RCRA Inspection Report

1) Inspector and Author of Report

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2) Facility Information

North Carolina State University - Main Campus (NCSU - Main Campus)
Environmental Health and Safety Center
2620 Wolf Village Way
Raleigh, North Carolina 27606
EPA ID No.: NCD000830737

3) Responsible Officials

Karen Trimberger, Environmental Affairs Manager, NCSU - Main Campus
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4) Inspection Participants

Karen Trimberger, Manager of Environmental Affairs – NCSU - Main Campus
Mike Long, Environmental Health & Safety – NCSU - Main Campus
Ken Kretchman – Director of EH&S
Sean Bloszies – NCSU - Researcher
Andrew Ernst – NCSU – Researcher
Marco Valera – NCSU – Researcher
Allison Barnes – NCSU – Researcher
Brenna Zimmer – NCSU – Researcher
Dr. Lin Xi – NCSU – Researcher
Patty Routh – NCSU – Researcher
Bill Ferrell – NCSU Employee
Cheryl Brown – NCSU Employee
Barbara White – NCSU Lab Manager
Griffin Miller – NCSU – Researcher
Karl Fisher – NCSU – Researcher
Juliana Jardim – NCSU – Researcher
Jim McMurry – NCSU – Researcher
Sachin Agate – NCSU – Researcher
Marelis Zambravo – NCSU – Researcher
Beverly Miller – NCSU – Researcher
Runkun Sun – NCSU Researcher
Heather Goldman, Eastern Unit Supervisor NCDEQ

Aram Kim, Environmental Senior Specialist NCDEQ
Alan Newman, US EPA Region 4

5) Dates of Inspection

February 2, 2021, 8:00 a.m. – 4:30 p.m. and February 3, 2021, 8:30 a.m. - 4:00 p.m.

6) Applicable Regulations

Resource Conservation and Recovery Act (RCRA) Sections 3002 (42 U.S. Code – Annotated U.S.C.A. 6925 and 6927), Title 15A of the North Carolina Administrative Code (NCAC), Chapter 13; and 40 Code of Federal Regulation (C.F.R.), Parts 260 - 270, 273, 278, & 279.

7) Purpose of Inspection

The purpose of this inspection was to conduct an announced Resource Conservation and Recovery Act (RCRA) compliance evaluation inspection (CEI) to determine NCSU - Main Campus (or the Facility) compliance with the applicable RCRA regulations. This was an EPA lead inspection.

8) Previous Inspection History

NCSU - Main Campus was inspected by the EPA and NCDEQ on June 20, 2019 and January 13, 2020. The following deficiencies were found during the January 13, 2020 CEI: one open container in the permitted hazardous waste storage area. This violation was addressed by informal enforcement by NCDEQ.

9) Facility Description

The North Carolina State University (NCSU) is a "Land Grant" University founded in the 1880's and is the primary technological institute in the University of North Carolina System. NCSU offers undergraduate through post-graduate degrees at colleges within NCSU that specialize in Agriculture and Life Sciences, Design, Education, Engineering, Natural Resources, Physical and Mathematical Sciences, Textiles, and Veterinary Medicine. Research facilities are located on and off the NCSU - Main Campus. NCSU also provides studies in all areas of liberal and performing arts and sciences. Its major missions entail teaching, research, and extension services.

NCSU owns several major off-site teaching and research facilities in Raleigh, including (but not limited to) Centennial Campus, the Centennial Biomedical Campus (College of Veterinary Medicine), and Lake Wheeler Field Laboratory/Research Stations. In addition, other research units and field laboratories are located throughout the state. Statewide, NCSU covers about 2,500 acres (includes main campus and all other campuses, combined). NCSU operates approximately 1,500 to 2,000 teaching and research laboratories distributed through these numerous buildings, colleges, and properties. The NCSU operations also include several support services such as maintenance, grounds, motor pool, and an athletic department. The NCSU - Main Campus is owned by the State University system and consists of approximately 1,500 acres. The NCSU serves a total of over 30,000 students and 10,000 employees. The NCSU - Main Campus consists of approximately 20,000 students.

The primary NAICS code for NCSU - Main Campus is 611310. According to the most recent notification to the Division of Waste Management - North Carolina Department of Environmental Quality (NCDEQ), the NCSU - Main Campus is operating as a large quantity generator (LQG) of hazardous waste, transporter of hazardous waste and permitted treatment, storage and disposal facility (TSDF). On March 1, 2018, the Facility notified NCDEQ under Subpart K (specific to academic labs) that it would comply with the applicable requirements of that Subpart for hazardous wastes generated within laboratories on its campus.

The NCSU's Hazardous Waste Permit # NCD000830737-R2 for on-site storage facility became effective on January 6, 2015 and expires on January 6, 2025. NCSU - Main Campus uses Harsco Clean Earth (Clean Earth) as the contractor to handle and manage the hazardous waste containers in the permitted hazardous waste management facility or Waste Management Facility (WMF). Employees of Clean Earth pick-up and transport the hazardous waste, non-hazardous waste, universal waste, and low-level radioactive waste from the SAAs at the main campus and university owned off-site generation areas to the permitted hazardous waste management facility.

An online waste pick-up request and tracking system is used to initiate waste pick-up from SAAs. The generator (must be a NCSU - Main Campus student or employee) creates a unique ID number/ticket and enters all required information about the waste container(s). The request for pick-up is then submitted on-line to the NCSU - Main Campus' Environmental Health and Safety (EHS) staff, who then plan and coordinate the pick-up. The contractor conducts the sorting, bulking, lab packing, labeling, dating, and prepares the hazardous waste manifest. The contractor also is responsible for shipping hazardous waste containers off-site to a permitted TSDF and conducts various inspections of the permitted facility.

The NCSU - Main Campus EHS personnel prepare waste profiles/waste acceptance, schedule pick-ups at the hazardous waste generator sites, conduct hazardous waste audits, and give hazardous waste training to all hazardous waste generators at NCSU.

The permitted hazardous waste management facility may accept waste streams as described above. Waste categories that are routinely generated at NCSU - Main Campus' include:

1. Hazardous Waste: spent solvents, expired chemicals, waste flammable liquids, lab packs, and waste paint

2. Other Waste Streams: Ballast (PCB and non-PCB containing), Used Oil – Used oil generated on-site is sent off to be recycled, Universal Waste (UW) – Used fluorescent lamps, used batteries, mercury containing equipment

10) Opening Conference

On January 29, 2021, the EPA's inspector Alan Newman and NCDEQ's inspectors Heather Goldman and Aram Kim contacted Ms. Karen Trimberger, the Environmental Affairs Manager, to announce a CEI starting on February 2, 2021. Procedures regarding COVID-19 were discuss in preparation for the CEI. On February 2, 2021, the inspection team arrived at NCSU at approximately 8:00 a.m. Ms. Trimberger immediately received the inspectors. Ms. Trimberger and the inspectors were joined by Michael Long for the opening conference. The inspectors introduced themselves, showed their credentials to Ms. Trimberger and Mr. Long, and explained the purpose of the visit. The inspectors described the anticipated use of a digital camera during

the inspection and discussed records to be reviewed onsite and records to be reviewed remotely. The inspectors discussed the company's ability, pursuant to 40 C.F.R. § 2.203, to assert a business confidentiality claim for information submitted to the EPA. The company did not assert a business confidentiality claim. The inspection participants also discussed health and safety protocols and required personal protective equipment before Ms. Trimberger and Mr. Long led the inspectors on a tour of the Facility operations.

Ms. Trimberger provided an overview of the facility's history and current operations during the opening conference. The company does not appear to meet the Small Business Regulatory Enforcement Fairness Act's classification of a "small business," which is generally set by the Small Business Administration using the business' SIC/NAICS code and annual receipts or number of employees. Therefore, the EPA inspector did not provide a copy of the Agency's information sheet for small businesses.

11) Findings

The inspection team initially toured NCSU's permitted hazardous waste container storage area, the Waste Management Facility (WMF). The WMF is located at 2620 Wolf Village Way, Raleigh, Wake County, North Carolina (latitude 35° 27' 10" and longitude 78° 41' 4") adjacent to the Department of Environmental Affairs offices on the western portion of the NCSU - Main Campus. The WMF is surrounded by a chain-link fence and a gate. The WMF consists of approximately 10,000 square feet and is constructed with a concrete floor and roof, concrete block walls and steel entry doors. The floors in the hazardous waste areas have an additional protective layer of epoxy, fiberglass resin or other equivalent chemical resistant coating. The WMF is permitted for hazardous waste bulking and storage operations. NCSU - Main Campus also conducts low-level radioactive waste management activities in this area. The WMF is constructed with an overhead water suppression system.

A maximum of 3,500 gallons of hazardous waste is permitted for storage in the WMF. The description and capacity of storage areas are as follows:

Room Number	Description	Maximum Storage
206	Radioactive Mixed waste	150 gallons
209	Refrigerated, dangerous when wet	45 gallons
214	Main storage: lab pack, bulk solids, UW	1,700 gallons
215	Consolidation & bulk liquids	1,600 gallons
Auxiliary Unit	Explosives	5 gallons

The following areas were inspected in the WMF:

Room 214 is divided into four cells which are separated by concrete block walls and each is equipped with a containment trench. The inspectors observed that the facility was storing less than the permitted amount of hazardous waste allowed in this area.

- Room 214 Cell 214-R – Receiving

NCSU is in the process of converting the campus to LED lighting. At the time of the inspection, NCSU was storing one pallet of 4-foot and miscellaneous universal waste lamps, three 4-foot boxes of universal waste lamps, and one 15-gallon poly container of crushed fluorescent lamps

in this cell (Photos 1-2). These containers were in good condition, labeled, and closed. The oldest accumulation start date was 1/4/2021.

- Room 214 Cell 214-I – Inorganic Waste

NCSU was storing approximately 200 gallons of universal waste batteries, oxidizers, and other inorganic waste in this cell (Photo 3). Small containers were stored in plastic trays on a three high metal rack and lab-packed into 55-gallon containers in this area. Larger containers were stored on the floor of the cell. These containers were in good condition, labeled, and closed. The oldest accumulation start date was 1/4/2021.

- Room 214 Cell 214-O

NCSU utilizes Cell 214-O to accumulate organic hazardous waste and lab-pack them into 55-gallon containers. NCSU currently manages aerosol cans as hazardous waste but plans to transition accumulation and management of aerosol cans to universal waste. Collection points around campus are picked up on a weekly basis. NCSU was accumulating approximately 100 gallons of organic waste in this cell on the day of the inspection (Photo 4). Each container was in good condition, closed, and labeled. The oldest accumulation start date was 1/5/2021. Some of the labels in this area were difficult to read. Please ensure that all labels are legible.

- Room 214 Cell 214-U

NCSU utilizes Cell 214-U for staging hazardous and non-regulated waste for shipment offsite. There was approximately 220 gallons of waste in this area on the day of the inspection (Photo 5). The oldest accumulation start date was 1/4/2021. These containers were in good condition, closed, and labeled.

- Sumps in Room 214

The inspection team noted dirt and debris in the grated sumps of Room 214 (Photos 2-5). The inspection team asked how often the sumps underneath the grates are cleared of debris. NCSU personnel stated that there was no schedule for cleaning these sumps. The inspection team asked NCSU to add this cleaning to the maintenance schedule. Identification of spills would be difficult with the sumps containing dirt and debris. Each of the sumps in individual cells are connected and drain to a cistern. The cistern is sized to accumulate a fire event sprinkler system response.

- Room 215

NCSU bulks multiple liquid waste streams for shipment offsite (Photos 6-10). Room 215 is constructed with a central trench/sump covered by a metal grate and a central ventilation system. NCSU routinely bulks the following wastes streams: acids, non-halogenated fuels, waste flammable liquids, halogenated fuels, used oils, and non-regulated liquids (Photo 8). Each waste stream is bulked into a designated 55-gallon drum housed in one of six individual stationary fume hood units. On the day of the inspection, the inspectors observed multiple containers staged for bulking (Photos 6, 7, and 9).

There was one area where aisle space was a concern (Photo 10). The NCSU personnel should ensure that adequate aisle space is provided for all containers in this room as required by Permit Condition III.E. Aisle Space: At a minimum, the Permittee shall maintain aisle space as required by 40 CFR § 264.35 as adopted in 15A NCAC 13A .0109. A minimum aisle space of three (3) feet shall be maintained at all times. The total volume of waste present on the day of the inspection was approximately 500 gallons and the oldest accumulation start date was 1/4/2021.

- Room 206

NCSU was using Room 206 for accumulation and storage of hazardous waste mixed with low level radioactive waste (LLMW). LLMW is a waste that contains both low-level radioactive waste and RCRA hazardous waste. 40 C.F.R. § 266.230 (Subpart N) requires a written notification for claiming the conditional exemption for LLMW, an annual inventory, quarterly inspections, and a contingency plan. The conditional exemption allows for the storage of LLMW for a period greater than one year. NCSU submitted a one-time notification letter required by 40 C.F.R. § 266.230 (Subpart N) dated 12/1/2015 noting the following waste codes: D001, D002, D004, D016, D018, D022, D039, F002, F003, F005 and U220. NCSU maintains an annual inventory, conducts monthly inspections, and maintains an integrated contingency plan. The inspectors observed one gallon of LLMW is this area in six containers. The container's labeling included the D001/F003 EPA waste codes and the oldest accumulation start date was January 30, 2019. Adjacent to this cell, there was one 55-gallon metal container of used oil that was closed and labeled with the words "Used Oil."

- Floor Coating

NCSU personnel stated that the floor for the permitted area is scheduled to be recoated in May 2021. The inspection team asked if the floor sumps would be included. NCSU said that was not part of the original project.

- Varsity Research Building Room 1602 and 1003

Room 1602 in the Varsity Research Building was inaccessible during the inspection. The inspection team did not note any waste containers in Room 1003.

- Varsity Research Building Room 1512

At the time of the inspection, the inspectors observed four containers of waste in the designated waste area of Room 1512 (Photos 11-12). According to the NCSU researcher present, the waste had been stored in this area for approximately one year. None of the containers were dated with an accumulation start date or labeled with the words "unwanted material." One container was not labeled with the name and/or description of the chemical contents. Each container was in good condition and closed.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(1)], the following information must be affixed or attached to the container (i) the words "unwanted material" or another equally effective term that is to be used consistently by the eligible academic entity and that is identified in Part I of the Laboratory Managment Plan, and (ii) sufficient information to alert emergency responders to the contents of the container. Examples of information that

would be sufficient to alert emergency responders to the contents of the container include, but are not limited to: (A) The name of the chemical(s), (B) The type or class of chemical, such as organic solvents or halogenated organic solvents.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(2)], the following information may be affixed or attached to the container, but must at a minimum be associated with the container: (i) the date that the unwanted material first began accumulating in the container, and (ii) information sufficient to allow a trained professional to properly identify whether an unwanted material is a solid and hazardous waste and to assign the proper hazardous waste code(s), pursuant to 40 C.F.R.§ 262.11. Examples of information that would allow a trained professional to properly identify whether an unwanted material is a solid or hazardous waste include, but are not limited to: (A) The name and/or description of the chemical contents or composition of the unwanted material, or, if known, the product of the chemical reaction, (B) Whether the unwanted material has been used or is unused, and (C) A description of the manner in which the chemical was produced or processed, if applicable.

- Varsity Research Building Room 1543

At the time of the inspection, the inspectors observed the following containers in Varsity Research Building Room 1543:

- one 15-gallon flip top container of biohazard waste,
- one 1000 ml container labeled unwanted material with a description of the chemical contents, dated 2/29/2020,
- one 4-liter container of acetone waste that was dated 1/7/2020 (>1 year) that was not labeled with the words "unwanted material", and
- one 500 ml container of waste glycol + HCL dated 2/4/2020 that was not labeled with the words "unwanted material" (Photo 13).

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(1)(i)], the following information must be affixed or attached to the container (i) the words "unwanted material" or another equally effective term that is to be used consistently by the eligible academic entity and that is identified in Part I of the Laboratory Managment Plan.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R.§ 262.208(a)], an eligible academic entity must either: (1) remove all containers of unwanted material from each laboratory on a regular interval, not to exceed 12 months; or (2) remove containers of unwanted material from each laboratory within 12 months of each container's accumulation start date.

- Varsity Research Building Room 1603

The inspection team estimated that there was approximately 5 gallons of waste in the designated waste area in Room 1603. There were 13 containers ranging from 200 ml to 4 L (Photo 14). The oldest accumulation start date was 7/20/2020. These containers were closed and in good condition.

The inspectors observed two 200 ml containers that were not labeled with the words "unwanted material", the date of accumulation, or with a description of the chemical contents. Researchers

in this area stated that these two containers had been in this waste area for the last "couple of weeks."

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(1)], the following information must be affixed or attached to the container (i) the words "unwanted material" or another equally effective term that is to be used consistently by the eligible academic entity and that is identified in Part I of the Laboratory Managment Plan, and (ii) sufficient information to alert emergency responders to the contents of the container. Examples of information that would be sufficient to alert emergency responders to the contents of the container include, but are not limited to: (A) The name of the chemical(s), (B) The type or class of chemical, such as organic solvents or halogenated organic solvents.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(2)], the following information may be affixed or attached to the container, but must at a minimum be associated with the container: (i) the date that the unwanted material first began accumulating in the container, and (ii) information sufficient to allow a trained professional to properly identify whether an unwanted material is a solid and hazardous waste and to assign the proper hazardous waste code(s), pursuant to 40 C.F.R.§ 262.11. Examples of information that would allow a trained professional to properly identify whether an unwanted material is a solid or hazardous waste include, but are not limited to: (A) The name and/or description of the chemical contents or composition of the unwanted material, or, if known, the product of the chemical reaction, (B) Whether the unwanted material has been used or is unused, and (C) A description of the manner in which the chemical was produced or processed, if applicable.

- Polk Building

The inspection team inspected each laboratory the Polk Building. Rooms 121, 132, 151, and 212 were inaccessible on the day of the inspection. There were no waste containers noted in Rooms 134, 237, 243, 250, 254, or 326.

- Polk Building Room 145

At the time of the inspection, the inspectors observed one 4-liter container of waste unlabeled and undated under a laboratory hood (Photo 15). NCSU researchers in this area stated that this waste had been stored in this area for almost a year.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(1)], the following information must be affixed or attached to the container (i) the words "unwanted material" or another equally effective term that is to be used consistently by the eligible academic entity and that is identified in Part I of the Laboratory Managment Plan, and (ii) sufficient information to alert emergency responders to the contents of the container. Examples of information that would be sufficient to alert emergency responders to the contents of the container include, but are not limited to: (A) The name of the chemical(s), (B) The type or class of chemical, such as organic solvents or halogenated organic solvents.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(2)], the following information may be affixed or attached to the container, but must at a minimum be associated with the container: (i) the date that the unwanted material first began accumulating in the

container, and (ii) information sufficient to allow a trained professional to properly identify whether an unwanted material is a solid and hazardous waste and to assign the proper hazardous waste code(s), pursuant to 40 C.F.R.§ 262.11. Examples of information that would allow a trained professional to properly identify whether an unwanted material is a solid or hazardous waste include, but are not limited to: (A) The name and/or description of the chemical contents or composition of the unwanted material, or, if known, the product of the chemical reaction, (B) Whether the unwanted material has been used or is unused, and (C) A description of the manner in which the chemical was produced or processed, if applicable.

- Polk Building Room 137

At the time of the inspection, the inspectors observed one 4-liter container of acidic waste and one 5-gram bottle of expired material, which were not dated or labeled with the words "unwanted material", in a designated waste secondary containment bin (Photo 16). NCSU researchers stated that the 4-liter container began accumulating waste in the previous fall and that the 5-gram bottle was generated approximately 11/2020. Another 4-liter container in the hood area was observed accumulating empty acidic tubes.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(1)], the following information must be affixed or attached to the container (i) the words "unwanted material" or another equally effective term that is to be used consistently by the eligible academic entity and that is identified in Part I of the Laboratory Managment Plan, and (ii) sufficient information to alert emergency responders to the contents of the container. Examples of information that would be sufficient to alert emergency responders to the contents of the container include, but are not limited to: (A) The name of the chemical(s), (B) The type or class of chemical, such as organic solvents or halogenated organic solvents.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(2)], the following information may be affixed or attached to the container, but must at a minimum be associated with the container: (i) the date that the unwanted material first began accumulating in the container, and (ii) information sufficient to allow a trained professional to properly identify whether an unwanted material is a solid and hazardous waste and to assign the proper hazardous waste code(s), pursuant to 40 C.F.R.§ 262.11. Examples of information that would allow a trained professional to properly identify whether an unwanted material is a solid or hazardous waste include, but are not limited to: (A) The name and/or description of the chemical contents or composition of the unwanted material, or, if known, the product of the chemical reaction, (B) Whether the unwanted material has been used or is unused, and (C) A description of the manner in which the chemical was produced or processed, if applicable.

- Polk Building Room 110

At the time of the inspection, the inspectors observed that NCSU was accumulating multiple containers in plastic bins in the designated waste area of this room (Photo 17). Inspectors observed containers ranging from 100 ml to 4-liters. Three of the larger containers were labeled and dated, but eight containers were not dated, and seven containers were not labeled with the words "unwanted material" or with a description of the chemical contents.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(1)], the following information must be affixed or attached to the container (i) the words "unwanted material" or another equally effective term that is to be used consistently by the eligible academic entity and that is identified in Part I of the Laboratory Managment Plan, and (ii) sufficient information to alert emergency responders to the contents of the container. Examples of information that would be sufficient to alert emergency responders to the contents of the container include, but are not limited to: (A) The name of the chemical(s), (B) The type or class of chemical, such as organic solvents or halogenated organic solvents.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(2)], the following information may be affixed or attached to the container, but must at a minimum be associated with the container: (i) the date that the unwanted material first began accumulating in the container, and (ii) information sufficient to allow a trained professional to properly identify whether an unwanted material is a solid and hazardous waste and to assign the proper hazardous waste code(s), pursuant to 40 C.F.R.§ 262.11. Examples of information that would allow a trained professional to properly identify whether an unwanted material is a solid or hazardous waste include, but are not limited to: (A) The name and/or description of the chemical contents or composition of the unwanted material, or, if known, the product of the chemical reaction, (B) Whether the unwanted material has been used or is unused, and (C) A description of the manner in which the chemical was produced or processed, if applicable.

- Polk Building Room 228

At the time of the inspection, the inspectors observed six 4-liter waste containers under a sink in plastic bins in a cabinet (Photo 18). One container, which was dated 12/10/2020, was not labeled with words "unwanted material". The other containers were labeled with the words "unwanted material" and dated as follows; 5/20/2019 (>1 year), 5/22/2019 (>1 year), 7/20/2019 (>1 year), 7/20/2019 (>1 year), and 3/15/2020. Four of these containers were dated over 12 months prior to the inspection date.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(1)(i)], the following information must be affixed or attached to the container (i) the words "unwanted material" or another equally effective term that is to be used consistently by the eligible academic entity and that is identified in Part I of the Laboratory Managment Plan.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R.§ 262.208(a)], an eligible academic entity must either: (1) remove all containers of unwanted material from each laboratory on a regular interval, not to exceed 12 months; or (2) remove containers of unwanted material from each laboratory within 12 months of each container's accumulation start date.

- Polk Building Room 322

The NCSU laboratory manager was in process of consolidating 17 containers that were being cleaned out of other laboratories on the day of the inspection. Multiple containers were unlabeled and undated (Photo 19). This is an area of concern for the inspection team.

- Polk Building Room 329

At the time of the inspection, the inspectors observed HPLC waste in a 4-liter bottle. This bottle was not labeled with an accumulation start date or with the words "unwanted material" (Photo 20). At least nine other containers were left behind by a researcher in this room but were not managed as described int the laboratory management plan (Photos 21-23). One bottle was leaking material out of the cap (Photo 23).

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(1)(i)], the following information must be affixed or attached to the container (i) the words "unwanted material" or another equally effective term that is to be used consistently by the eligible academic entity and that is identified in Part I of the Laboratory Managment Plan.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(2)], the following information may be affixed or attached to the container, but must at a minimum be associated with the container: (i) the date that the unwanted material first began accumulating in the container.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(b)(1)], an eligible academic entity must properly manage containers of unwanted material in the laboratory to assure safe storage of the unwanted material, to prevent leaks, spills, emissions to the air, adverse chemical reactions, and dangerous situations that may result in harm to human health or the environment. Containers must be maintained and kept in good condition and damaged containers must be replaced, overpacked, or repaired.

- Polk Building Room 312

At the time of the inspection, the inspectors observed the following in the Polk Building, Room 312:

- two 4-liter glass containers labeled "6N HCL Waste", which were not labeled with the words "unwanted material" or with the date that the unwanted material first began accumulating,
- one 2.5-liter container labeled "BUN assay waste" dated 5/31/2019 (>1 year) This container was not labeled with the specified chemical contents of the waste or with the words "unwanted material" (Photos 24-25),
- one 500 ml container of hazardous waste labeled "NEFA Assay Reagents" dated 9/30/2014 (>1 year). This container has been stored for greater than one year and was not labeled with the words "unwanted material" (Photos 26-27).
- one 75 ml container of hazardous waste labeled "10N Sulfuric Acid" and dated 7/2016 (>1 year) (Photos 26-27). This container has been stored for greater than one year and was not labeled with the words "unwanted material." This container was labeled as hazardous waste but was not labeled with the words "unwanted material".
- one gallon of sulfuric acid waste without an accumulation start date or the words "unwanted material" (Photo 28).

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(1)], the following information must be affixed or attached to the container (i) the words "unwanted material" or another equally effective term that is to be used consistently by the eligible academic entity and that

is identified in Part I of the Laboratory Managment Plan, and (ii) sufficient information to alert emergency responders to the contents of the container. Examples of information that would be sufficient to alert emergency responders to the contents of the container include, but are not limited to: (A) The name of the chemical(s), (B) The type or class of chemical, such as organic solvents or halogenated organic solvents.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(2)], the following information may be affixed or attached to the container, but must at a minimum be associated with the container: (i) the date that the unwanted material first began accumulating in the container, and (ii) information sufficient to allow a trained professional to properly identify whether an unwanted material is a solid and hazardous waste and to assign the proper hazardous waste code(s), pursuant to 40 C.F.R.§ 262.11. Examples of information that would allow a trained professional to properly identify whether an unwanted material is a solid or hazardous waste include, but are not limited to: (A) The name and/or description of the chemical contents or composition of the unwanted material, or, if known, the product of the chemical reaction, (B) Whether the unwanted material has been used or is unused, and (C) A description of the manner in which the chemical was produced or processed, if applicable.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R.§ 262.208(a)], an eligible academic entity must either: (1) remove all containers of unwanted material from each laboratory on a regular interval, not to exceed 12 months; or (2) remove containers of unwanted material from each laboratory within 12 months of each container's accumulation start date.

At the time of the inspection, the inspection team noted six 6-inch and one 18-inch universal waste lamps in a bin (Photos 24 and 26). The inspectors observed that these universal waste lamps were unlabeled, not managed in a way that prevents release to the environment, and that NCSU was unable to demonstrate the length of time that the universal waste lamps had been accumulated.

Pursuant 15A NCAC 13A .0119(b) [40 C.F.R. § 273.13(d)], a SQHUW must manage universal waste lamps in a way that prevents releases of any universal waste or component of a universal waste to the environment.

Pursuant to 15A NCAC 13A .0119(b)] [40 C.F.R. § 273.14(e)], a SQHUW must label or mark each lamp or container of lamps clearly with one of the following phrases: "Universal Waste-Lamp(s),"or "Waste Lamp(s)," or "Used Lamps."

Pursuant to 15A NCAC 13A .0119(b) [40 C.F.R. § 273.15(a) and (c)], a SQHUW may accumulate universal waste no longer than one year and must to be able to demonstrate the length of time that the universal waste has accumulated from the date that it became a waste or was received.

At the time of the inspection, the inspectors observed that NCSU was storing a 1-gallon blue plastic container of used pump oil that was not labeled with the words "used oil."

Pursuant to 15A NCAC 13A .0118(c) [40 C.F.R. § 279.22(c)(1)], containers and aboveground tanks used to store used oil at generator facilities must be labeled or marked clearly with the words "Used Oil."

- Polk Building Room 310

At the time of the inspection, the inspectors observed that NCSU was storing the following containers in Polk Building, Room 310:

- a 2.5-liter plastic container of nitric acid waste, which was not labeled with the words "unwanted material" or with an accumulation start date (Photo 29), and
- a 5-gallon container labeled hazardous waste described as "nitric ashed" attached to an atomic analyzer, which was not labeled with the words "unwanted material" or with an accumulation start date (Photo 30).

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(1)(i)], the following information must be affixed or attached to the container (i) the words "unwanted material" or another equally effective term that is to be used consistently by the eligible academic entity and that is identified in Part I of the Laboratory Managment Plan.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(2)(i)], the following information may be affixed or attached to the container, but must at a minimum be associated with the container: (i) the date that the unwanted material first began accumulating in the container.

- Polk Building Room 302

At the time of the inspection, the inspectors observed one 4-liter glass container labeled "acetone waste" in the bin designated for hazardous waste under a lab hood (Photo 31). This container was not labeled with the words "unwanted material" or an accumulation start date.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(1)(i)], the following information must be affixed or attached to the container (i) the words "unwanted material" or another equally effective term that is to be used consistently by the eligible academic entity and that is identified in Part I of the Laboratory Managment Plan.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(2)(i)], the following information may be affixed or attached to the container, but must at a minimum be associated with the container: (i) the date that the unwanted material first began accumulating in the container.

- Yarborough Steam Plant

The Yarborough Steam Plant serves as the power plant for the university. The plant produces steam and chill water. NCSU was accumulating used oil, used oil rags, and aerosol cans in this building. NCSU was storing two 55-gallons of used oil and two 55-gallons of used oil filters/rags in two locations in the plant. These containers were in good condition, closed, and labeled. NCSU designated one satellite accumulation area (SAA) for accumulating aerosol cans in this building. The inspectors observed one 30-gallon container in this SAA. This container was labeled as hazardous waste and included an indication of the hazard. NCSU is transitioning from managing this waste stream from hazardous waste to universal waste.

- Robertson Wing / Biltmore Building

The inspection team inspected each laboratory in the Robertson Wing of the Biltmore Building. Room 1234 was inaccessible on the day of the inspection. There were no waste containers noted in Rooms 1118, 1119, 1227, 1235, 3106, 3219, and 3221B.

- Robertson Wing Room 3101

NCSU was storing 11 containers of waste in two designated bins under a hood in Room 3101 (Photo 33). There was one open 4-liter bottle that was not labeled as unwanted material and not dated. There were five 1-liter containers: two were open, one was not dated, one was not labeled with words "unwanted material", and one was not labeled with the chemical compound. The oldest accumulation start date was 8/11/2020. There were five smaller containers. One of these was dated; the others were not labeled or dated. NCSU researchers stated that a fire occurred in this area in July 2020 due to a mixture of incompatible chemicals. The laboratory was cleaned; and all chemicals were removed. There did not appear to be any chemical waste that had been stored for greater than a year in this room.

In summary, there was a total of three open containers, seven containers that were not marked with the words "unwanted material", six containers that were not dated, and 6 containers that did not specify the chemical compound.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(b)(3)], an eligible academic entity must properly manage containers of unwanted material in the laboratory to assure safe storage of the unwanted material, to prevent leaks, spills, emissions to the air, adverse chemical reactions, and dangerous situations that may result in harm to human health and the environment. Proper container management must include the following: (3) Containers must be kept closed at all times.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(1)], the following information must be affixed or attached to the container (i) the words "unwanted material" or another equally effective term that is to be used consistently by the eligible academic entity and that is identified in Part I of the Laboratory Managment Plan, and (ii) sufficient information to alert emergency responders to the contents of the container. Examples of information that would be sufficient to alert emergency responders to the contents of the container include, but are not limited to: (A) The name of the chemical(s), (B) The type or class of chemical, such as organic solvents or halogenated organic solvents.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(2)], the following information may be affixed or attached to the container, but must at a minimum be associated with the container: (i) the date that the unwanted material first began accumulating in the container, and (ii) information sufficient to allow a trained professional to properly identify whether an unwanted material is a solid and hazardous waste and to assign the proper hazardous waste code(s), pursuant to 40 C.F.R.§ 262.11. Examples of information that would allow a trained professional to properly identify whether an unwanted material is a solid or hazardous waste include, but are not limited to: (A) The name and/or description of the chemical contents or composition of the unwanted material, or, if known, the product of the chemical reaction, (B) Whether the unwanted material has been used or is

unused, and (C) A description of the manner in which the chemical was produced or processed, if applicable.

- Robertson Wing Room 3103

There was one 1-liter of waste in Room 3103 that was attached with a thin tube to a diagnostic machine that was not in operation. This container was closed, labeled, and in good condition (Photo 34). This container was dated 12/8/2014 and labeled as hazardous waste. NCSU researchers stated that this container was a working container and that the date was the date the container was opened. However, this container was not emptied into a collection container after the process had completed or at the end of the shift. NCSU researchers stated that the container had last been emptied sometime in 2020.

Pursuant to the NCSU's Laboratory Managment Plan (September 2020) Section 5.1, *unwanted material collected during processing (e.g., chromatography) on a continuous basis must be collected via tubes that are fed through the cap or container closure so that the container is closed.*

- *Containers that are connected to HPLC machines and the like shall be called a "working container" as long as it 1) is less than or equal to 2 gallons or the amount accumulated in the container never exceeds 2 gallons) and 2) is in use at a laboratory bench, hood, or other work station, to collect unwanted material from a laboratory experiment or procedure.*
- *If a container that is larger than 2 gallons used as a Working Container, the 2-gallon fill line must be marked on the container prior to use.*
- *The container may be used until the end of the procedure or work shift, whichever comes first, at which time it must be emptied into a container that is closed after the contents of the working container are added.*

There were four containers, each approximately 1-liter in size, stored in the designated waste bin in Room 3103 (Photo 35). Three containers were labeled "unwanted material," indicated the specific chemicals and hazards, were closed, and in good condition. One container was labeled "UWM" waste but not labeled with the words "unwanted material", with the specific chemical name, or the accumulation start date.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(1)], the following information must be affixed or attached to the container (i) the words "unwanted material" or another equally effective term that is to be used consistently by the eligible academic entity and that is identified in Part I of the Laboratory Managment Plan, and (ii) sufficient information to alert emergency responders to the contents of the container. Examples of information that would be sufficient to alert emergency responders to the contents of the container include, but are not limited to: (A) The name of the chemical(s), (B) The type or class of chemical, such as organic solvents or halogenated organic solvents.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(2)], the following information may be affixed or attached to the container, but must at a minimum be associated with the container: (i) the date that the unwanted material first began accumulating in the container, and (ii) information sufficient to allow a trained professional to properly identify whether an unwanted material is a solid and hazardous waste and to assign the proper

hazardous waste code(s), pursuant to 40 C.F.R.§ 262.11. Examples of information that would allow a trained professional to properly identify whether an unwanted material is a solid or hazardous waste include, but are not limited to: (A) The name and/or description of the chemical contents or composition of the unwanted material, or, if known, the product of the chemical reaction, (B) Whether the unwanted material has been used or is unused, and (C) A description of the manner in which the chemical was produced or processed, if applicable.

- Robertson Wing Room 3107

NCSU was storing one 5-gallon container and one 500 ml container in a green designated waste bin (Photo 36). These containers were labeled "unwanted material," marked to indicate the specific chemicals and hazards, closed, and in good condition. Also, in this bin was a plastic bag which contained a leaking container. This container was labeled as aquasol. This container was not labeled with the words "unwanted material", the specific chemical name or hazard, or the accumulation start date.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(1)], the following information must be affixed or attached to the container (i) the words "unwanted material" or another equally effective term that is to be used consistently by the eligible academic entity and that is identified in Part I of the Laboratory Managment Plan, and (ii) sufficient information to alert emergency responders to the contents of the container. Examples of information that would be sufficient to alert emergency responders to the contents of the container include, but are not limited to: (A) The name of the chemical(s), (B) The type or class of chemical, such as organic solvents or halogenated organic solvents.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(2)], the following information may be affixed or attached to the container, but must at a minimum be associated with the container: (i) the date that the unwanted material first began accumulating in the container, and (ii) information sufficient to allow a trained professional to properly identify whether an unwanted material is a solid and hazardous waste and to assign the proper hazardous waste code(s), pursuant to 40 C.F.R.§ 262.11. Examples of information that would allow a trained professional to properly identify whether an unwanted material is a solid or hazardous waste include, but are not limited to: (A) The name and/or description of the chemical contents or composition of the unwanted material, or, if known, the product of the chemical reaction, (B) Whether the unwanted material has been used or is unused, and (C) A description of the manner in which the chemical was produced or processed, if applicable.

- Robertson Wing Room 3121

NCSU was storing multiple containers of waste in the designated waste area of Room 3121 (Photos 37-39). The largest container was a 5-gallon container of unwanted diesel in a closed yellow plastic container. This container was not labeled with an accumulation start date. There was one 1-liter plastic container of combustible liquids dated 3/2/2020 in good condition, closed, and labeled. There were approximately 70 small containers in the designated waste bin in Room 3121 that were in good condition and closed. The total estimated volume of these containers is one gallon. Two of these containers were labeled as unwanted material, but none of these 70 containers were dated or labeled to specify the chemical compounds in the container.

In summary, there was a total of 68 containers that were not marked with the words "unwanted material", 71 containers that were not dated, and 70 containers that did not specify the chemical compound.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(1)], the following information must be affixed or attached to the container (i) the words "unwanted material" or another equally effective term that is to be used consistently by the eligible academic entity and that is identified in Part I of the Laboratory Managment Plan, and (ii) sufficient information to alert emergency responders to the contents of the container. Examples of information that would be sufficient to alert emergency responders to the contents of the container include, but are not limited to: (A) The name of the chemical(s), (B) The type or class of chemical, such as organic solvents or halogenated organic solvents.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(2)], the following information may be affixed or attached to the container, but must at a minimum be associated with the container: (i) the date that the unwanted material first began accumulating in the container, and (ii) information sufficient to allow a trained professional to properly identify whether an unwanted material is a solid and hazardous waste and to assign the proper hazardous waste code(s), pursuant to 40 C.F.R.§ 262.11. Examples of information that would allow a trained professional to properly identify whether an unwanted material is a solid or hazardous waste include, but are not limited to: (A) The name and/or description of the chemical contents or composition of the unwanted material, or, if known, the product of the chemical reaction, (B) Whether the unwanted material has been used or is unused, and (C) A description of the manner in which the chemical was produced or processed, if applicable.

- Robertson Wing Room 2115

NCSU was storing multiple containers in the designated waste storage bins in Room 2115 (Photos 40-41). There was one glass 4-liter waste container of alcohol and water dated 7/5/2018 (>1 year). There was one white 5-gallon container labeled as "DNS waste." NCSU researchers stated that this container had been in storage for at least three years. This container was not labeled as unwanted material, was not dated, and did not specify the chemical compound.

There were one 1-liter and one 500 ml containers that were not labeled as unwanted material and did not specify the chemical compound. These containers were in good condition, closed, and dated 2/1/2021. There was one 1-gallon container of NaOH that was not dated or labeled as unwanted material. There was one 110 ml container that was not labeled as unwanted material, did not specify the chemical compound, and was dated 8/6/2015 (>1 year). There was one 200 ml container that was not labeled as unwanted material and did not specify the chemical compound. There was one 1-liter container of NaOH that was not labeled as unwanted material and was dated 3/18/2019 (>1 year).

There was one 50 ml container that was not labeled as unwanted material, did not specify the chemical compound, and was dated 10/26/2018 (>1 year). There was one 1-liter container of hydrochloric acid that was not labeled as unwanted material and expired on 5/2017 (>1 year). There was one 50 ml container labeled as unwanted material. This container was not dated and did not specify the chemical compound. There was one 4-liter container of potassium dichromate

waste that was not labeled as unwanted material and was dated 8/13/2018 (>1 year). There were two 500 ml and one 4-liter containers of unwanted material that were dated within the last year, in good condition, labeled, and closed.

In summary, there was a total of seven containers that were stored for longer than one year, ten containers that were not marked with the words "unwanted material", three containers that were not dated, and seven containers that did not specify the chemical compound in Room 2115.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R.§ 262.208(a)], an eligible academic entity must either: (1) remove all containers of unwanted material from each laboratory on a regular interval, not to exceed 12 months; or (2) remove containers of unwanted material from each laboratory within 12 months of each container's accumulation start date.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(1)], the following information must be affixed or attached to the container (i) the words "unwanted material" or another equally effective term that is to be used consistently by the eligible academic entity and that is identified in Part I of the Laboratory Managment Plan, and (ii) sufficient information to alert emergency responders to the contents of the container. Examples of information that would be sufficient to alert emergency responders to the contents of the container include, but are not limited to: (A) The name of the chemical(s), (B) The type or class of chemical, such as organic solvents or halogenated organic solvents.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(2)], the following information may be affixed or attached to the container, but must at a minimum be associated with the container: (i) the date that the unwanted material first began accumulating in the container, and (ii) information sufficient to allow a trained professional to properly identify whether an unwanted material is a solid and hazardous waste and to assign the proper hazardous waste code(s), pursuant to 40 C.F.R.§ 262.11. Examples of information that would allow a trained professional to properly identify whether an unwanted material is a solid or hazardous waste include, but are not limited to: (A) The name and/or description of the chemical contents or composition of the unwanted material, or, if known, the product of the chemical reaction, (B) Whether the unwanted material has been used or is unused, and (C) A description of the manner in which the chemical was produced or processed, if applicable.

- Robertson Wing Room 1116

NCSU researchers were accumulating approximately 60 containers in this room as an active laboratory cleanout (Photo 42). Many of these containers were labeled. Many were not yet labeled. This is an area of concern for the inspection team. NCSU should ensure that all containers are labeled. There was also one beaker of n-heptane dye under the hood in this room. This container was labeled, closed, in good condition, and dated 2/3/2021

- Robertson Wing Room 1106

NCSU was storing approximately 115 containers in Room 1106 (Photos 43-49). An NCSU researcher estimated that 75% of these containers were storing waste. None of these containers were labeled as unwanted material, some were labeled with chemical compounds, and some were dated. The inspection team asked for an inventory of this room which was received by EPA

on 2/9/2021. There were 112 containers on the inventory list; 75 of these were categorized as wastes (67%).

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(1)], the following information must be affixed or attached to the container (i) the words "unwanted material" or another equally effective term that is to be used consistently by the eligible academic entity and that is identified in Part I of the Laboratory Managment Plan, and (ii) sufficient information to alert emergency responders to the contents of the container. Examples of information that would be sufficient to alert emergency responders to the contents of the container include, but are not limited to: (A) The name of the chemical(s), (B) The type or class of chemical, such as organic solvents or halogenated organic solvents.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(2)], the following information may be affixed or attached to the container, but must at a minimum be associated with the container: (i) the date that the unwanted material first began accumulating in the container, and (ii) information sufficient to allow a trained professional to properly identify whether an unwanted material is a solid and hazardous waste and to assign the proper hazardous waste code(s), pursuant to 40 C.F.R.§ 262.11. Examples of information that would allow a trained professional to properly identify whether an unwanted material is a solid or hazardous waste include, but are not limited to: (A) The name and/or description of the chemical contents or composition of the unwanted material, or, if known, the product of the chemical reaction, (B) Whether the unwanted material has been used or is unused, and (C) A description of the manner in which the chemical was produced or processed, if applicable.

- Robertson Wing Room 1103

NCSU was storing three 4-liter containers and nine smaller containers in a designated waste bin in Room 1103 (Photos 50-51). NCSU was storing one 4-liter container of cleaning solution waste that was not labeled as unwanted material and not dated; one 4-liter container labeled as unwanted material but did not specify the chemical compound or included the date of accumulation; and one container of corrosive hazardous waste that was labeled with the words "unwanted material", dated 2/1/2021, closed, and in good condition. There were nine other containers that were not labeled as unwanted material, did not have an accumulation start date, and did not specify the chemical compound.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(1)], the following information must be affixed or attached to the container (i) the words "unwanted material" or another equally effective term that is to be used consistently by the eligible academic entity and that is identified in Part I of the Laboratory Managment Plan, and (ii) sufficient information to alert emergency responders to the contents of the container. Examples of information that would be sufficient to alert emergency responders to the contents of the container include, but are not limited to: (A) The name of the chemical(s), (B) The type or class of chemical, such as organic solvents or halogenated organic solvents.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(2)], the following information may be affixed or attached to the container, but must at a minimum be associated with the container: (i) the date that the unwanted material first began accumulating in the container, and (ii) information sufficient to allow a trained professional to properly identify

whether an unwanted material is a solid and hazardous waste and to assign the proper hazardous waste code(s), pursuant to 40 C.F.R.§ 262.11. Examples of information that would allow a trained professional to properly identify whether an unwanted material is a solid or hazardous waste include, but are not limited to: (A) The name and/or description of the chemical contents or composition of the unwanted material, or, if known, the product of the chemical reaction, (B) Whether the unwanted material has been used or is unused, and (C) A description of the manner in which the chemical was produced or processed, if applicable.

- Robertson Wing Room 1101

NCSU was storing one 4-liter container of waste in the designated waste bin in Room 1101. This container was labeled, dated 1/25/2021, closed, and in good condition.

- Biltmore Building Room 1218

NCSU was storing 1-gallon and 1-liter containers of used oil that were not labeled with the words "used oil" (Photo 52).

Pursuant to 15A NCAC 13A .0118(c) [40 C.F.R. § 279.22(c)(1)], containers and aboveground tanks used to store used oil at generator facilities must be labeled or marked clearly with the words "Used Oil."

- Biltmore Building Room 2225

NCSU was storing nine containers of unwanted materials in a designated waste bin in Room 2225 (Photo 53). These containers were labeled, closed, in good condition, and the oldest date was 2/3/2021. There was approximately a total of one gallon in total waste in this bin.

- Biltmore Building Room 2226

NCSU was storing two 4-liter containers in separate designated waste bins underneath a laboratory hood in Room 2226 (Photo 54). The white container on the left side of the photo was labeled as 10% ethanol waste and dated 12/2019 (>1 year). This container was not labeled as unwanted material. The amber container was labeled as 0.5 N HCL and dated 1/2021. The container was not labeled as unwanted material. The non-specificity of the date is an area of concern for the inspection team.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R.§ 262.208(a)], an eligible academic entity must either: (1) remove all containers of unwanted material from each laboratory on a regular interval, not to exceed 12 months; or (2) remove containers of unwanted material from each laboratory within 12 months of each container's accumulation start date.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(1)(i)], the following information must be affixed or attached to the container (i) the words "unwanted material" or another equally effective term that is to be used consistently by the eligible academic entity and that is identified in Part I of the Laboratory Managment Plan.

- Biltmore Building Room 3221

NCSU was storing a 1-liter container of "Excess Nicotine Methylene Chloride" (Photos 55-56). This container was not labeled with the words "unwanted material" and was not dated.

Pursuant to 15A NCAC 13A .0107(g) [40 C.F.R. § 262.206(a)(1)(i)], the following information must be affixed or attached to the container (i) the words "unwanted material" or another equally effective term that is to be used consistently by the eligible academic entity and that is identified in Part I of the Laboratory Managment Plan.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(2)(i)], the following information may be affixed or attached to the container, but must at a minimum be associated with the container: (i) the date that the unwanted material first began accumulating in the container.

- Biltmore Building Room 3233

NCSU was storing two 1-liter bottles in a designated waste bin in Room 3233 (Photo 57). A NCSU researcher stated that these two bottles were generated the previous day. These containers were not dated. There was one 4-liter container of "pump oil waste." This container was not labeled with the words "Used Oil." NCSU personnel corrected this label on the day of the inspection.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(2)(i)], the following information may be affixed or attached to the container, but must at a minimum be associated with the container: (i) the date that the unwanted material first began accumulating in the container.

Pursuant to 15A NCAC 13A .0118(c) [40 C.F.R. § 279.22(c)(1)], containers and aboveground tanks used to store used oil at generator facilities must be labeled or marked clearly with the words "Used Oil."

- Biltmore Building Room 3228

NCSU was storing ten containers in designated waste bins in Room 3228 (Photo 58). There were four 1-liter containers, one 500 ml container, and two 5-gallon containers, which were closed, in good condition, dated, and labeled. There were three 20 ml containers; two of which were not labeled as unwanted material, did not specify the chemical compound, and were not labeled with an accumulation start date.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(1)], the following information must be affixed or attached to the container (i) the words "unwanted material" or another equally effective term that is to be used consistently by the eligible academic entity and that is identified in Part I of the Laboratory Managment Plan, and (ii) sufficient information to alert emergency responders to the contents of the container. Examples of information that would be sufficient to alert emergency responders to the contents of the container include, but are not limited to: (A) The name of the chemical(s), (B) The type or class of chemical, such as organic solvents or halogenated organic solvents.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(2)], the following information may be affixed or attached to the container, but must at a minimum be associated with the container: (i) the date that the unwanted material first began accumulating in the container, and (ii) information sufficient to allow a trained professional to properly identify whether an unwanted material is a solid and hazardous waste and to assign the proper hazardous waste code(s), pursuant to 40 C.F.R.§ 262.11. Examples of information that would allow a trained professional to properly identify whether an unwanted material is a solid or hazardous waste include, but are not limited to: (A) The name and/or description of the chemical contents or composition of the unwanted material, or, if known, the product of the chemical reaction, (B) Whether the unwanted material has been used or is unused, and (C) A description of the manner in which the chemical was produced or processed, if applicable.

- Biltmore Building Room 3218B

NCSU was storing multiple containers in several locations in Room 3218B. There were two containers connected with tubes to two HPLC machines. These containers were open and empty (Photo 59). This is an area of concern for the inspection team. These laboratory containers do not meet the standard set in the University Laboratory Management Plan for HPLC collection containers.

There were seven containers of waste stored in the designated waste bins in Room 3218B (Photos 60-62). There was one blue-capped 1-liter bottle labeled as "excess methanol/water" (Photo 60). This container was not labeled as unwanted material and was not dated. There was one 1-liter container of acetonitrile and methanol labeled as unwanted material. This container was not dated. There was one 1-liter container of methanol dated 8/9/2013 (>1 year). This container was not labeled as unwanted material. There was one 4-liter of water / methanol / isopropanol that was not labeled as unwanted material, was dated 5/3/2002 (>1 year), and was open. There was one 4-liter container of acetonitrile that was not labeled as unwanted material and was not dated. There were two vape lock canisters used to capture emissions that were not labeled as unwanted material, did not specify the chemical compound, and were dated 12/3/2018 (>1 year).

Across the room from the containers above was another designated waste bin with three containers (Photo 63). NCSU was storing one 4-liter container inside a secondary containment bucket that was labeled as unwanted material and dated 10/15/2020. This container had a broken lid with a pipe coming from an HPLC machine. Due to the broken lid, this container was open. The accumulating container was not labeled as unwanted material or dated; the label was on the secondary containment bucket. The second container was a red 500 ml bin with a clear open lid accumulating vials from the HPLC machine (Photo 63). The container was labeled as unwanted material but was not dated. There were approximately 30 vials in this container on the day of the inspection. There was one 4-liter container with a black cap receiving waste through a tube into the cap. This container was storing water and isopropanol, was labeled as unwanted material, but was not dated.

NCSU was storing three containers in a designated waste bin in room 3218B. The first container was an 8-liter flip-cap plastic accumulation container for an HPLC (Photo 64). There were hoses connected to this container. The container was labeled as unwanted material and with the words "excess solvents." The container was dated 7/1/2020. This container was closed and in good

condition. The second container was a 1-liter bottle labeled as "excess solvents acetone" and dated 2/6/2020 (Photo 64). This container was not labeled as unwanted material. The third container was a vape lock canister to collect emissions. This canister was not labeled as unwanted material, did not specify the chemical compound, and was dated 6/24/2019 (>1 year).

In summary, there was a total of five containers that were stored for longer than one year, nine containers that were not marked with the words "unwanted material", six containers that were not dated, three containers that did not specify the chemical compound, and three containers that were open in Room 3218B.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R.§ 262.208(a)], an eligible academic entity must either: (1) remove all containers of unwanted material from each laboratory on a regular interval, not to exceed 12 months; or (2) remove containers of unwanted material from each laboratory within 12 months of each container's accumulation start date.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(1)], the following information must be affixed or attached to the container (i) the words "unwanted material" or another equally effective term that is to be used consistently by the eligible academic entity and that is identified in Part I of the Laboratory Managment Plan, and (ii) sufficient information to alert emergency responders to the contents of the container. Examples of information that would be sufficient to alert emergency responders to the contents of the container include, but are not limited to: (A) The name of the chemical(s), (B) The type or class of chemical, such as organic solvents or halogenated organic solvents.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(2)], the following information may be affixed or attached to the container, but must at a minimum be associated with the container: (i) the date that the unwanted material first began accumulating in the container, and (ii) information sufficient to allow a trained professional to properly identify whether an unwanted material is a solid and hazardous waste and to assign the proper hazardous waste code(s), pursuant to 40 C.F.R.§ 262.11. Examples of information that would allow a trained professional to properly identify whether an unwanted material is a solid or hazardous waste include, but are not limited to: (A) The name and/or description of the chemical contents or composition of the unwanted material, or, if known, the product of the chemical reaction, (B) Whether the unwanted material has been used or is unused, and (C) A description of the manner in which the chemical was produced or processed, if applicable.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(b)(3)], an eligible academic entity must properly manage containers of unwanted material in the laboratory to assure safe storage of the unwanted material, to prevent leaks, spills, emissions to the air, adverse chemical reactions, and dangerous situations that may result in harm to human health and the environment. Proper container management must include the following: (3) Containers must be kept closed at all times.

- Record review

The inspection team reviewed the following records: the hazardous waste permit, the hazardous waste permit application, hazardous waste training records, manifests, the waste minimization plan, the contingency plan and quick reference guide, inspections, and waste analyses. The

inspection team recommended that Ken Kretchman continue to receive RCRA training as the third string emergency coordinator.

It was noted that even though signs containing detailed instructions for identifying and managing unwanted materials in the laboratories were placed where wastes are stored in laboratories, researchers were not adhering to the instructions on the signs. The training for these researchers appears to be ineffective.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.207(a)], an eligible academic entity must provide training to all individuals working in a laboratory at the eligible academic entity that is commensurate with their duties so the laboratory workers and students understand the requirements of this subpart and can implement them.

Contingency Plan: The actions that facility personnel should take in response to an emergency are described in the facility's 2020 Contingency Plan, which was last updated on 10/8/2020. The plan describes actions facility personnel must take in response to fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water at the facility. The plan describes arrangements agreed to with the local police department, fire department, other emergency response teams, emergency response contractors, equipment suppliers, local hospitals, or the Local Emergency Planning Committee. The plan lists the names and emergency telephone numbers for persons identified as emergency coordinators. Karen Trimberger is listed as the primary emergency coordinator, and the other individuals are listed in the order in which they will assume responsibility as alternates. The plan includes a list of all emergency equipment at the facility. The list includes fire extinguishing systems, spill control equipment, communications and alarm systems, and decontamination equipment. The list is up to date. The plan includes the location and a physical description of each item on the list, and a brief outline of its capabilities. The plan includes an evacuation plan for personnel. A copy of the 2020 Contingency Plan (and its quick reference guides) was most recently submitted to the police department, fire department, hospital, State and local emergency response teams and the Local Emergency Planning Committee on 10/21/2020.

The quick reference guide includes the types/names of hazardous waste in layman's terms and the associated hazard associated with each hazardous waste present at any one time; the estimated maximum amount of each hazardous waste that may be present at any one time; the identification of any hazardous wastes where exposure would require unique or special treatment by medical or hospital staff; a map of the facility showing where hazardous wastes are generated, accumulated and treated and routes for accessing these wastes; a street map of the facility in relation to surrounding businesses, schools and residential areas; the locations of water supply; the identification of on-site notification systems; and the name of the emergency coordinator(s) and emergency telephone number(s). The quick reference guides provided by NCSU were for their non-Subpart K (university laboratories) SAA areas.

Waste Manifest Records: The inspectors reviewed available hazardous waste manifest records and land disposal restriction forms for shipments of hazardous waste sent since the last inspection in January 2020.

Inspection Records: The inspectors reviewed NCSU's available records of inspections of the Waste Management Facility (WMF) since January 2020. The inspection logs include a checklist to record observations about leaking containers and for deterioration of containers caused by

corrosion or other factors. The inspection log includes a checklist to record observations about aisle space, leaking containers, foreign odors, unusual conditions, visible container labels, legible container labels, complete container labels, closed lids and bungs, material on outside of container, rings tight, rings turned down, condition of containers, containers compatible with waste, container grounding, control of ignition sources, container stacking, container storage time, contents of containment units, housekeeping, emergency communication, fire extinguisher, spill response kit, and salvage drums. The records do include the date but not the time of the inspection. The records do not include the inspector name, signature and initials of the employee conducting the inspection. Each week, the employee records notations of observations and necessary follow-up actions for the inspected areas.

Pursuant to Permit Condition III.D: The Permittee shall inspect container storage areas in accordance with 40 CFR 264.174 as adopted in 15A NCAC 13A .0109 and as described in Part F of the Application.

Pursuant to 40 C.F.R. § 264.73(b)(5) and the NCSU Checklist Renewal Permit 01-06-15.doc the following information is part of the required documents include the Operating Record, which includes (5) Records and results of inspections as required by Section 264.15(d) (except these data need be kept only three years).

Pursuant to the approved Permit [40 C.F.R. § 264.15(d)], the owner or operator must record inspections in an inspection log or summary. He must keep these records for at least three years from the date of inspection. At a minimum, these records must include the date and time of the inspection, the name of the inspector, a notation of the observations made, and the date and nature of any repairs or other remedial actions.

12) Closing Conference

The inspectors conducted the exit meeting at 3:00 pm on February 3, 2021, with Karen Trimberger, Mike Long, and Ken Kretchman. During this meeting, the inspectors stated their preliminary conclusions of the inspection. NCSU agreed to provide an inventory of Robertson Wing Room 1106, the copy of the wase minimization plan and the contingency plan quick reference guide. On February 9, 2021, Karen Trimberger provided the inventory of waste and chemicals in Room 1106 in an email to Alan Newman, Aram Kim, and Heather Goldman. NCSU provided QRGs for multiple buildings across campus. The applicability of this method of reporting is being discussed with EPA headquarters. EPA Region 4 will schedule a call with NCSU to discuss this method of compliance.

13) Summary

The inspection team toured 31 laboratories and rooms that were storing wastes. There were deficiencies noted in 24 of these. Based on the observations made during the inspection, NCSU was apparently deficient with the following RCRA requirements:

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(1)(i)], the following information must be affixed or attached to the container (i) the words "unwanted material" or another equally effective term that is to be used consistently by the eligible academic entity and that is identified in Part I of the Laboratory Managment Plan.

At the time of the inspection, the inspectors observed the following containers which were not labeled with the words "unwanted material":

- four containers of waste in the Varsity Research Building Room 1512 (Photos 11-12),
- one 4-liter container of acetone waste and one 500 ml container of waste glycol + HCL (Photo 13) in Varsity Research Building Room 1543,
- two 200 ml containers in the Varsity Research Building Room 1603,
- one 4-liter container in the Polk Building Room 145,
- one 4-liter container of acidic waste and one 5-gram bottle of expired material in the Polk Building Room 137,
- seven containers in the Polk Building Room 110,
- one 4-liter container in the Polk Building Room 228,
- one 4-liter container accumulating HPLC waste in Polk Building Room 329,
- two 4-liter glass containers labeled "6N HCL Waste" in the Polk Building Room 312,
- one 2.5-liter container labeled "BUN assay waste" in the Polk Building Room 312,
- one 500 ml container of hazardous waste labeled "NEFA Assay Reagents" in the Polk Building Room 312,
- one 75 ml container of hazardous waste labeled "10N Sulfuric Acid" and dated 7/2016 (>1 year) in the Polk Building Room 312
- one gallon of sulfuric acid waste in the Polk Building Room 312
- one 2.5-liter plastic container of nitric acid waste and a 5-gallon container of "nitric ashed" in the Polk Building Room 310
- one 4-liter glass container labeled "acetone waste" in the bin designated for hazardous waste under a lab hood (Photo 31) in Polk Building Room 302
- one open 4-liter bottle, one 1-liter container, and five smaller containers in the Robertson Wing Room 3101
- one 1-liter container in the Robertson Wing Room 3103
- one leaking container in a plastic bag in Robertson Wing Room 3107,
- approximately 68 containers in Robertson Wing Room 3121,
- one glass 4-liter waste container of alcohol and water dated 7/5/2018, one white 5-gallon container labeled as "DNS waste," one 1-liter container and one 500 ml container that were dated 2/1/2021, one 1-gallon container of NaOH, one 110 ml container that was dated 8/6/2015, one 200 ml container, one 1-liter container of NaOH that was dated 3/18/2019, one 50 ml container that was dated 10/26/2018, one 1-liter container of hydrochloric acid that expired on 5/2017, and one 4-liter container of potassium dichromate waste that was dated 8/13/2018in Robertson Wing Room 2115
- 75 containers in Robertson Wing Room 1106
- one 4-liter container of cleaning solution waste and nine other containers in the Robertson Wing Room 1103
- two 4-liter containers in Biltmore Building Room 2226
- one 1-liter container of "Excess Nicotine Methylene Chloride" in Biltmore Building Room 3221
- two 20 ml containers in Biltmore Building Room 3228,
- one blue-capped 1-liter bottle labeled as "excess methanol/water" (Photo 60), one 1-liter container of methanol dated 8/9/2013, one 4-liter of water / methanol / isopropanol that was dated 5/3/2002, one 4-liter container, two vape lock canisters used to capture emissions that were dated 12/3/2018, one accumulating container, one 1-liter bottle

labeled as "excess solvents acetone" and dated 2/6/2020 (Photo 64), and one vape lock canister to collect emissions dated 6/24/2019 in Biltmore Building Room 3218B

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(1)(ii)], the following information must be affixed or attached to the container (ii) sufficient information to alert emergency responders to the contents of the container. Examples of information that would be sufficient to alert emergency responders to the contents of the container include, but are not limited to: (A) The name of the chemical(s), (B) The type or class of chemical, such as organic solvents or halogenated organic solvents.

At the time of the inspection, the inspectors observed the following containers that did not have sufficient information affixed or attached to alert emergency responders to the contents of the container:

- one container of waste in the Varsity Research Building Room 1512 (Photos 11-12),
- two 200 ml containers in the Varsity Research Building Room 1603,
- one 4-liter container in the Polk Building Room 145,
- one 4-liter container of acidic waste and one 5-gram bottle of expired material in the Polk Building Room 137,
- seven containers in the Polk Building Room 110,
- one 2.5-liter container labeled "BUN assay waste" in the Polk Building Room 312,
- one 1-liter container and four smaller containers in the Robertson Wing Room 3101
- one 1-liter container in the Robertson Wing Room 3103
- one leaking container in a plastic bag in Robertson Wing Room 3107,
- approximately 70 containers in Robertson Wing Room 3121,
- one white 5-gallon container labeled as "DNS waste," one 1-liter and one 500 ml container that were dated 2/1/2021, one 110 ml container that was dated 8/6/2015, one 200 ml container, one 50 ml container that was 10/26/2018, and one 50 ml container in Robertson Wing Room 2115
- some of the 75 containers in Robertson Wing Room 1106
- one 4-liter container of cleaning solution waste, one 4-liter container labeled unwanted material and nine other containers in the Robertson Wing Room 1103
- two 20 ml containers in Biltmore Building Room 3228,
- three vape lock canisters in Biltmore Building Room 3218B

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(2)(i)], the following information may be affixed or attached to the container, but must at a minimum be associated with the container: (i) the date that the unwanted material first began accumulating in the container.

At the time of the inspection, the inspectors observed the following containers which did not have the date that the unwanted material first began accumulating associated with the container:

- four containers of waste in the Varsity Research Building Room 1512 (Photos 11-12)
- two 200 ml containers in the Varsity Research Building Room 1603,
- one 4-liter container in the Polk Building Room 145,
- one 4-liter container of acidic waste and one 5-gram bottle of expired material in the Polk Building Room 137,
- eight containers in the Polk Building Room 110,

- one 4-liter container accumulating HPLC waste in Polk Building Room 329,
- two 4-liter glass containers labeled "6N HCL Waste" in the Polk Building Room 312,
- one gallon of sulfuric acid waste in the Polk Building Room 312
- one 2.5-liter plastic container of nitric acid waste and a 5-gallon container of "nitric ashed" in the Polk Building Room 310
- one 4-liter glass container labeled "acetone waste" in the bin designated for hazardous waste under a lab hood (Photo 31) in Polk Building Room 302
- one open 4-liter container, one 1-liter container and four smaller containers in the Robertson Wing Room 3101
- one 1-liter container in the Robertson Wing Room 3103
- one leaking container in a plastic bag in Robertson Wing Room 3107,
- one 5-gallon container of unwanted diesel and approximately 70 smaller containers in Robertson Wing Room 3121,
- one white 5-gallon container labeled as "DNS waste," one 1-gallon container of NaOH, and one 50 ml container labeled as unwanted material in Robertson Wing Room 2115
- some of the 75 containers in Robertson Wing Room 1106
- one 4-liter container of cleaning solution waste, one 4-liter container labeled unwanted material and nine other containers in the Robertson Wing Room 1103
- one 1-liter container of "Excess Nicotine Methylene Chloride" in Biltmore Building Room 3221
- two 1-liter bottles in a designated waste bin in Biltmore Building Room 3233
- two 20 ml containers in Biltmore Building Room 3228,
- one blue-capped 1-liter bottle labeled as "excess methanol/water" (Photo 60), one 1-liter container of acetonitrile and methanol, one 4-liter container of acetonitrile, one red 500 ml bin with a clear open lid accumulating vials from the HPLC machine (Photo 63), and one 4-liter container of water and isopropanol with a black cap receiving waste through a tube into the cap in Biltmore Building Room 3218B

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(a)(2)(ii)], the following information may be affixed or attached to the container, but must at a minimum be associated with the container: (ii) information sufficient to allow a trained professional to properly identify whether an unwanted material is a solid and hazardous waste and to assign the proper hazardous waste code(s), pursuant to 40 C.F.R.§ 262.11. Examples of information that would allow a trained professional to properly identify whether an unwanted material is a solid or hazardous waste include, but are not limited to: (A) The name and/or description of the chemical contents or composition of the unwanted material, or, if known, the product of the chemical reaction, (B) Whether the unwanted material has been used or is unused, and (C) A description of the manner in which the chemical was produced or processed, if applicable.

At the time of the inspection, the inspectors observed the following containers of unwanted material which did not have sufficient information attached or affixed to it to allow a trained professional to properly identify whether the waste was solid and hazardous waste:

- one container of waste in the Varsity Research Building Room 1512 (Photos 11-12)
- two 200 ml containers in the Varsity Research Building Room 1603,
- one 4-liter container in the Polk Building Room 145,
- one 4-liter container of acidic waste and one 5-gram bottle of expired material in the Polk

Building Room 137,
- seven containers in the Polk Building Room 110,
- one 2.5-liter container labeled "BUN assay waste" in the Polk Building Room 312,
- one 1-liter container and four smaller containers in the Robertson Wing Room 3101
- one 1-liter container in the Robertson Wing Room 3103
- one leaking container in a plastic bag in Robertson Wing Room 3107,
- approximately 70 containers in Robertson Wing Room 3121,
- one white 5-gallon container labeled as "DNS waste," one 1-liter container and one 500 ml container that were dated 2/1/2021, one 110 ml container that was dated 8/6/2015, one 200 ml container, one 50 ml container that was dated 10/26/2018, and one 50 ml container labeled as unwanted material in Robertson Wing Room 2115
- some of the 75 containers in Robertson Wing Room 1106
- one 4-liter container of cleaning solution waste, one 4-liter container labeled unwanted material and nine other containers in the Robertson Wing Room 1103
- two 20 ml containers in Biltmore Building Room 3228,
- three vape lock canisters in Biltmore Building Room 3218B

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.207(a)], an eligible academic entity must provide training to all individuals working in a laboratory at the eligible academic entity that is commensurate with their duties so the laboratory workers and students understand the requirements of this subpart and can implement them.

At the time of the inspection, the inspectors observed that researchers were not adhering to the explicit instructions on signs that were placed where wastes are stored in laboratories, researchers were not adhering to the labeling instructions. The training for these researchers appears to be ineffective.

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R.§ 262.208(a)], an eligible academic entity must either: (1) remove all containers of unwanted material from each laboratory on a regular interval, not to exceed 12 months; or (2) remove containers of unwanted material from each laboratory within 12 months of each container's accumulation start date.

At the time of the inspection, the inspectors observed the following containers of unwanted material which had been stored over 12 months:
- one 4-liter container of acetone waste that was dated 1/7/2020 (>1 year) in the Varsity Research Building Room 1543,
- four 4-liter containers were dated over 12 months in the Polk Building Room 228,
- one 2.5-liter container labeled "BUN assay waste" dated 5/31/2019 (>1 year) in the Polk Building Room 312
- one 500 ml container of hazardous waste labeled "NEFA Assay Reagents" dated 9/30/2014 in the Polk Building Room 312,
- one 75 ml container of hazardous waste labeled "10N Sulfuric Acid" and dated 7/2016 (>1 year) in the Polk Building Room 312
- one leaking container in a plastic bag in Robertson Wing Room 3107,
- one glass 4-liter waste container of alcohol and water dated 7/5/2018, one white 5-gallon container labeled as "DNS waste," one 110 ml container that was dated 8/6/2015, one 1-liter container of NaOH that was dated 3/18/2019, one 50 ml container that was dated 10/26/2018, one 1-liter container of hydrochloric acid that expired on 5/2017, and one 4-

liter container of potassium dichromate waste that was dated 8/13/2018 in Robertson Wing Room 2115
- one 4-liter container labeled as 10% ethanol in Biltmore Building Room 2226
- one 1-liter container of methanol dated 8/9/2013, one 4-liter of water / methanol / isopropanol that was dated 5/3/2002, two vape lock canisters used to capture emissions that were dated 12/3/2018, and one vape lock canister used to collect emissions that was dated 6/24/2019 in Biltmore Building Room 3218B

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(b)(1)], an eligible academic entity must properly manage containers of unwanted material in the laboratory to assure safe storage of the unwanted material, to prevent leaks, spills, emissions to the air, adverse chemical reactions, and dangerous situations that may result in harm to human health or the environment. Containers must be maintained and kept in good condition and damaged containers must be replaced, overpacked, or repaired.

At the time of the inspection, the inspectors observed the following damaged container of unwanted material which was not replaced, overpacked, or repaired:
- one bottle leaking material from its lid in Polk Building Room 329 (Photo 23)

Pursuant to 15A NCAC 13A .0107 (g) [40 C.F.R. § 262.206(b)(3)], an eligible academic entity must properly manage containers of unwanted material in the laboratory to assure safe storage of the unwanted material, to prevent leaks, spills, emissions to the air, adverse chemical reactions, and dangerous situations that may result in harm to human health and the environment. Proper container management must include the following: (3) Containers must be kept closed at all times.

At the time of the inspection, the inspectors observed the following open containers:
- one open 4-liter bottle and two open 1-liter containers in the Robertson Wing Room 3101
- one 4-liter of water / methanol / isopropanol that was dated 5/3/2002, and one 4-liter container with a broken lid with a pipe coming from an HPLC machine in Biltmore Building Room 3218B

Pursuant 15A NCAC 13A .0119(b) [40 C.F.R. § 273.13(d)], a SQHUW must manage universal waste lamps in a way that prevents releases of any universal waste or component of a universal waste to the environment.

At the time of the inspection, the inspectors observed the following universal waste lamps which were not managed in a way that prevents releases of universal waste or components of a universal waste:
- six 6-inch and one 18-inch universal waste lamps in a bin (Photos 24 and 26) not being managed in a way that prevents release to the environment in Polk Building Room 312

Pursuant to 15A NCAC 13A .0119(b)] [40 C.F.R. § 273.14(e)], a SQHUW must label or mark each lamp or container of lamps clearly with one of the following phrases: "Universal Waste-Lamp(s),"or "Waste Lamp(s)," or "Used Lamps."

At the time of the inspection, the inspectors observed the following universal waste lamps which were not labeled or marked with one of the required phrases:

- six 6-inch and one 18-inch universal waste lamps in a bin (Photos 24 and 26) that was unlabeled in Polk Building Room 312

Pursuant to 15A NCAC 13A .0119(b) [40 C.F.R. § 273.15(a) and (c)], a SQHUW may accumulate universal waste no longer than one year and must to be able to demonstrate the length of time that the universal waste has accumulated from the date that it became a waste or was received.

At the time of the inspection, the inspectors observed the following universal waste lamps which NCSU had not demonstrated had been accumulated for less than one year:

- six 6-inch and one 18-inch universal waste lamps in a bin (Photos 24 and 26) in Polk Building Room 312, which NCSU was unable to demonstrate the length of time that the universal waste lamps had accumulated.

Pursuant to 15A NCAC 13A .0118(c) [40 C.F.R. § 279.22(c)(1)], containers and aboveground tanks used to store used oil at generator facilities must be labeled or marked clearly with the words "Used Oil."

At the time of the inspection, the inspectors observed the following containers of used oil that were not labeled or marked clearly with the words "used oil":

- one 1-gallon blue plastic container of used pump oil that not labeled with the words "used oil" in Polk Building Room 312
- one 1-gallon and 1-liter containers of used oil that were not labeled with the words used oil (Photo 52) in Biltmore Building Room 1218
- one 4-liter container in Biltmore Building Room 3233

Pursuant to Permit Condition III.D: The Permittee shall inspect container storage areas in accordance with 40 CFR 264.174 as adopted in 15A NCAC 13A .0109 and as described in Part F of the Application.

Pursuant to 40 C.F.R. § 264.73(b)(5) and the NCSU Checklist Renewal Permit 01-06-15.doc the following information is part of the required documents include the Operating Record, which includes (5) Records and results of inspections as required by Section 264.15(d) (except these data need be kept only three years).

Pursuant to the approved Permit [40 C.F.R. § 264.15(d)], the owner or operator must record inspections in an inspection log or summary. He must keep these records for at least three years from the date of inspection. At a minimum, these records must include the date and time of the inspection, the name of the inspector, a notation of the observations made, and the date and nature of any repairs or other remedial actions.

The inspection records include the date but do not include the time of each inspection nor do they include the inspector name or the signature of the employee conducting the inspection.

14) List of Appendices

Appendix 1 – Photo Log:
64 Photos taken on: February 2-3, 2021

Photos taken by: Alan Newman
Photos taken with: Olympus Tough TG-820 Digital Camera
EPA Property Tag: S75926
And by Aram Kim with
Camera: iPhone (Apple)
Model: iPhone SE
Serial Number: F17CG9KFPLJM

15) Signed

ALAN NEWMAN Digitally signed by ALAN NEWMAN Date: 2021.04.14 12:29:34 -04'00'

Alan Newman
Environmental Engineer

Date

16) Concurrence

ARACELI CHAVEZ Digitally signed by ARACELI CHAVEZ Date: 2021.04.14 11:31:10 -04'00'

Araceli B. Chavez
Chief
RCRA Enforcement Section

Date

Photographs

Photos taken by Alan Newman
Photos taken on February 2-3, 2021
Camera: Olympus Tough
Model: TG-820 D33235
Serial Number: BCG510929

And by Aram Kim with
Camera: iPhone (Apple)
Model: iPhone SE
Serial Number: F17CG9KFPLJM

Photo 1: Pallet of universal waste lamps in Cell 214-R.


Photo 4: Cell 214-O Organic waste storage.


Photo 2: Cell 214-R universal waste lamp storage.


Photo 5: Cell 214-U. Waste ready to ship.


Photo 3: Cell 214-I Inorganic waste storage.


Photo 6: Cell 214-U.

Photo 7: Bulking Room 215.

Photo 10: Bulking Room 215.

Photo 8: Bulking Room 215.

Photo 11: Varsity Research Room 1512.

Photo 9: Bulking Room 215.

Photo 12: Varsity Research Room 1512.

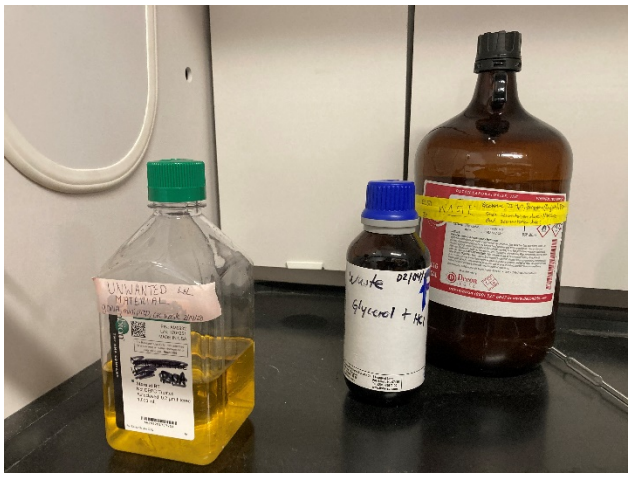

Photo 13: Varsity Research Room 1543.


Photo 14: Varsity Research Room 1603.

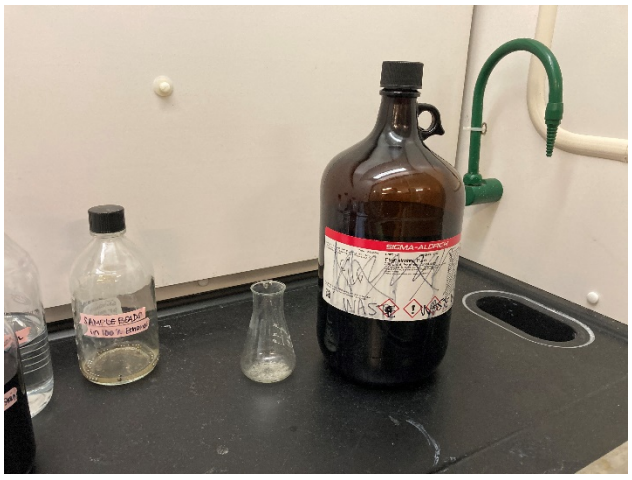

Photo 15: Polk Building Room 145.


Photo 16: Polk Building Room 137.


Photo 17: Polk Building Room 110.


Photo 18: Polk Building Room 228.

Photo 19: Polk Building Room 137.

Photo 22: Polk Building Room 329.

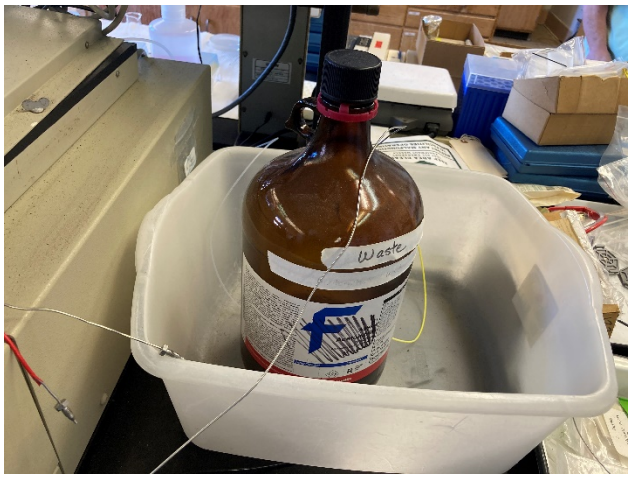

Photo 20: Polk Building Room 329.

Photo 23: Polk Building Room 329.


Photo 21: Polk Building Room 329.


Photo 24: Polk Building Room 312.

Photo 25: Polk Building Room 312.

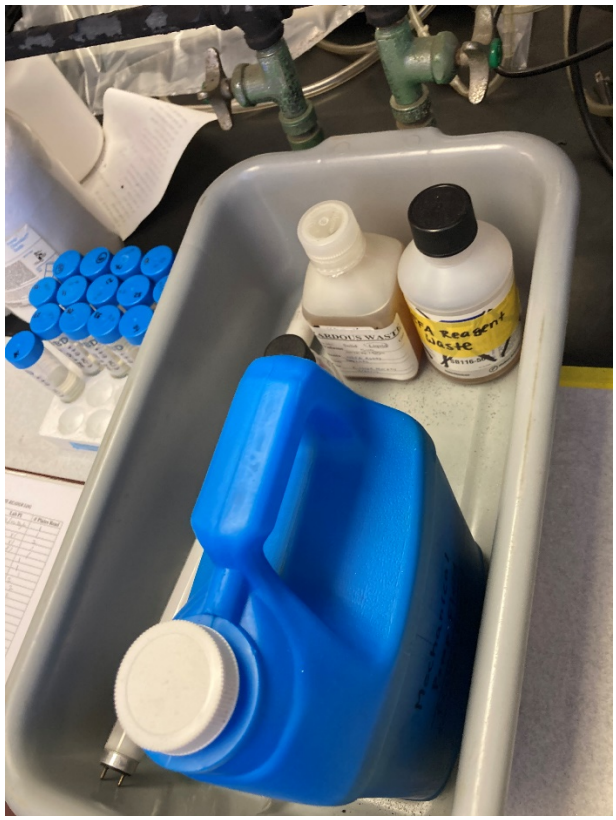
Photo 26: Polk Building Room 312.

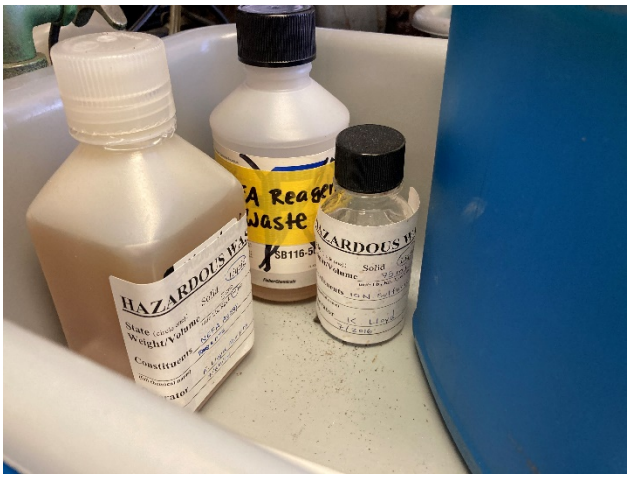

Photo 27: Polk Building Room 312.

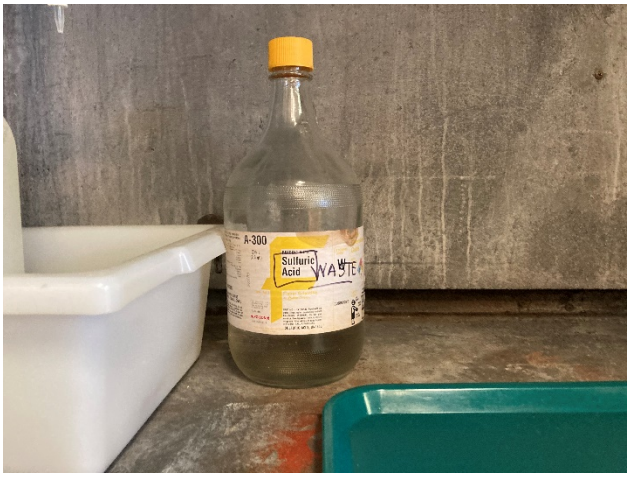

Photo 28: Polk Building Room 312.

Photo 29: Polk Building Room 310.

Photo 30: Polk Building Room 310.

Photo 33: Robertson Wing Room 3101.

Photo 31: Polk Building Room 302.

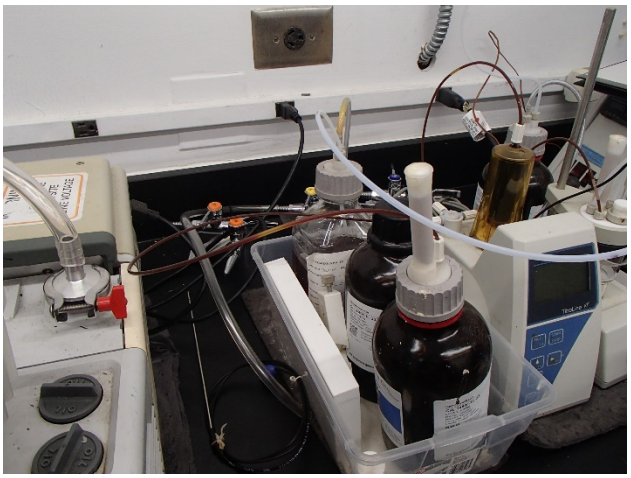

Photo 34: Robertson Wing Room 3103.

Photo 32: Yarborough Building Used Oil containers.

Photo 35: Robertson Wing Room 3103.

Photo 36: Robertson Wing Room 3107.


Photo 39: Robertson Wing Room 3121.

Photo 37: Robertson Wing Room 3121.

Photo 40: Robertson Wing Room 2115.

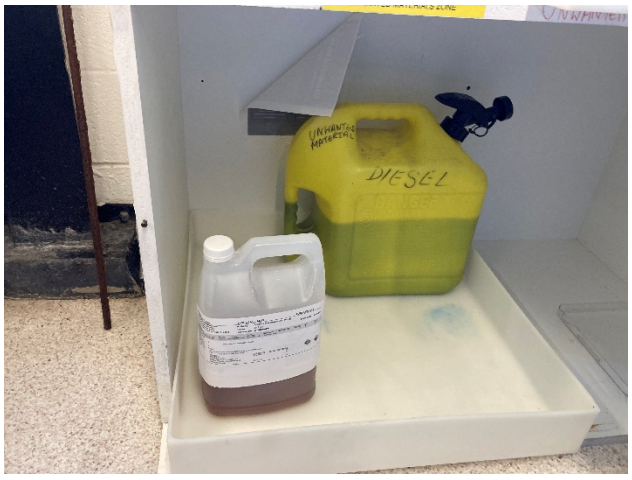

Photo 38: Robertson Wing Room 3121.


Photo 41: Robertson Wing Room 2115.

Photo 42: Robertson Wing Room 1116.

Photo 45: Robertson Wing Room 1106.

Photo 43: Robertson Wing Room 1106.

Photo 46: Robertson Wing Room 1106.

Photo 44: Robertson Wing Room 1106.

Photo 47: Robertson Wing Room 1106.

Photo 48: Robertson Wing Room 1106.

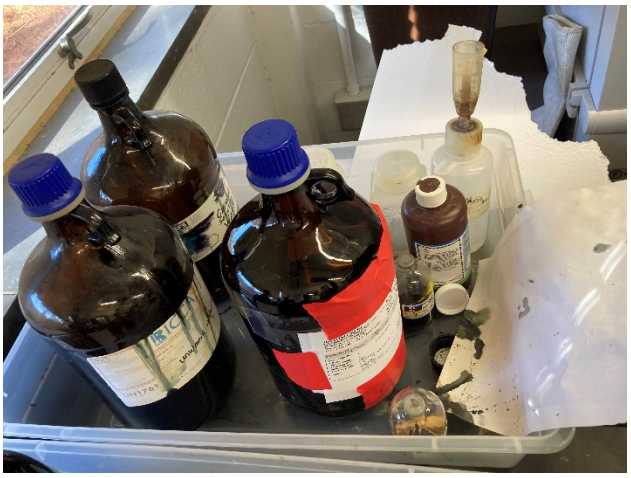

Photo 51: Robertson Wing Room 1103.

Photo 49: Robertson Wing Room 2115.

Photo 52: Robertson Wing Room 2118.

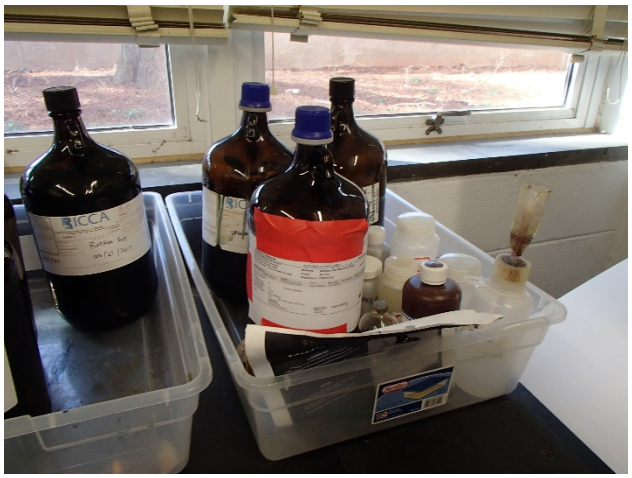

Photo 50: Robertson Wing Room 1103.

Photo 53: Robertson Wing Room 2225.

Photo 54: Robertson Wing Room 2226.

Photo 57: Robertson Wing Room 3233.

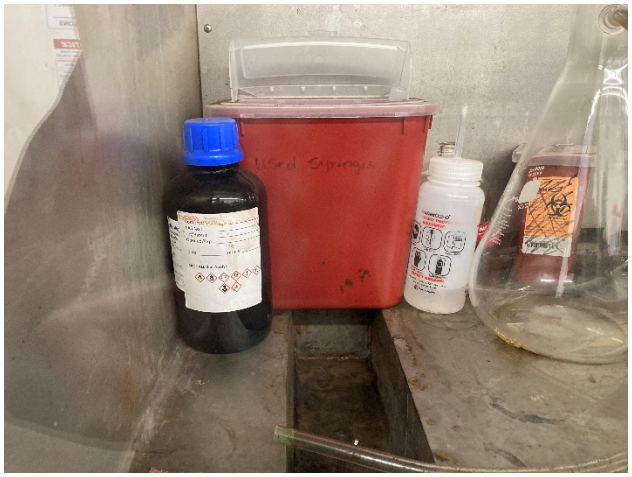

Photo 55: Robertson Wing Room 3221.

Photo 58: Robertson Wing Room 3228.

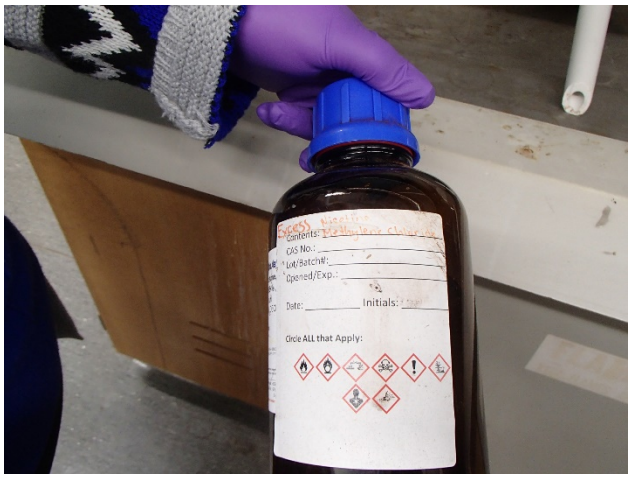

Photo 56: Robertson Wing Room 3221.

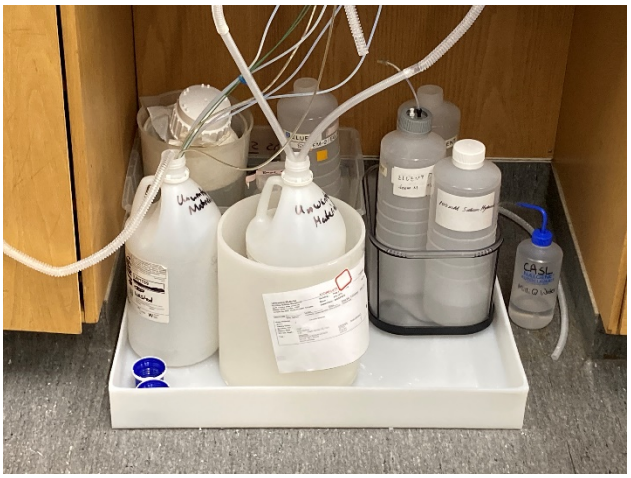

Photo 59: Robertson Wing Room 2115.


Photo 60: Robertson Wing Room 2115.


Photo 61: Robertson Wing Room 2115.

Photo 62: Robertson Wing Room 2115.

Photo 63: Robertson Wing Room 2115.


Photo 64: Robertson Wing Room 2115.