directions build on our foundational pillars – science of synthesis, science of quantum materials, science of interfaces, and science with rare earths. We have designed three strategic initiatives to bolster our foundational strengths and further integrate our science to align with the strategic directions. The three scientific initiatives are: catalysis and Chemical Dynamics, Spectroscopy, and Theory at the Interface; Synthesis and Exploration of Novel States and Emergent Phenomena in Energy Materials; and Accelerated Scientific Discovery Framework. The scientific strategy of the 2020 Ames Laboratory Annual Laboratory Plan is based on our recent Strategic Plan, which describes important directions and targets of opportunity in materials discovery that are needed to address key scientific challenges for upcycling of polymers, quantum information and sensing, next generation computing technologies, quantum states and materials, and energy conversion and harvesting technologies. Wherever possible, we will cultivate these advances for applications to benefit U.S. economic, energy, and national security interests.

The Laboratory approaches all of its operations with the safety and health of all workers as a constant objective and with genuine concern for the environment and the public. Ames Laboratory does not conduct classified research.

2.4 Primary Operations and Activities

Ames Laboratory is recognized the world over for its leading collaborative research in the theory, design, synthesis, processing, and characterization of innovative, energy-relevant materials. The Laboratory has established exceptional strengths and made major contributions in the synthesis and science of magnetic, electronic, quantum, catalytic, functional and critical materials, using core strengths in rare-earths but also the full palette of elements provided by the periodic table. These strengths are a cornerstone of the Laboratory’s rich and world-leading materials research portfolio, which lies at the frontier of some of the most challenging problems in matter and energy.

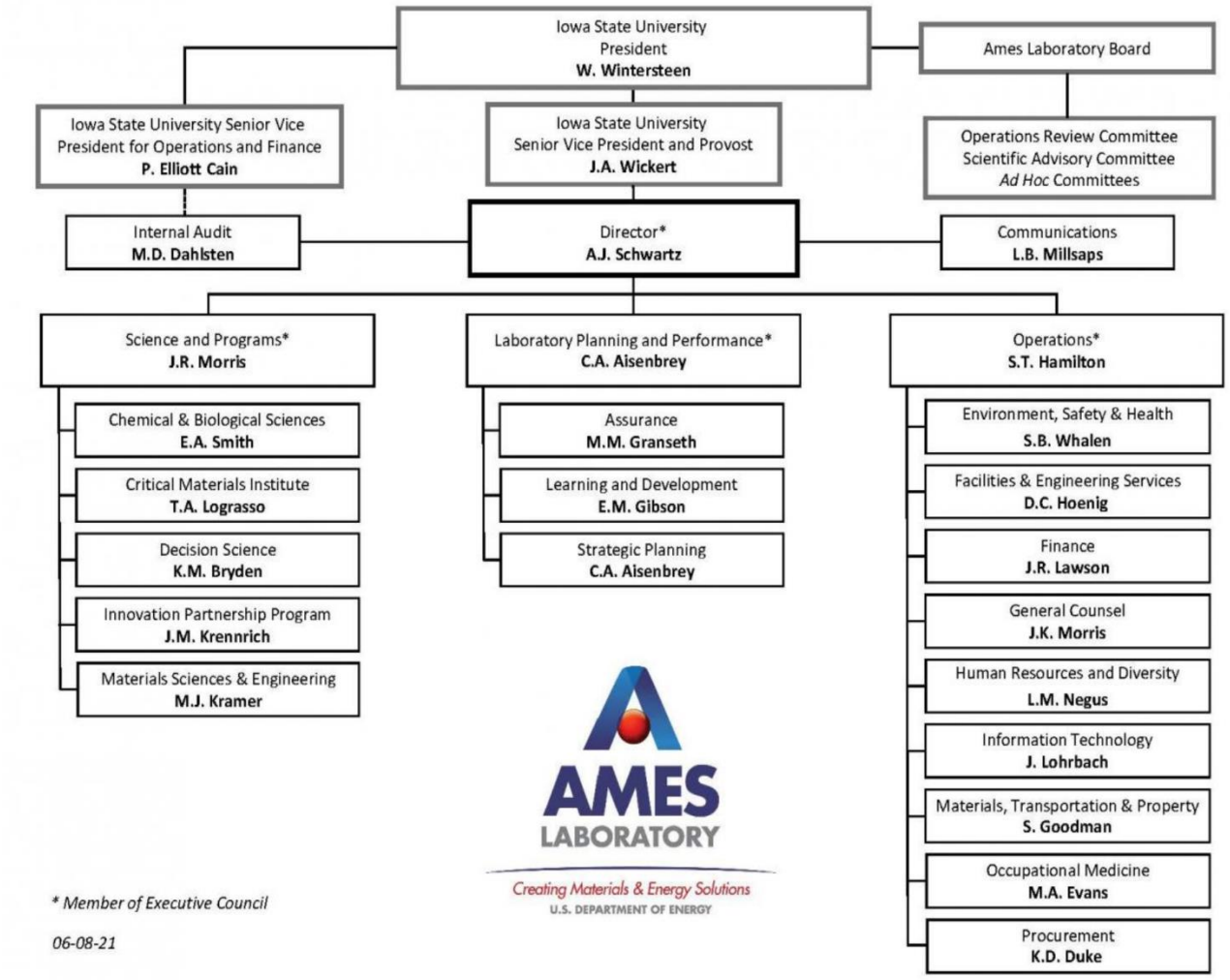
Ames Laboratory is internationally recognized for its ability to synthesize high-quality samples of unusual materials. The Ames Laboratory's Materials Preparation Center prepares, purifies, fabricates and characterizes materials in support of R&D programs throughout the world.

Ames scientists and engineers have repeatedly developed unique instrumentation to answer compelling scientific questions, contributing pioneering roles in the creation of inductively coupled mass spectrometry and multiplexed capillary electrophoresis. The Laboratory has built on these breakthroughs by advancing solid-state nuclear magnetic resonance, laser angle resolved photoelectron emission spectroscopy, terahertz spectroscopy, and establishing the Sensitive Instrument Facility to provide a platform for future science-driven instrumentation development. Ames continues its remarkable record of transitioning basic science to applied science to technology commercialization through its leadership, and addressing national challenges through its Critical Materials Institute, advanced powder synthesis, and the caloric materials consortium, CaloriCool®.

2.5 Organization and Administration

ISU operates Ames Laboratory for the United States Government under Contract Number DE-AC02-07CH11358 with the U.S. DOE. The DOE Office of Science, through the AMSO, administers the contract. In 2020, 423 people were involved with the Laboratory either as full- or part-time employees and 97 contributor (non-payroll) employees. See Organizational Chart, Figure 2.5-1.

Figure 2.5-1 Organizational Chart



3.0 COMPLIANCE STATUS

There were no compliance issues in 2020.

3.1 Environmental Restoration and Waste Management

3.1.1 Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)

There were no sites regulated under CERCLA. Proper public comment periods have been observed for former site restoration activities. The Community Advisory Group (CAG), formed in May 1994, remains the primary vehicle for public input to these activities. The CAG has been inactive over the past several years, the last interaction with CAG members occurring prior to 2006.

3.1.2 Resource Conservation and Recovery Act (RCRA)

All waste generated by Ames Laboratory under the contract with DOE is DOE waste. In 2020, the Laboratory had one active RCRA generator identification number and two inactive generator identification numbers (see the summary table 4.4-1). In calendar year 2020, 492 kg of hazardous waste was properly disposed of through a contracted vendor from the main campus EPA ID and the VSQG. Figure 3.1.2-1 shows the RCRA hazardous waste generation over the past several years. Waste generation was significantly reduced due to the COVID-19 pandemic.

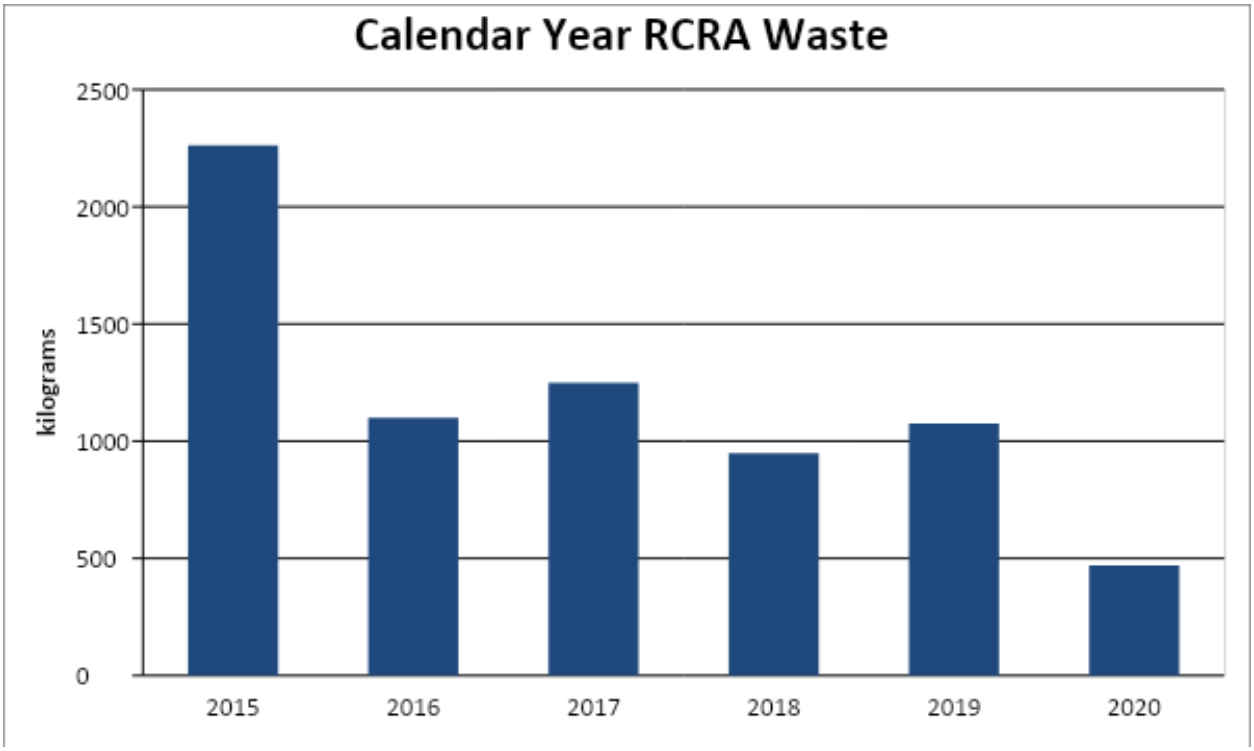


Figure 3.1.2-1 RCRA Waste Generation

The RCRA generator identification numbers associated with the former Waste Handling Facility (WHF) and the former Chemical Disposal Site (CDS) have been designated by EPA as “non-generator” sites because waste is no longer generated at these sites.

Ames Laboratory is registered with the EPA as a Small Quantity Generator (SQG) of Hazardous Waste. A SQG is defined as generating 100 to 1000 kg/month of non-acutely hazardous waste and/or </= 1.0 kg/month of acutely hazardous waste. The SIF, due to its location and generation rate, is categorized as a Very Small Quantity Generator (VSQG). VSQGs are defined as

generating less than 100kg/month of non-acutely hazardous waste and less than 1kg/month of acutely hazardous waste.

Prior to 2006, the Laboratory was a Large Quantity Generator and was required to submit a biennial report (aka: *Hazardous Waste Report)* of RCRA waste removed from the facility. The report was last completed and submitted to the EPA in January 2006 for the 2005 calendar year.

The Laboratory generates small amounts of radioactive low-level waste (LLW) from legacy contaminated buildings during renovation activities. Approximately 2-3 cubic meters of LLW are generated each year. There were no LLW shipments in 2020.

The Laboratory disposed of RCRA waste at an out-of-state EPA permitted facility through a contracted vendor. There were three shipments of RCRA hazardous waste in 2020 from both the main campus SQG and VSQG.

Sanitary waste is disposed of through the University's sanitary sewer system, which is treated at the City of Ames' wastewater treatment plant. Solid waste is sent to the City of Ames Resource Recovery Plant for processing and energy recovery.

The Laboratory had no underground storage tanks (USTs) in 2020. One aboveground, double walled diesel tank with interstitial leak detection is in place for two backup generators. There were no leaks or container integrity problems noted in the tank's monthly inspections in 2020.

3.1.3 Federal Facilities Compliance Act (FFCA)

The FFCA is part of 42 USC 6901 and amends a part of RCRA. FFCA requires the preparation of site treatment plans for the handling of mixed wastes. EPA approved the Ames Laboratory Site Treatment Plan (STP) in January 1996.

Any newly generated mixed waste is handled and disposed of according to EPA, State, and local regulations and DOE Orders.

3.1.4 National Environmental Policy Act

All research activities in 2020 were covered under the Laboratory's site-wide Categorical Exclusion (CX) for "Indoor Bench-Scale Research Projects and Conventional Laboratory Operations". Routine facility upgrades and renovations are covered under the Laboratory's site-wide CX; "renovations and maintenance activities for buildings, structures, infrastructures and equipment". Both exclusions were submitted to DOE-AMSO for approval and are valid through July 25, 2023. These "site-wide" CXs eliminate unnecessary documentation but still uphold the integrity of NEPA. Categorical exclusions are classes of actions that DOE (10 CFR 1021 Subpart D, App. B) has determined do not individually or cumulatively have a significant effect on the environment and do not require the preparation of either an environmental assessment or an environmental impact statement.

3.1.5 Toxic Substances Control Act

The Laboratory complies with the State of Iowa Solid Waste Disposal Rule #102.14 and 40 CFR 61, Subpart M (asbestos NESHAP) when disposing of asbestos containing materials (ACM). ACM quantities are dependent upon the amount of renovation activities involving removal of floor tile, fume hoods, and pipe insulation. Figure 3.1.5-1, shows ACM quantities shipped for disposal over the past six years.

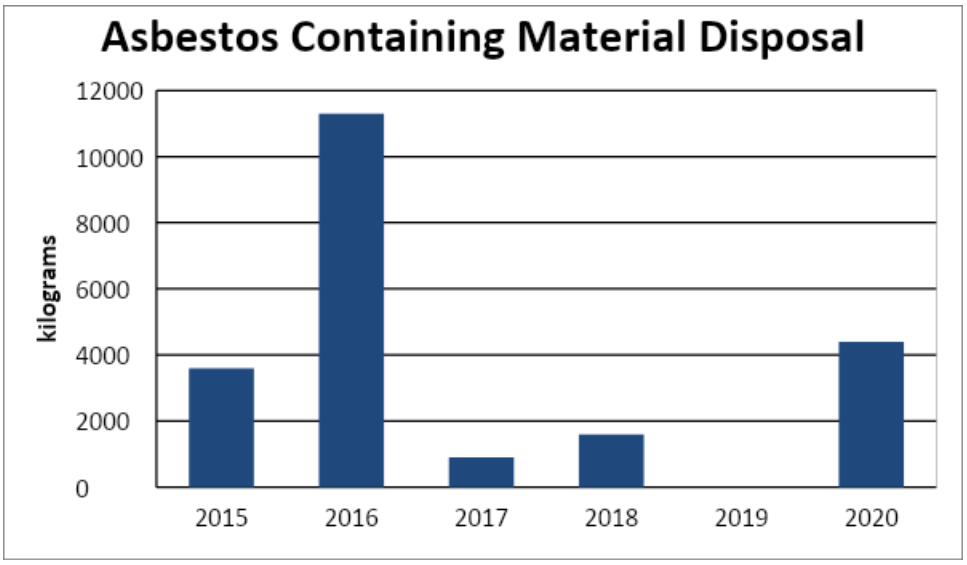


Figure 3.1.5-1 Asbestos Containing Material Disposal

The Laboratory disposed of one oil-filled transformer during 2016 as shown in the spike for PCB Waste in the Figure 3.1.5-2. The fluid contained was sampled in December of 2015 and determined to contain 86.6 ppm making it a PCB Contaminated Transformer for a total disposal weight of 1,938kg. Figure 3.1.5-2 shows amounts of PCB waste over the past six years. Typically, the Laboratory's PCB waste consists of fluorescent lamp ballasts.

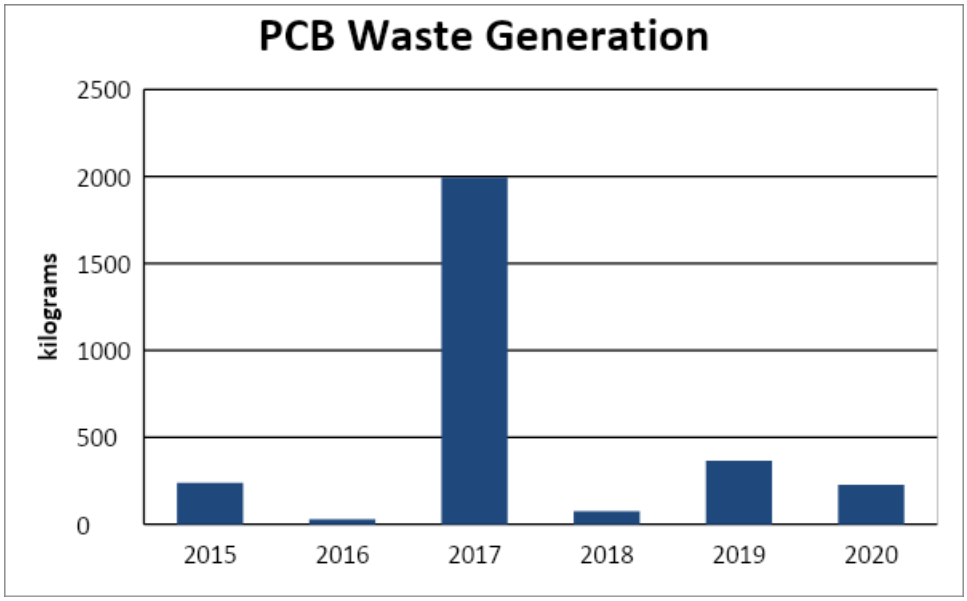


Figure 3.1.5-2 PCB Waste Generation

3.1.6 Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

Ames Laboratory does not purchase or use pesticides regulated by FIFRA. Pesticide spraying is done in portions of buildings by a licensed applicator using approved chemicals.

3.2 Radiation Protection

3.2.1 DOE Order 458.1

Ames Laboratory has prepared the Environmental Radiation Protection Plan (Plan 10200.041) according to the requirements of DOE O 458.1. The plan demonstrates that the Laboratory has plans, policies and procedures in place to protect the public and the environment against undue risk from radiation associated with DOE radiological activities. There were no detectable or reportable radiological releases to the public or the environment in 2020 (See U.S. Department of Energy Air Emissions Annual Report, Calendar Year 2020 in Appendix A).

3.2.2 DOE Order 435.1

The majority of the Laboratory's radioactive waste is generated through renovation activities that occur in DOE buildings. These buildings were contaminated by past activities. All waste generated is low-level waste. The Laboratory has written procedures to manage these radioactive materials.

3.3 Air Quality and Protection

3.3.1 Clean Air Act (CAA)

U.S. EPA Region VII has delegated CAA authority to the State of Iowa Department of Natural Resources (IDNR). The IDNR issued an official ruling for Ames Laboratory on July 18, 1994, stating that no permitting and no monitoring is required for the Laboratory's fume hoods.

The Laboratory maintains two construction air permits which were issued by the IDNR in December 1996. These are for the paint booth and sand blaster. The Laboratory also has nine exempt air emission sources (See Section 4.4 for a summary of permits).

3.3.2 National Emission Standards for Hazardous Air Pollutants (NESHAPS)

Asbestos containing materials (ACM) are removed and handled according to applicable asbestos NESHAP regulations (40 CFR 61 subpart M). Annually, notifications are sent to the IDNR for estimated small abatement and demolition projects in association with routine maintenance and revisions are submitted when necessary.

The Laboratory was in compliance with all CAA requirements, including the NESHAP regulations for radionuclide emissions from DOE facilities. The Laboratory used small quantities of chemicals and radioactive materials for laboratory bench-top research and development activities in 2020. The Laboratory did not have any air emissions in 2020 that could have exposed the public to radioactivity (See correspondences in Appendix A).

3.4 Water Quality and Protection

3.4.1 Clean Water Act (CWA)

Ames Laboratory does not have any point sources of effluents requiring National Pollutant Discharge Elimination System (NPDES) permits. The Laboratory discharges wastewater to the ISU sanitary sewer system, which discharges into the City of Ames sanitary sewer system. The City of Ames has an NPDES permit. The City of Ames has an agreement for wastewater pre-treatment with ISU, which includes Ames Laboratory's wastewater. Both the City of Ames and ISU sampled the University's wastewater effluent using EPA protocols and methods in 2020 as part of this agreement. The Laboratory discharged approximately 1,990,830 gallons of wastewater to ISU's sanitary sewer system in 2020. Wastewater trends are summarized in Figure 3.4.1-1.

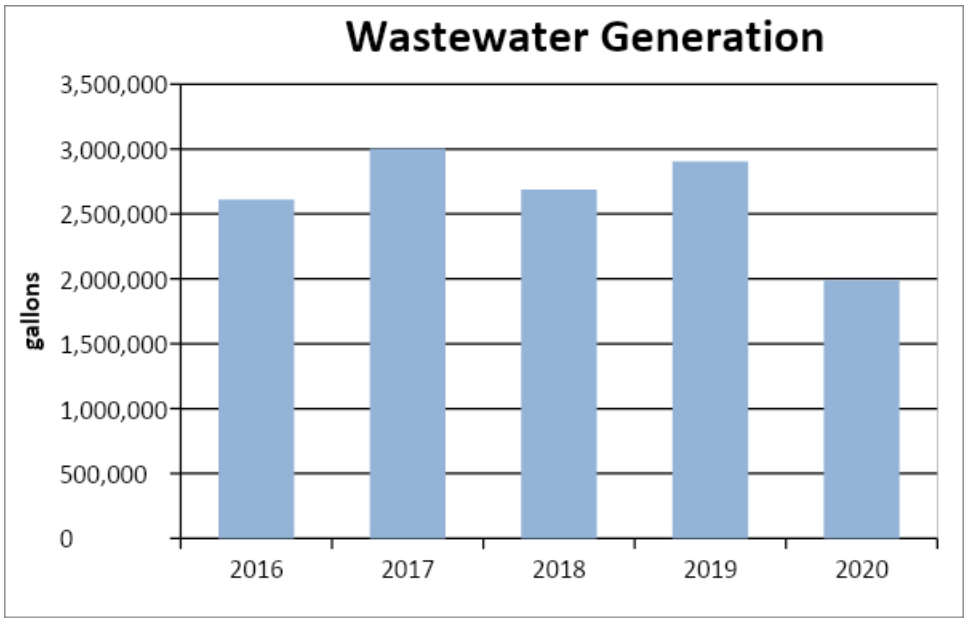


Figure 3.4.1-1, Wastewater Generation

Under 40 CFR Part 112, the Laboratory is required to have a Spill Prevention, Control and Countermeasure (SPCC) Plan as the Laboratory's storage (2,919 gallons) exceeds the 1,320 gallon storage capacity threshold for oil storage. The Laboratory's Plan is part of Iowa State University's overall Plan. The SPCC Plan documents how the Laboratory prevents potential oil spills/releases from entering navigable waters and the environment. Preventions include, but are not limited to, monthly inspections of qualified oil filled equipment and training to applicable employees.

3.4.2 Stormwater Management

DOE buildings are on land leased from ISU, the ISU storm-water permit (MS4s) covers Ames Laboratory activities.

3.4.3 Safe Drinking Water Act

Drinking water for the Laboratory is supplied by the City of Ames public water system through the University's water mains. The Ames public water system is tested by the city to verify SDWA standards are being met. The Laboratory used 1,990,830 gallons of potable water in 2020.

Ames Laboratory drinking fountains are sampled for lead by Ames Laboratory Facilities and Engineering Services. Fountains were sampled for lead in 2020. Historical data shows no evidence of lead in drinking water. Drinking water is sampled every three years. Results are summarized in Table 3.4.3-1.

Table 3.4.3-1, Drinking Fountain Analysis for Lead

Building Location	2005 (mg/L)	2008 (mg/L)	2011 (mg/L)	2014 (mg/L)	2017 (mg/L)	2020 (mg/L)
Spedding Hall, ground floor east hallway	<0.005		<0.005			0.0015
Spedding Hall, ground floor west hallway		<0.001		<0.0005	<0.0025	
Wilhelm Hall, 3rd floor east hallway	<0.005	<0.001	<0.002	<0.001	<0.0025	0.0020
Metals Development, room 158	<0.005	<0.001	<0.0005	<0.0005	<0.0025	<0.0004

* EPA action levels for lead are0.015 mg/L and 1.3 mg/L for copper.

3.5 Other Environmental Statutes

3.5.1 Endangered Species Act (ESA)

The Indiana Bat is a state and federally listed endangered species found throughout Story county, including on or near Ames controlled areas. However, this is not a critical habitat.

3.5.2 Invasive Species

Several invasive species can be found in Iowa. The Laboratory leases the land on which DOE buildings are located from ISU, so there is no habitat within Ames' purview for invasive species to be present.

3.5.3 National Historic Preservation Act (NHPA)

Nine structures on the ISU campus are on the state historic register. None are associated with Ames Laboratory activities.

DOE-owned buildings at the Ames Laboratory are on land leased to DOE by Iowa State University. A detailed building survey (Historical & Architectural Survey & Evaluation) was conducted in June 2009 as required by the National Historic Preservation Act, Section 110. The building survey was conducted by a contracted architectural historian. The *Historical & Architectural Survey & Evaluation* report indicates that three Ames Laboratory buildings could be nominated to the National Register of Historic Places. DOE, in consultation with the State Historical Preservation Officer (SHPO), determines eligibility for listing on the National Register for Historic Places. At this time the DOE is not pursuing nomination of these three buildings (Spedding Hall, Wilhelm Hall and Metals Development). However, any adverse impact to an eligible building would be mitigated in consultation with the SHPO. The Ames Laboratory procedure for identifying hazards prior to disposition of excess materials requires that excess items be evaluated for historical significance.

3.5.4 Migratory Bird Treaty Act (MBTA)

There are over 200 bird species that may migrate through Ames, IA. However, there are no activities at Ames Laboratory that impact migratory birds.

3.6 Sustainability

Ames Laboratory's commitment to meet the DOE sustainability goals through projects, tasks, and activities begins with the integration of the Environmental Management System (EMS) into the

Integrated Safety Management System (ISMS) to ensure the implementation of safety and environmental management in all aspects of Laboratory work, from planning to completion.

Ames Laboratory uses its EMS and the associated Steering Committee (EMSSC) as a vehicle to provide awareness of the objectives and targets reported in our Site Sustainability Plan. The EMSSC has adopted these objectives and targets and proposes initiatives to assist in the achievement of these goals.

The age of the facilities makes it challenging to achieve energy efficiency and sustainability in the existing facilities. However, Ames' success in purchasing renewable energy in the form of wind power has been noted by the Sustainability Performance Office: "Ames has made impressive strides in this goal area, and the SPO would like to share these successes." In FY2016, NREL screened Ames Laboratory for cost-effective renewable energy opportunities that would lower the site's 25-year lifecycle cost of energy. This screening found that while there is an incentive for Photovoltaic (PV) use, "the current low cost of utility electricity and average solar resource makes it difficult for PV to be cost-competitive". Energy intensity decreased by 14% in FY2020.

Ames Laboratory has met both of the Fleet Reduction Goals by reducing its petroleum consumption and increasing its alternative fuel consumption.

Cool roof area is up from 13% to 30.6% due to TASF roof replacement in FY16 and cool roof installation on the SIF in FY15.

Ames Laboratory had achieved compliance with the High Performance and Sustainable Buildings (HPSB) guiding principles at 15% of the existing buildings at the site. With the addition of a new building, the compliance has fallen to 12.5% which is short of the goal. Ames continues to implement the guiding principles in all of the major buildings where it is economically justified. The SIF building, which the Laboratory took possession of in FY 2016, meets requirements for LEED Certification and is being evaluated for compliance with the Revised HPSB Guiding Principles. Additional sub-metering will be installed by the end of CY2021. This will allow the Lab to gather data for evaluating buildings and compliance with HPSB Guiding Principles for Sustainable Buildings.

3.7 Emergency Planning and Community Right-to-Know Act and SARA Title III

3.7.1 Status of Reporting

SARA Title III created the Emergency Planning & Community Right to Know Act (EPCRA), a statue designed to improve community access to information about community hazards and to facilitate the development of chemical emergency response plans by state/tribe and local governments. The Laboratory was required to report sulfuric acid from lead acid batteries used in fork trucks and UPSs due to quantities exceeding the 500 pound threshold reporting limit, under EPCRA Section 12. Laboratory research chemicals are exempt from EPCRA Sections 302-303, 311-312 and 313. The Laboratory did not store any research-related chemicals in excess or near EPCRA threshold limits in 2020. The Laboratory maintains a memoranda of understanding (MOUs) with the Iowa State University Department of Public Safety and the City of Ames Fire Department for emergency and hazardous material situations. Copies of MOUs are located in the Ames Laboratory Emergency Plan (Plan 46300.001). The Laboratory was not required to report under EPCRA Section 304 as there were no reportable releases in 2020.

Releases to the environment are reported to the Iowa Department of Natural Resources (IDNR) in accordance with the IAC, Rule 567, Chapter 131. Spills/releases are cleaned up in accordance with the IAC, Rule 567, Chapter 133. There is no minimum reportable quantity under Chapter 131. There were no reportable spills or releases in 2020. Reportable spills, releases and occurrences are entered in DOE's Occurrence Reporting and Processing System

(ORPS) as prescribed in DOE Manual 231.1-2. The Laboratory also reports any “reportable” spills/releases to DOE-AMSO.

Table 3.7-1, Status of EPCRA Reporting

EPCRA Section	*Description of Reporting*	*Status*
EPCRA Sec. 302-303	Planning Notification	Not Required
EPCRA Sec. 304	EHS Release Notification	Not Required
EPCRA Sec. 311-312	SDS/Chemical Inventory	Required for sulfuric acid in batteries/ Voluntarily reporting for research chemicals
EPCRA Sec. 313	TRI Reporting	Not Required

3.7.2 E.O. 11988, Floodplain Management

All Laboratory facilities are well outside the 100-year flood line as mapped by the U.S. Geological Survey (USGS) and the Iowa Geological Survey Bureau (GSB). The Laboratory is in full compliance with 10 CFR 1022.

3.7.3 E.O. 11990, Protection of Wetlands

No wetlands are impacted by Ames Laboratory activities. The Laboratory is in full compliance with 10 CFR 1022.

4.0 OTHER ENVIRONMENTAL ISSUES AND ACCOMPLISHMENTS

4.1 Assessments

On June 10, 2019, an EPA contractor conducted a RCRA Compliance Inspection. During the inspection two Notice of Preliminary Findings (NOPF) were noted.

NOFP Item 1: A container in the satellite accumulation area was labeled, but the checkbox indicating hazardous waste was not clearly marked. This NOPF was corrected immediately.

NOPF Item 2: Several containers in the Central Accumulation area were not dated. This NOPF was corrected immediately.

A letter to the EPA Administrator was sent with additional corrective actions for these two NOFP’s. The EPA responded with a letter (see Appendix C for EPA Correspondence) that the Laboratory’s corrective actions adequately addressed the violations and that no further submittals were required.

Green and Sustainable Remediation (GSR)

Ames does not currently manage any RCRA or CERCLA remediation sites.

Site Resilience

Ames’ strategy to enhance resilience is outlined in policies, plans, and procedures, and is evaluated in accordance with potential risks during document review cycles, strategic planning efforts, and as a part of annual contract deliverable submissions. These documents address impacts to the Laboratory from any number of potential natural or man-made events or

incidents. A brief summary of the documents related to organizational resilience is included below.

- All Hazard Survey (AHS): This document fulfills the requirement of DOE O 151.1D, Comprehensive Emergency Management System, to identify conditions to be addressed by a comprehensive emergency management program. The AHS must identify all hazards that are applicable to, or may impact, facility operations and at Ames, this covers the area and buildings, describes potential health, safety and environmental impacts, and clarifies that Ames Laboratory is a Core Program. The AHS addresses the following: natural hazards, technological hazards, human-caused incidents, Threat/Hazard Identification and Risk Assessment (THIRA), and a hazardous materials screening process.
- Cyber Security Incident Response Program: The CIRP is the basis document for compliance with DOE Order 205.1C. It establishes and maintains a documented cybersecurity program that implements the requirements of applicable Federal, State, and local laws, Executive Orders, directives, regulations, policies, standards and guidelines for cybersecurity incidents. The CIRP documents the roles and responsibilities and summarizes the process for handling cybersecurity incidents at the Ames Laboratory. By establishing formal incident response capabilities, Ames Laboratory will be prepared to respond quickly and effectively if and when computer security defenses are breached.
- Ames Laboratory Strategic Plan 2017-2021: This plan lays the foundation for sustainable future pursuits of excellence in science by developing the tools and knowledge base to design, create and use new energy-relevant materials to address national and global challenges.
    - Areas within the plan that will directly enhance organizational resilience are interconnected within Goal 2: Mission-enabling Infrastructure and Facilities, Goal 3: Safety and Security Excellence, and Goal 4: Business and Operational Excellence.
- Contingency Procedure for Business and Network Infrastructure/Services: This procedure enables the Laboratory to recover as quickly and effectively as possible from an unforeseen disaster or emergency that interrupts normal business operations.
- Continuity of Operations Plan: This plan provides an overview of Ames Laboratory's program to address continuity events described as "an emergency caused by a natural disaster, accident, military or terrorist attack, technological emergency, or infectious disease/pandemic influenza threat which impacts or has the potential to impact the performance of essential functions.
- Emergency Plan: This plan establishes and maintains a documented emergency management program that implements the requirements of Federal, State, and local laws, regulations and ordinances for fundamental worker safety. This plan is supported by the Ames Laboratory Emergency Plan Implementation Procedure, Communications Emergency Procedure, Waste Management Contingency Plan and Procedure, and Fire Safety Baseline Needs Assessment.
- Mission Readiness System Description: The mission readiness process is made up of the following summarized elements:
    - Condition Assessment Survey: A periodic inspection of the facilities and infrastructure
    - Safety Walk-through Programs: All Ames space is inspected throughout the year

- Assessments and Reviews: Internal and external assessments are performed in a variety of topical areas each year
- Maintenance Program: Provides the planning and performance of cost effective maintenance, upkeep, and repair of DOE property
- Annual Mission Readiness Interviews: Key personnel are interviewed to identify gaps in facility capability
- Preparation of the Annual Lab Plan: Identify gaps between facility capability and mission requirements, develop and prioritize projects or strategies to address the gaps
- Field Budget Process: Prioritized projects are incorporated into the Field Budget Submission
- Maintenance and General Services Budget Process: Addresses core and recurring activities, such as corrective and preventative maintenance, as well as individual expensed projects
- Plan Execution: When GPP funding is obtained and overhead budgets are approved project plans are executed.
- Self-Assessment and Reporting: Mission Readiness team meets annually to assess for improvements and reporting is annual through the Performance Evaluation and Measurement Plan

- Site Security Plan: The Site Security Plan describes the practices and resources utilized to protect government owned facilities, equipment, and other interests at Ames Laboratory from loss or damage due to intrusion, theft, disruption, unauthorized access to intellectual and proprietary information and other threats.

In summary, each of these documents serves to enhance the Laboratory's ability to react and respond to any number of potential incidents from a variety of threats. The threats, risks and vulnerabilities are identified in each specific plan along with the mitigation and response strategies to include continuity operations, identified alternate capabilities through internal or external resources, planning, preparedness, and response.

4.2 Continuous Release Reporting

Ames Laboratory did not engage in continuous releases involving hazardous substances in 2020.

4.3 Unplanned Releases

There were no planned, unplanned or accidental releases involving hazardous substances from Ames Laboratory in 2020.

4.4 Summary of Permits

DOE held three waste generator identification numbers for Ames Laboratory in 2020 (see table 4.4-1 below), although two of the sites were inactive. In 2006, the Laboratory was reclassified from Large Quantity Generator (LQG) RCRA status to Small Quantity Generator (SQG) status.

In 2020, Ames Laboratory had two air emission source construction permits and nine exempt sources (see table 4.4-2 below). Ames had no environmental discharge, operational, storage, treatment or disposal permits for gaseous, liquid or solid effluents.

Table 4.4-1, DOE RCRA Generator Identification Numbers

RCRA Generator ID #	Type	Ames Laboratory Facility/Area	Expiration
IA6890008950	SQG	Ames Lab #3-DOE (main campus)	None
IAVSQG	VSQG	Sensitive Instrument Facility	None
* IAD984617605	CESQG	Ames Lab #1-DOE (Waste Handling Facility)	None
* IA0000365973	SQG	Ames Lab #2-DOE/ISU (chemical disposal site)	None

* Both sites have been designated by the EPA as “non-generators”.

Table 4.4-2, Ames Laboratory Air Emission Sources

Description	Permit Number	Location	Regulatory Citation
Paint Spray Booth – Construction Permit	96-A-1282	Paint Booth	567 IAC 22.3 and IAC 23.4(13)
Sand Blaster – Construction Permit	96-A-1283	Mechanical Maintenance Building	567 IAC 22.3 and IAC 23.4(6)
Graphite Lathe – Exempt	NA	Metals Development Building	567 IAC 22.1(2)u
Dust Collector – Exempt	NA	Wood Shops	567 IAC 22.1(2)u
Compactor – Small Unit Exemption	NA	Mechanical Maintenance Building – RWA	567 IAC 22.1(2)w(l)
Engineering Services Shop Exhaust – Exempt	NA	Metals Development Building – 160	567 IAC 22.1(2)u
Engineering Services Shop Welders – Exempt	NA	Metals Development Building – 160	567 IAC 22.1(2)p
Diesel Generators – Exempt	NA	Wilhelm Hall, SIF	567 IAC 22.1(2)r
Canopy Hood in Paint Shop – Small Unit Exemption	NA	Paint Shop	567 IAC 22.1(2)w(1)
Laboratory Fume Hoods – Exempt	NA	SPH, HWH, MD, SIF	567 IAC 22.1(2)s
Allegheny hard drive shredder	NA	Warehouse	567 IAC 22.1(2)l

5.0 ENVIRONMENTAL MANAGEMENT SYSTEM

The Laboratory’s environmental aspects have not drastically changed over the past several years, and with the integration of the EMS into the Laboratory’s ISMS, there are mechanisms in place to detect new environmental aspects and impacts. The Laboratory has an Environmental Management System Steering Committee (EMSSC) that consists of researchers, safety personnel, facilities personnel, and transportation and procurement personnel. This committee is tasked with recommending targets and objectives to the Laboratory’s Executive Council. These recommendations help meet DOE sustainability goals and other Laboratory EMS goals. EMSSC recommendations, prior to the COVID-19 pandemic, were to reduce water usage and travel/commuting to promote the reduction of scope 3 greenhouse gases. These goals were achieved, primarily due to the limited onsite work staff. The committee has identified longer-term goals that remain ongoing initiatives, such as the objectives reported within the Site Sustainability Plan.

5.1 Environmental Operating Experience and Performance Measurement

In calendar year 2020, Ames Laboratory reported to DOE-AMSO through the Laboratory's Performance Evaluation and Measurement Plan (PEMP), the Facility EMS Annual Report Data and DOE's Sustainability Dashboard. The Laboratory was awarded an A- for Goal 5: "Integrated Safety, Health and Environmental Protection" within the PEMP report card. As reported through the Facility EMS Annual Report and DOE Sustainability Dashboard, the Laboratory met 87% of the Site Sustainability Plan objectives.

The Laboratory's EMS was last reviewed by DOE-CH in April, 2018 to determine conformance to ISO14001:2015 (see DOE Correspondence in Appendix C). The Laboratory maintains a strong recycling program and culture and strives to help meet DOE sustainability goals. The review team identified one minor nonconformity based on the requirements of ISO 14001:2015, as well as three opportunities for improvement. The nonconformities were addressed through corrective actions that have been completed and the identified opportunities for improvement have been integrated into the EMS.

Environmental operating experiences in 2020 were categorized as local events and have been summarized in section 4.1.

A triennial external virtual assessment on the EMS was conducted in March 2021.

5.2 Accomplishments, Awards and Recognition

Ames Laboratory was recognized for three strengths during the April 2018 EMS conformance assessment. These strengths included direct leadership involvement, strong internal communication, and establishment of an internal team for process optimization and benchmarking best practices of other labs.

6.0 ENVIRONMENTAL RADIOLOGICAL PROTECTION PROGRAM

6.1 Radiological Discharges and Doses

There were no point source releases from the Ames Laboratory complex in 2020. Diffuse source emissions were limited to low-level waste activities and renovation activities. Emissions from these activities were minimized or eliminated by engineering devices/structures, when necessary (e.g. containment cells with HEPA filtration).

The annual radionuclide NESHAP report was prepared using the guidance in 40 CFR 61.94. According to the guidance, and based on the isotope inventory in curies per year used at the Laboratory, air emissions were not required to be monitored. IDNR and Iowa Department of Public Heath (IDPH) do not require permits or monitoring for laboratory fume hoods under Chapter 20 IAC 567 22.1(2) (1). However, Appendix D to 40 CFR Part 61 does provide a method for estimating the radionuclide emissions for a year, for reporting purposes, based on the amount of radionuclides in curies used at a facility. Prescribed parameters were used to calculate potential dose equivalent to the public due to estimated radionuclide emissions from the Laboratory (See correspondences in Appendix A).

6.2 Clearance of Property Containing Residual Radioactive Material

DOE O 458.1, Radiation Protection of the Public and the Environment, was put into the Laboratory's contract on October 22, 2012. The Environmental Radiation Protection Plan (Plan 10200.041) demonstrates that the Laboratory has plans, policies and procedures in place for

monitoring the release of radiological contaminated property according to DOE O 458.1. No real and/or personal property containing residual radioactive material associated with DOE activities was released to the public in 2020.

Ames Laboratory, DOE, and ISU have addressed all known contaminated sites in or near the City of Ames. The IDNR has released a total of 12 Inactive Waste Site's (See Correspondence in Appendix B). The status of the sites released follows.

Site	Release Status	Date Released
Old Sewage Plant	Unrestricted use	1995
Grand Avenue Underpass	Unrestricted use	1996
Ames Municipal Cemetery	Unrestricted use	1996
Applied Sciences Complex	Unrestricted use	1996
Block House	Unrestricted use	1996
Little Ankeny Debris	Unrestricted use	1996
Annex I	Approved for current use	1996
Annex II	Approved for current use	1996
Ames Municipal Airport	Approved for current use	1996
Chemical Disposal Site	Unrestricted use	1998
Former Iowa State College Dump Site	Unrestricted use	2001
Fire Service Institute Training Area	Unrestricted use	2002

Additional information regarding these sites can be found in previous Site Environmental Reports, by contacting Ames Laboratory Communications at 515-294-1048, or by visiting the Laboratory's Web page.

6.3 Unplanned Radiological Releases

There were no planned, unplanned or accidental radiological releases from Ames Laboratory in 2020.

6.4 Environmental Radiological Monitoring

Ames Laboratory performed no storm water, sanitary sewer water, or environmental air sampling in 2020 as there were no activities that warranted monitoring. The City of Ames and ISU sampled the University's wastewater effluent using EPA protocols and methods in 2020 as part of ISU's pretreatment agreement with the City of Ames.

7.0 NON-RADIOLOGICAL ENVIRONMENTAL MONITORING

The Laboratory has two air permits (paint booth and a sandblaster) that require mass balance monitoring. An annual log is required for each air permit. Material quantities and duration are included in the log. The log is monitored and reviewed to verify the Laboratory is not exceeding its permitted limits. Limits were not exceeded in 2020.

There is no per- and polyfluoroalkyl substances (PFAS) contamination at Ames Laboratory. Ames Laboratory has never had an on-site fire department or conducted on-site firefighting drills.

The Laboratory does not perform any other non-radiological monitoring (i.e. air, water or soil sampling).

8.0 GROUNDWATER PROTECTION PROGRAM

There are no current Ames Laboratory activities that pose a hazard to groundwater or surface water. The Laboratory has no underground storage tanks. Three DOE owned monitoring wells were properly plugged in June 2005. Currently there is no monitoring of the groundwater and ISU is not required to monitor groundwater on the main campus.

9.0 QUALITY ASSURANCE

Quality Assurance at Ames Laboratory is implemented through the Quality Assurance Program Plan (Plan 10200.026). This plan outlines the policies, procedures, training and inspection, and testing requirements for equipment and processes within the Laboratory.

Radioactive sources and solutions used to calibrate radiation-detection instrumentation are obtained with quantitative calibration directly traceable to the National Institute of Standards and Technology. Ames Laboratory's quality assurance effort relies on established U.S. EPA, IDNR, IDPH, and DOE regulations, standards and methods. This applies to both radioactive and non-radioactive environmental sampling and analyses.

Ames Laboratory's air quality assurance measures consists of maintaining an exhaust hood inventory, maintaining a radiological material balance, tracking chemicals, and waste collection and management. These measures determine if the Laboratory has a source in need of monitoring or permitting, in accordance with IDNR guidance. The Laboratory uses EPA's COMPLY modeling program, when necessary, to produce the annual NESHAP report (See Appendix A).

In 2020, the Laboratory continued to apply its Readiness Review (Procedure 10200.010) process to new or significantly modified research and operations activities for hazard identification, categorization, and ESH review of activities. This review helps prevent and/or control releases of hazardous materials to the environment. It was developed to ensure that an appropriate level of rigor, commensurate to the risk associated with an activity's hazards, is applied to the activity's ESH review. Eighteen new activities were reviewed and approved in 2020. Approved activities are reviewed on a one, three, or five-year cycle based on the hazard level assigned to that activity.

Laboratory Group Leaders are responsible for ensuring analytical and test equipment is of the proper type, accuracy, and tolerance to accomplish the specified requirements.

10. REFERENCES

1. Ames City Manager's Office, demographic information.
2. Ames Laboratory Site Environmental Reports.
3. City of Ames and ISU Pretreatment Agreements.
4. Consent Agreement and Consent Order, executed February 27th, 1996.
5. DOE Order 231.1B, Environment, Safety and Health Reporting
6. DOE Order 458.1, Radiation Protection of the Public and the Environment
7. DOE Order 474.2, Nuclear Material Control and Accountability
8. DOE Order 436.1, Departmental Sustainability
9. Endangered Species Act.
10. Characterization Report for the Ames Laboratory Chemical Disposal Site, Iowa State University, September 1998.
11. Iowa Administration Code, Rule 567, Chapters 20-24 and 28, "Air Quality."
12. Iowa Administration Code, Rule 567, Chapter 60, "Wastewater Treatment and Disposal: Definitions, Rules of Practice."

13. Iowa Administration Code, Rule 567, Chapter 61, “Water Quality Standards.”
14. Iowa Administration Code, Rule 567, Chapter 100, 101, 109, 118, 119, “Solid Waste Management and Disposal.”
15. Iowa Administration Code, Rule 567, Chapter 131, “Notification of Hazardous Conditions.”
16. Iowa Administration Code, Rule 567, Chapter 133, “Rules for Determining Cleanup Actions and Responsible Parties.”
17. National Historic Preservation Act.
18. 10 CFR Part 1021, “National Environmental Policy Act Implementation Procedures.”
19. 10 CFR Part 1022, “Compliance With Floodplain and Wetland Environmental Review Requirements”
20. 10 CFR Part 835, “Occupational Radiation Protection.”
21. 29 CFR Part 1910.120, “Hazardous Waste Operations and Emergency Response.”
22. 40 CFR Part 63, “National Emission Standards for Hazardous Air Pollutants for Source Categories.”
23. 40 CFR Part 82, “Protection of Stratospheric Ozone.”
24. 40 CFR Part 112, “Oil Prevention; Spill Prevention, Controls and Countermeasures.”
25. 40 CFR Part 131, “Water Quality Standards.”
26. 40 CFR Part 141, “National Primary Drinking Water Regulations.”
27. 40 CFR Parts 260-264 (subpart S), 265 and 268, “Hazardous Waste Implementing Rules.”
28. 40 CFR Part 279, “Standards for the Management of Used Oil.”
29. 40 CFR Part 300, “National Oil and Hazardous Substances Pollution Contingency Plan.”
30. 40 CFR Part 302, “Designation, Reportable Quantities and Notification.”
31. 40 CFR Part 355, “Emergency Planning and Notification.”
32. 40 CFR Part 761, “Polychlorinated Biphenyls (PCBs) Manufacturing, Processing Distribution in Commerce, and Use Prohibitions.”

11.0 LIST OF ACRONYMS

ALCATS: Ames Laboratory Corrective Action Tracking System

AMSO: Ames Site Office

CAA: Clean Air Act and Amendments

CAG: Community Advisory Group for Ames Laboratory environmental activities

CDS: Chemical Disposal Site

CERCLA: Comprehensive Environmental Response, Compensation and Liability Act

VSQG: Very small quantity generator

CFR: Code of Federal Regulations

CG: Concentration guide, DOE derived

CH: Chicago Operations Office of the U.S. Department of Energy

Ci: Curie, 3.7E10 disintegration’s per second

CWA: Clean Water Act

CX: Categorical exclusion, a class of activities determined to have no significant environmental impact

DOE: U.S. Department of Energy
EA: Environmental assessment
EIS: Environmental impact statement
EMR: Environmental management review
EMS: Environmental management system
EPA: U.S. Environmental Protection Agency
EPCRA: Emergency Planning and Community Right to Know Act
ERPP: Environmental Radiological Protection Plan
ESA: Endangered Species Act
ESH: Environment, Safety, Health and Assurance office of Ames Laboratory
FFCA: Federal Facilities Compliance Act
FIFRA: Federal Insecticide, Fungicide and Rodenticide Act
FS: Feasibility study
FSP: Field sampling plan
GOCO: Government owned, contractor operated facility
HEPA: High efficiency particulate air, a filter element or filtration system
HQ: Headquarters of U.S. Department of Energy
IAC: Iowa Administration Code
IDNR: Iowa Department of Natural Resources
IDPH: Iowa Department of Public Health
ISMS: Integrated Safety Management System
ISU: Iowa State University
IWS: Inactive waste site
LDR: Land disposal restriction
LQG: Large quantity generator
MCL: Maximum contaminant level
mg/L: Milligrams per liter; equivalent to ppm
mrem: Millirem
MS4s: Municipal Separate Storm Sewer Systems
mSv: Millisievert, 10^{-3} Sieverts
NEPA: National Environmental Policy Act
NESHAP: National Emission Standards for Hazardous Air Pollutants
NHPA: National Historic Preservation Act
NOV: Notice of violation
NPDES: National Pollutant Discharge Elimination System
NRC: Nuclear Regulatory Commission
ODS: Ozone depleting substance
PCB: Polychlorinated biphenyls
pCi: Picocurie, 10^{-12} Curies
PIDS: Performance indicator database system
QA: Quality assurance

QAP: Quality Assessment Program, DOE
RCRA: Resource Conservation Recovery Act
Rem: Roentgen equivalent man, radiation dose
RESRAD: Residual radiation model for sites
RI: Remedial investigation
RPP: Radiological Protection Plan, for Ames Laboratory
SARA: Superfund Amendments and Reauthorization Act
SDWA: Safe Drinking Water Act
SER: Site Environmental Report
SHPO State Historical Protection Officer
TASF: Technical and Administrative Support Facility, the Ames Laboratory office building
TCLP: Toxicity Characteristic Leaching Procedure
TPQ: Threshold-planning quantity
TRU: Transuranic waste
TSCA: Toxic Substances Control Act
WAS: Work authorization system of Ames Laboratory

12.0 DISTRIBUTION

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APPENDIX A

Air Permit Correspondences

1) U.S. Department of Energy Air Emissions Annual Report, Calendar Year 2020.

U.S. Department of Energy
Air Emissions Annual Report
Calendar Year 2020

SECTION I

Facility Information

Site Name:	Ames Laboratory, Iowa State University	
Operations Office:	Chicago Operations	
Address:	9800 South Cass Avenue Argonne, IL 60439	
Contact:	Sam Bigger	Phone: 515-294-8037
Site Operator:	Iowa State University	
Site Address:	2408 Pammel Dr., G40 TASF, Iowa State University Ames, IA 50011	
Contact:	Don Fortmann	Phone: 515-294-7926

Site Description:

The Ames Laboratory is located on the campus of Iowa State University (ISU) in Ames, Iowa. The Ames Laboratory is operated by ISU for the Department of Energy (DOE) under contract No. DE-AC02-07CH11358 in 2020. There are thirteen buildings owned by the DOE. The Ames Laboratory conducts basic and early-stage research in chemical, physical, mathematical, and engineering sciences that underlie energy technologies and other areas of national importance.

Ames Laboratory
Creating Materials & Energy Solutions
U.S. DEPARTMENT OF ENERGY

SECTION II

Methods for Dose Assessment/Air Emissions Data

1) There were no activities resulting in radioactive air emissions from Ames Laboratory activities during Calendar Year 2020 based on a review of research and operations.

2) Ames Laboratory does not have a registered radioactive air emissions unit.

3) Ames Laboratory's limited annual possession quantities are less than 40 CFR Part 61 Appendix E limits which demonstrates compliance with the 10 mrem/yr dose standard for the general public.

CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein and based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment. (See, 18 U.S.C. 1001).

Name: Dr. Adam Schwartz Title: Director, Ames Laboratory

Signature: _____ Date: 01-15-21

APPENDIX B

Inactive Waste Site Correspondences

1. **Letter from IDPH, Closure of nine sites, January 11, 1996**
2. **Letter from IDPH granting "unrestricted" release of the CDS, October 15, 1998**
3. **Letter from IDPH, Closure of the Former Iowa State College Dump Site, September 17, 2001**
4. **Letter from IDPH, Closure of the Fire Service Institute Training Area, February 26, 2002**

STATE OF IOWA

TERRY E. BRANSTAD, GOVERNOR

DEPARTMENT OF PUBLIC HEALTH
CHRISTOPHER G. ATCHISON, DIRECTOR

January 11, 1996

Warren R. Madden
Vice President for Business and Finance
Iowa State University
125 Beardshear Hall
Ames, Iowa 50011-2038

Dear Mr. Madden:

Reference is made to your letter of January 5, 1996 in which you request our concurrence on the status of nine inactive waste sites which we possibly contaminated with radioactive materials as a result of the operation of Ames Laboratory as a DOE contractor in the past. Listed below are the sites by name and our conclusions as to the status of the site regarding closure.

1. Ames Old Waste Water Treatment Facility (WWTF): Met criteria for unrestricted use per Department letters to the city of Ames dated June 16, 1994 and February 17, 1995.

2. Grand Avenue Under Pass: Based on the data provided by DOE, ISU and data collected by this Department this area meets the criteria for unrestricted use. In fact, there is information which indicates that this area never was subjected to the spreading of contaminated sludge from the WWTF.

3. Ames Municipal Cemetery: Based on the date provided by DOE, ISU and data collected by this Department this area meets the criteria for unrestricted use. In fact, there is information which indicates that this area never was subjected to the spreading of contaminated sludge from the WWTF.

4. Applied Science Center: Based on the data provided by DOE, ISU and data collected by this Department, this area meets the criteria for unrestricted use.

5. Block House Area : Based on the data provided by DOE, ISU and data collected by this Department, this area meets the criteria for unrestricted use.

6. Little Ankeny Debris Site: Based on the data provided by DOE, ISU and data collected by this Department, this area meets the criteria for unrestricted use.

7. Annex I: Based on the data provided by DOE, ISU and data collected by this Department, this area can be used as it is now, in perpetuity, without public health concerns. However, if the site is developed for any other purpose additional surveys or sampling will be necessary to confirm that if residual radioactive material exists it is not in amounts which could be of public health concern during the developmental process.

8. Annex II: : Based on the data provided by DOE, ISU and data collected by this Department, this area can be used as it is now, in perpetuity, without public health concerns. However, if the site is developed for any other purpose additional surveys or sampling will be necessary to confirm that if residual radioactive material exists it is not in amounts which could be of public health concern during the developmental process.

LUCAS STATE OFFICE BUILDING / DES MOINES, IOWA 50319-0075 / 515-281-5787
FAX # (515) 281-4958 / TDD-DEAF SERVICES #(515) 242-6156

9. Ames Municipal Airport: Based on the data provided by DOE, ISU and data collected by this Department, this area can be used as it is now, in perpetuity, without public health concerns. However, if the site is developed for any other purpose additional surveys or sampling will be necessary to confirm that if residual radioactive material exists it is not in amounts which could be of public health concern during the developmental process.

Based on the above, it is my opinion that we concur with the University's decision to bring the nine sites to closure with the special provisions placed on Annex I, II and the Airport. I would like to take this opportunity to thank you, the ISU Staff and the Ames Laboratory Staff who have assisted in working through the long laborious process of reading the conclusions. We certainly look forward to working with all of you in the future. If you have question regarding the above, please do not hesitate to contact me.

Sincerely,

Donald A. Flater, Chief
Bureau of Radiological Health
(515) 281-3478

cc: E. Sobottka, ISU
Tom Newman, City of Ames
Dr. Tom Barton, Ames Laboratory

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STATE OF IOWA

TERRY E. BRANSTAD, GOVERNOR

DEPARTMENT OF PUBLIC HEALTH
CHRISTOPHER G. ATCHISON, DIRECTOR

October 15, 1998

Emery Sobottka
Iowa State University
118 Agronomy Laboratory
Ames, Iowa 50011-3200

Dear Mr. Sobottka:

This correspondence refers to the "Characterization Report for the Ames Laboratory Chemical Disposal Site—Iowa State University." You submitted that report to us under cover of your letter dated September 30, 1998.

We have read and reviewed the report and analyzed the data. We agree with your conclusions and recommendations.

The site, known as the Ames Laboratory Chemical Disposal Site, meets the standards for unrestricted use. Additionally, we concur with your recommendation that the groundwater sampling frequency be reduced to annual. This sampling will continue until 2002.

If you have any questions or comments, please call Dan McGhee or me at (515)281-7007.

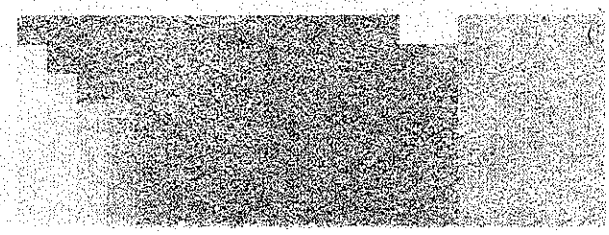
Sincerely,

Donald A. Flater, Chief
Bureau of Radiological Health

J:\ram\chemdisp\final report resp.doc

LUCAS STATE OFFICE BUILDING / 321 E. 12TH ST. / DES MOINES, IOWA 50319-0075
DEAF RELAY (HEARING OR SPEECH IMPAIRED) 1-800-735-2942 / INTERNET: HTTP://IDPH.STATE.IA.US/

FAMILY & COMM. HEALTH [illegible] HEALTH PROTECTION [illegible] PLANNING & ADMINISTRATION 515-281-5787 SUBSTANCE ABUSE & HEALTH PROMOTION 515-281-3641 DIRECTOR'S OFFICE 515-281-5604 [illegible]



STATE OF IOWA

THOMAS J. VILSACK
GOVERNOR

SALLY J. PEDERSON
LT. GOVERNOR

DEPARTMENT OF PUBLIC HEALTH
STEPHEN C. GLEASON, D.O., DIRECTOR

September 17, 2001

David Inyang, Ph.D., RSO
Iowa State University
118 Agronomy Lab.
Ames, Iowa 50011

Dear Dr. Inyang:

This correspondence refers to your letter to me dated August 22, 2001. In that letter you enclosed a report entitled, "Review and Assessment of the Former Iowa State College Dump Site." This report detailed the actions taken to assess the radiological hazard at that site. Your letter requested that we review and comment on the report.

The report references and analyzes the results of soil sampling at the former dumpsite. We have reviewed this data and your conclusions. We agree that the data does show that the former Iowa State College Dump Site meets the standards for unrestricted use.

We wish to remind you that our conclusions speak only to radiological standards and do not address heavy metals or organic compounds.

If you have any questions, please contact Dan McGhee at 515-725-0305 or me.

Sincerely,

Donald A. Flater

Donald A. Flater, Chief
Bureau of Radiological Health
(515) 281-3478

401 SW 7TH STREET, SUITE D / DES MOINES, IOWA 50309-4611
DEAF RELAY (HEARING OR SPEECH IMPAIRED) 1-800-735-2942 / INTERNET: HTTP://IDPH.STATE.IA.US/

DIRECTOR'S OFFICE 515-281-5605 FAX/515-281-4958
EXECUTIVE STAFF 515-281-5604 FAX/515-281-4958
DIV. OF ADMINISTRATION & REGULATORY AFFAIRS 515-281-5784 FAX/515-281-4958
DIV. OF ENVIRONMENTAL HEALTH 515-281-5784 FAX/515-281-4958
DIV. OF FAMILY & COMMUNITY HEALTH
DIV. OF HEALTH PROMOTION, PREVENTION & ADDICTIVE BEHAVIORS 515-281-3641
DIV. OF TOBACCO USE PREVENTION & CONTROL 515-281-6225

DES Hrc SNCS
NUCE IDPH Corresp

Fields of Opportunities

STATE OF IOWA

THOMAS J VILSACK
GOVERNOR

SALLY J PEDERSON
LT GOVERNOR

DEPARTMENT OF PUBLIC HEALTH
STEPHEN C GLEASON D O DIRECTOR

February 26, 2002

David Inyang, Ph D
Director, Environmental Health and Safety
Iowa State University
118 Agronomy Lab
Ames, Iowa 50011-3200

RE Release of site for unrestricted use

Dear Dr Inyang

This correspondence refers to your letter, dated February 20, 2002, to me In that letter you transmitted the "Final Status Survey Report for Fire Service Institute Training Area Iowa State University" You also requested "the site be released for unrestricted use"

We have reviewed the report and agree with your conclusion that the site meets the standards for unrestricted use You may refer to these standards in the Iowa Administrative Code 641-40 29(136C) We cannot, however, "release" this site because it was never restricted We reiterate, though, that the data demonstrates compliance with unrestricted use

If you have any questions, please contact Dan McGhee at 515-725-0305 or me

Sincerely,

Donald A. Flater

Donald A Flater, Chief
Bureau of Radiological Health
515-281-3478
515-725-0318 – FAX
dflater@idph state ia us

DAF/rk

APPENIX C

EPA and DOE Correspondences

1. **DOE-AMSO memorandum approving Laboratory's EMS, July 23, 2018**
2. **EPA letter (RCRA Inspection), June 10, 2019**

Department of Energy
Ames Site Office
9800 South Cass Avenue
Argonne, Illinois 60439

July 23, 2018

MEMORANDUM FOR THE RECORD

FROM: CYNTHIA BAEBLER, MANAGER
AMES SITE OFFICE

Cynthia K. Baebler

SUBJECT: DECLARATION THAT AMES LABORATORY ENVIRONMENTAL MANAGEMENT SYSTEM CONFORMS TO THE ISO 14001:2015 STANDARD

This memorandum documents that the Environmental Management System (EMS) for Ames Laboratory conforms to the International Organization for Standardization's (ISO) 14001:2015 standard, on the basis of results of a formal audit completed by a qualified party outside the control and scope of the EMS and my oversight of the EMS. This satisfies the requirements of DOE Order 436.1, *Departmental Sustainability* EMS, sections 4.c(3) and 5.e(2).

The EMS audit was completed from April 10-11, 2018, and identified no major nonconformities, one minor nonconformity and three Opportunities for Improvement (OIF). The minor nonconformity and OIFs have been addressed as outlined in the Ames Laboratory EMS Corrective Action Plan (CAP) and targeted for completion by August 1, 2018. The audit report is attached. Based on my review of the audit results and my oversight of the EMS, I declare that the Ames Laboratory EMS conforms to the ISO 14001:2015 standard.

Attachment:
2018 Ames Lab EMS Audit Report

cc w/attachment:
A. Schwartz, Ames Lab
C. Berard, AU-21
K. Carroll, DOE SPO
S. Whalen, Ames Lab
S. Morris-Benavides, Ames Lab
T. Murray, ISC-CH
B. Goplin, AMSO

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 7
11201 Renner Boulevard
Lenexa, Kansas 66219

SEP 2 4 2019

Mr. Sean Whalen
Manager, ESH & Emergency Management
Ames Laboratory – DOE
Iowa State University
2408 Pammel Drive
Ames, Iowa 50063
RCRA ID No.: IA6890008950

Dear Mr. Whalen:

On June 10, 2019, a representative of the U.S. Environmental Protection Agency inspected the referenced facility. The inspection was conducted under the authority of Section 3007 of the Resource Conservation and Recovery Act. A copy of the inspection report is enclosed for your information.

The EPA has reviewed the inspection report and determined that violations were documented. At the time of the inspection, the inspector presented you with a Notice of Preliminary Findings which described the violations. The EPA has reviewed your June 12, 2019, response to the violations and determined that it adequately addressed the violations. Therefore, no further submittals are required at this time. Please note that the EPA reserves its right to pursue appropriate enforcement actions.

I would also like to make you aware of revisions to the hazardous waste regulations that went into effect at the end of May 2017. The following link will take you to a web site where you can find links to the new regulations, summaries of the changes to the regulations, and other helpful information:

https://www.epa.gov/hwgenerators/final-rule-hazardous-waste-generator-improvements

Additionally, the new electronic manifest system launched on June 30, 2018. This system allows users of hazardous waste manifests to generate, track, receive, and submit manifests electronically on-line through the system. This system can assist generators with manifest record keeping requirements. For additional information on e-manifest, please visit our websites:

National website: https://www.epa.gov/e-manifest
EPA Region 7 website: https://www.epa.gov/ks/e-manifest

I would like to remind you that the referenced facility is responsible for maintaining compliance with all applicable hazardous waste regulations. If there are any questions regarding this letter, please contact Rebecca Wenner, of my staff, at (913) 551-7644, or by email at wenner.rebecca@epa.gov.

Sincerely,

DeAndrè Singletary
Acting Director
Enforcement and Compliance Assurance Division

cc: Amie Davidson, Supervisor, Solid Waste and Contaminated Sites Section
Iowa Department of Natural Resources