# RCRA Inspection Report

## 1) Inspector and Author of the Report

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## 2) Facility Information

University of Kentucky
355 Cooper Drive
Lexington, Kentucky 40506-0490
Fayette County
EPA ID Number: KYD000830851

## 3) Responsible Official

Robert D. Kjelland
Environmental Management Director
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## 4) Inspection Participants

| | |
|---|---|
| Robert D. Kjelland | University of Kentucky |
| Maridely Loyselle | University of Kentucky |
| Brian Butler | University of Kentucky |
| Ron Taylor | University of Kentucky |
| Courtney Levenson | University of Kentucky |
| Darlene Paskovich | University of Kentucky |
| Kristie Moore | University of Kentucky |
| Cindy Meier | University of Kentucky |
| Andrea Higdon | University of Kentucky |
| Michael Flythe | USDA Research Lab |
| Jessica Ferrell | USDA Research Lab |
| Isabelle Kagan | USDA Research Lab |
| John May | USDA Research Lab |
| Amy McCracken | KYDEP |
| Heather Jordan | KYDEP |
| Leslie Carr | KYDEP |
| Javier García | EPA Region 4 |

## 5) Date of Inspection

June 29 and 30, 2021

## 6) Applicable Regulations

Sections 3002, 3005 and 3007 of Resource Conservation and Recovery Act (RCRA) 40 Code of Federal Regulations (C.F.R). Parts 260 through 268, 270, 273 and 279 Rules Governing Hazardous Waste Management Title 401 of Kentucky Administrative Regulations (401 K.A.R.) Chapters 30 through 40 and 44 Kentucky Department for Environmental Protection, Hazardous Waste Permit Part B KYD000830851 for the storage and on-site treatment of hazardous waste in containers. The permit expires on December 31, 2027.

## 7) Purpose of Inspection

To conduct an EPA lead compliance evaluation inspection and determine the facility's compliance status with the applicable regulations and Permit KYD000830851.

## 8) Facility Description

The University of Kentucky (UK) is a multifaceted research, teaching, and medical treatment facility serving the Commonwealth of Kentucky. The UK was founded in 1865 and employs approximately 13,000 people with a student population of approximately 30,000. The campus covers approximately 800 acres.

The UK is a large quantity generator and transporter of hazardous waste, a generator of used oil, and a small quantity handler of universal waste. Most of the hazardous waste generated at the facility are from laboratories (academic, research and health care). All hazardous waste generated at the UK are collected from the satellite accumulation areas and transferred to the Environmental Quality Management Center (EQMC), where the UK operates a storage and treatment hazardous waste facility. The UK's Environmental Management Office, oversees all hazardous waste management activities, including the collection of hazardous wastes from satellite accumulation areas and the operation of the EQMC.

The EQMC is a single-story building that houses the UK's Environmental Management Program offices and the RCRA Permitted unit (referred in this report as "EQMC"). The EQMC has nine segregated bays/rooms for storage of hazardous waste in containers according to compatibility and characteristics: Oxidizers, Flammables, Gas Cylinders, X-Rad, Cyanide/Base, Metals, Acids, Reactives, Poisons/PCB and Non-Organics/ Waste oil/Biological. In addition, it has two treatment areas: bulking compatible wastes into larger containers for off-site shipment, and another for conducting bench-scale neutralization and oxidation/reduction to make wastes safer to store and transport. About 70% of the hazardous waste streams managed at the facility consist of halogenated and non-halogenated solvents.

The UK uses an electronic database system, referred to as "E-Trax," to coordinate and track the transfer of hazardous wastes from the satellite accumulation areas (SAAs) to the EQMC. All satellite accumulation areas are required to have an operator registered in E-Trax. The pickup request form includes: the request date, requester name, SAA location, waste profile number,

container(s) description and chemical profile. In addition, the user may request additional containers and labels.

The UK is registered with the Kentucky Division of Waste Management (KYDWM) as a large quantity generator of hazardous wastes and storage/treatment facility. In its RCRA Part A permit application, the UK reported the generation of all characteristic hazardous waste codes; F002, F003, F004, F005, and F027 listed hazardous waste; P001-P205 acute hazardous waste; and U001-U401 non-acute hazardous waste.

The EQMC's hazardous waste storage and treatment activities are subject to the conditions established in the RCRA permit issued by KYDWM and the EPA on December 1, 2017. The permit allows the facility to store up to 12,600 gallons of liquid and solid wastes, and up to 10,000 liters of containerized gaseous waste. The UK is also permitted to consolidate up to 500 gallons of hazardous waste per day and to treat (neutralization and oxidation/reduction) up to 100 gallons of hazardous waste per day. The EQMC is located at 355 Cooper Drive, Lexington, Kentucky.

## 9) Previous Inspection History

On September 28 - 29, 2020, the EPA and KYDWM inspected the facility and reported several violations, including labeling and maintenance of the EQMC's floor coating. All violations were corrected and documented.

## 10) Findings

On June 29, 2021, Javier García with the EPA, along with Amy McCracken, Heather Jordan and Leslie Carr with the Kentucky Department for Environmental Protection (KYDEP) arrived at the facility at approximately 9:30 a.m. The inspectors were greeted by Robert D. Kjelland and proceeded to a conference room where they were joined by Maridely Loiselle and Brian Butler. The inspection team conducted an entrance briefing where they showed credentials, explained the purpose of the visit and the use of a camera during the inspection. Next, the facility representatives provided a summary of the UKs hazardous waste management practices.

The UK personnel stated that there were approximately one thousand laboratories on campus and that there were over 800 registered SAAs. Due to the number of SAAs at the facility, the inspectors decided to inspect SAAs at the Good Samaritan Hospital, the BioPharma Complex, the Biomedical Biological Sciences Research Building (BBSRB), Agriculture Science Center North (Ag North). Before proceeding with the facility tour, the inspectors addressed the personal protection equipment needed during the inspection. The following are the observations made during the inspection.

UK Good Samaritan Hospital:

The UK Good Samaritan Hospital (Samaritan) is a short-term treatment facility with a 180 bed capacity. At the Samaritan, Ms. Courtney Leveson, UK Health and Safety Officer joined the inspection team. First, the inspectors visited the central pharmacy, which dispenses medications for inpatient and outpatient care. Depending on the composition, unused medications are either returned to the distributor using Inmar Corporation Services (Photograph 1), managed as hazardous waste (Photograph 2) or neutralized if they are non-RCRA regulated controlled drugs. The pharmacy uses a web-based on-line data system (PharmE® Waste Wizard®) to search for

pharmaceutical waste disposition information using the National Drug Code number, product name, generic name, or ingredients. In addition, the pharmacy uses an electronic tracking system that tracks the medications dispensed to patients at the hospital.

Next, the inspectors went to the Clinical Laboratory Department where they were assisted by Ms. Darlene Paskovich, UK Lab Safety Officer. In the Surgical Pathology Lab, the inspectors observed one SAA with a 16-ounce container that contained spent methanol used in slides and one SAA with six -1-gallon containers of expired reagents (Photographs 3 and 4).

Lee T. Todd Building (Biological-Pharmaceutical Complex Building)

This building includes two floors of academic spaces and three floors of research laboratories. Kristie Moore, UK Safety Officer, assisted the inspectors while in the building. On the third floor, the inspectors observed a total of 14 SAAs in Rooms 306, 316, 326 and 376. The largest container observed had a 15-gallon capacity. Hazardous wastes observed in the SAAs included spent solvents from glassware cleaning activities, sample residues, spent staining solutions, chromatography residues, spent resins and instrumentation residues. All containers were properly labeled, closed, and appeared to be in good condition (Photographs 5 – 7 show some of the observed containers).

On the fourth floor, the inspectors visited a total of 16 SAAs, located in Rooms 406 416, 426, 466, 476 and 496. Hazardous wastes observed in the SAAs included sample residues, spent solvents and instrumentation residues. Except for one 15-gallon container, all containers were of 5-gallons or less. All containers were properly labeled, closed, and appeared to be in good condition (Photographs 8 – 9 show some of the observed containers).

Biomedical Biological Sciences Research Building (BBSRB)

The BBSRB is a five-story building used by the College of Medicine, the College of Pharmacy, and the College of Arts and Sciences. About 40% of the building is used research activities, and the remaining 60% for academics and administrative activities. The building includes laboratories, central autoclave facilities, centrifuge rooms, cold rooms, and culture rooms (tissues and cells). Cindy Meier, UK Facility Coordinator, led the inspectors to the building tour.

On the second floor of the building, the inspectors observed six SAAs in Room 216 and four SAAs in Room 236. On the first floor, the inspectors observed two SAAs in Room 106, one SAA in Room 116 and one SAA in Room 136. Hazardous waste observed in the SAAs consisted of spent solvents, sample residues, reagent residues and instrumentation spent solutions.

Only containers with a five -gallon capacity or less were observed during the inspection. The inspectors observed several containers, that in addition to the hazardous waste label had a hazardous waste tag attached to them. In some instances, the laboratory operator was marking the waste hazard description on the tags and not on the label. The inspectors recommended the facility to make sure that all required information is included on the label. All containers were closed and appeared to be in good condition (Photographs 10 and 11 show some of the observed containers).

Agriculture Science Center North (AG Center)

The AG Center is a four-story building that includes research and academic laboratories. A group of research laboratories are operated by personnel from the United Sates Department of Agriculture (USDA). The UK's Environmental Management Office collects the hazardous waste containers generated in these laboratories. Andrea Higdon, AG Center's Emergency-Safety Manager, assisted the inspection team while in the building.

The USDA operates about 5,000 square feet of laboratory space on the building's second floor. In this area, the inspectors visited a total of nine SAAs in rooms 201, 203 and 221. Hazardous wastes observed in the SAAs included spent sodium hydroxide, spent sulfuric acid, sample residues, and spent solvents. All containers were properly labeled, closed, and appeared to be in good condition. No container with a capacity greater than 5-gallons was observed in the SAAs. (Photographs 12 and 13 show some of the observed containers).

Next, the inspectors visited Room 205 (Animal Science – Molecular Biology Laboratory) and Room 107 (Soil Bio-Chemistry Laboratory), which are operated by the UK AG Department. No hazardous waste was observed in Room 205. In a vent hood in Room 107, the inspectors observed an SAA with three 5-gallon containers, one 1-gallon container and one 1-liter container. Hazardous wastes observed in the room included spent potash permanganate, reaction byproducts, spent methanol and spent stock solutions. The containers were properly labeled, closed, and appeared to be in good condition. (Photograph 14)

RCRA Permitted Treatment and Storage Facility - EQMC

The EQMC has an electronic security system that includes access control doors and an alarm system with fire sensors, combustion gas sensors, $CO_2$ sensors and motion detectors. The facility has 11 distinct storage bays/rooms for management of waste stream according to compatibility. At the time of the inspection, the EQMC's floor appeared to be in good condition and properly sealed. All hazardous waste containers were properly labeled, dated, closed and in good condition. The oldest containers observed (two phosphorus trifluoride cylinders) were dated 9/15/2020. The following table includes a summary of the observations made at each storage room/bay in the EQMC and includes the storage capacity (in gallons and 55-gallon container equivalent) established in the permit for each area. (Photographs 15 – 20)

| Area Designation | Maximum Capacity (Equivalent in 55-gallon containers) | Inspection Observations |
|---|---|---|
| Oxidizers Storage Bay 112 | 580 Gallons (10.54) | No hazardous waste observed in the bay |
| Compressed Gas Room 114 | 10,000 liters | Two phosphorus trifluoride cylinders, dated 9/15/2020 |

| Area Designation | Maximum Capacity (Equivalent in 55-gallon containers) | Inspection Observations |
|---|---|---|
| Flammables Storage Room 115 | 7150 Gallons (130) | Two 55-gallon containers of clinical laboratory waste, dated 6/24/2021<br>One 30-gallon container of laboratory waste, dated 6/28/2021 |
| Mixed Waste Storage | 690 Gallons (12.54) | One 10-gallon container of scintillation cocktail vials, dated 4/13/2021 |
| Cyanide/Base Storage - Bay 117J | 690 Gallons (12.54) | One 1-liter container of Laboratory waste, dated 6/21/2021 |
| Metals Storage Bay 117K | 690 Gallons (12.54) | One 55-gallon container of laboratory waste, dated 5/26/2021 |
| Acid Storage Bay 117G | 580 Gallons (10.54) | One 55-gallon container of bulked laboratory waste, dated 5/17/2021 |
| Non-Organics/Waste Oil/Poisons/ Biohazard | 1,270 Gallons (23) | No hazardous waste observed in the bay |
| Treatment Room 118 | 100 Gallons (1.82) | No waste observed in the room. Room used for elementary neutralization. No waste treated since April 2021. |
| Reactives Storage Bay 119 | 350 Gallons (6.36) | 14 small containers (One liter or less). Twelve of the containers were refrigerated. (Photograph 19) |
| Bulking Room 120 | 500 Gallons (9.09) | Three 55-gallon containers of laboratory waste, oldest dated 5/7/2021. Dated with oldest date of waste added to the bulking container.<br>One 55-gallon used oil container (Photograph 20) |

Records Review

The inspectors reviewed inspection logs, training records and manifests from October 1, 2020 to June 30, 2021. The contingency plan was found to be up to date and documentation of its distribution to the responding local authorities (fire, police and hospital) was provided. In addition to the contingency plan, the UK has a “Contingency Plan Quick Reference Guide” for the satellite accumulation areas. The inspection logs (monthly, weekly and daily), manifests and randomly selected training records were complete. The elementary neutralization log indicated that in 2021 the facility has neutralized 2,265 pounds of liquid corrosive waste.

## 11) Summary

The inspectors conducted an exit meeting with Robert Kjelland, Maridely Loyselle, Brian Butler and Ron Taylor, and provided the preliminary results of the inspection.

## 12) Signed

JAVIER GARCIA Digitally signed by JAVIER GARCIA Date: 2021.08.19 13:51:52 -04'00'

Javier E. García — Date
Inspector and Author of Report

## 13) Concurrence and Approval

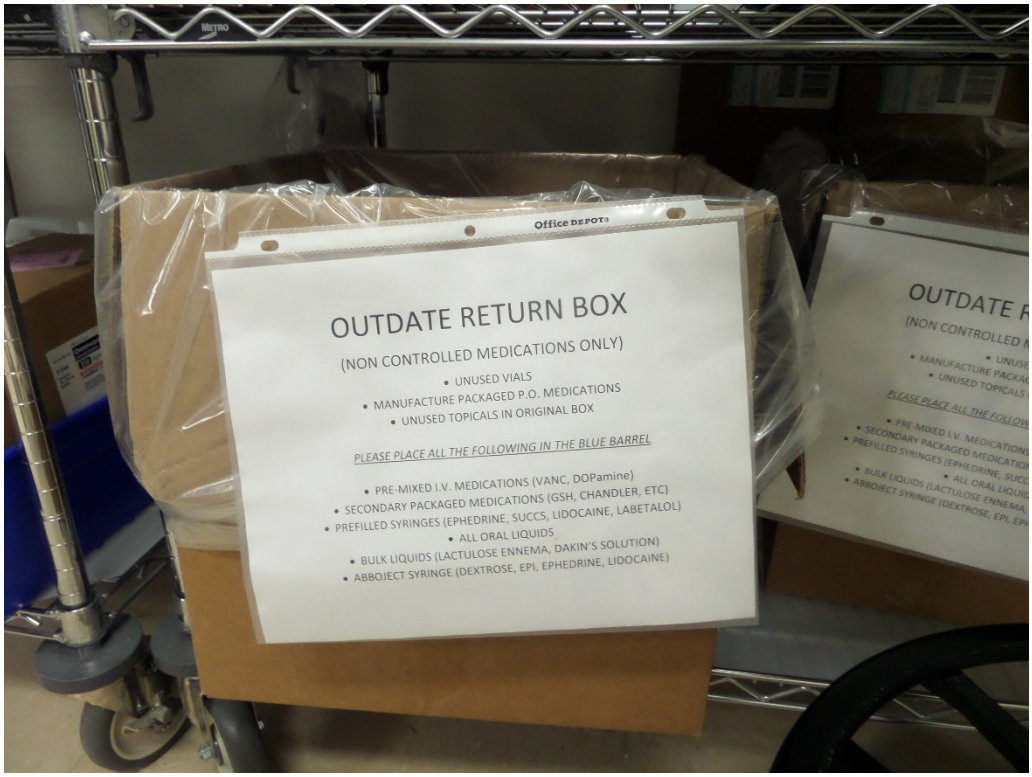
ARACELI CHAVEZ Digitally signed by ARACELI CHAVEZ Date: 2021.08.19 14:19:41 -04'00'

Araceli B. Chavez — Date
Chief
RCRA Enforcement Section

**University of Kentucky**
**355 Cooper Drive**
**Lexington, Kentucky 40506-0490**
**Fayette County**
**EPA ID Number: KYD000830851**

# EPA RCRA CEI Photographs

Photos taken by Javier García
June 29 and 30, 2021
Camera Type: Samsun WB250F
EPA Serial Number: S75915




*Photograph 1: Pharmaceuticals "Reverse Distribution" accumulation container at the Good Samaritan Hospital's pharmacy.*


*Photograph 2: Hazardous waste accumulation container at the Good Samaritan Hospital's pharmacy.*

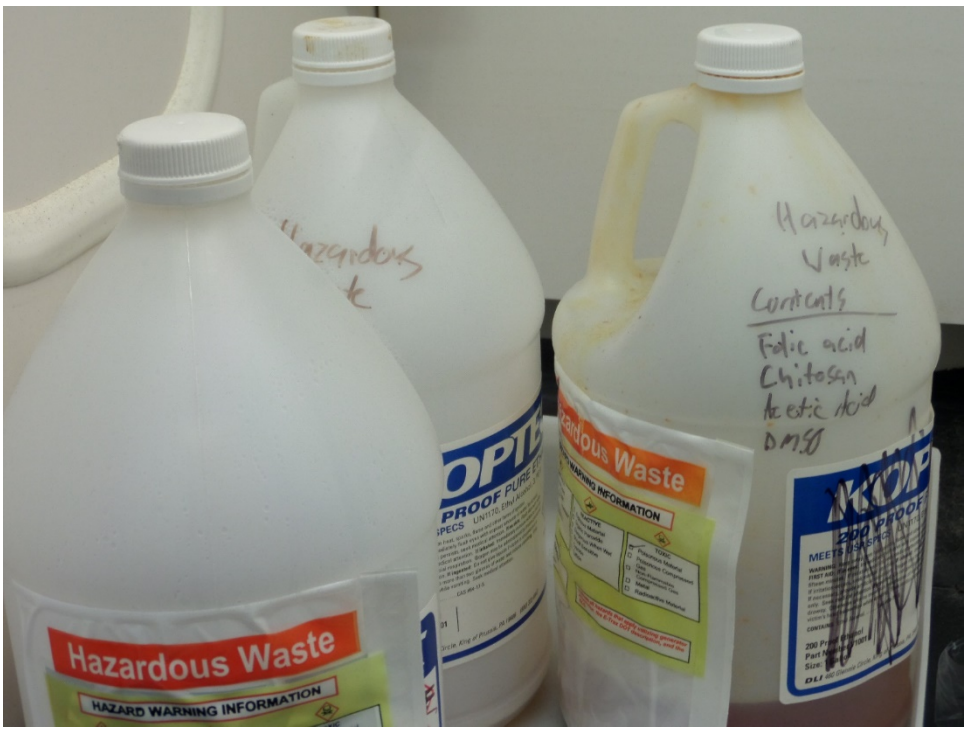

*Photograph 3: Spent methanol accumulation container in the Surgical Pathology Lab of the Good Samaritan Hospital.*


*Photograph 4: Expired reagents in the Surgical Pathology Lab of the Good Samaritan Hospital.*


*Photograph 5: Hazardous waste containers in a SAA at the chemical laboratory section of Room 316 in the Lee T. Todd Building.*


*Photograph 6: Hazardous waste containers in a SAA at the biology laboratory section of Room 316 in the Lee T. Todd Building.*


*Photograph 7: Hazardous waste containers in a SAA at the biology laboratory section of Room 376 in the Lee T. Todd Building.*




*Photograph 8: Hazardous waste containers in a SAA at the chemical laboratory section of Room 406 in the Lee T. Todd Building.*


*Photograph 9: Hazardous waste containers in a SAA at the chemistry laboratory section of Room 406 in the Lee T. Todd Building.*


*Photograph 10: SAA in Room 216-Bench 23 at the Biomedical Biological Sciences Research Building (BBSRB).*


*Photograph 11: SAA in Room 106-Bench 14 at the BBSR Building.*


*Photograph 12: Hazardous wastes accumulation containers observed in Room 221, operated by the USDA.*


*Photograph 13: Hazardous wastes accumulation container observed in Room 201, operated by the USDA.*

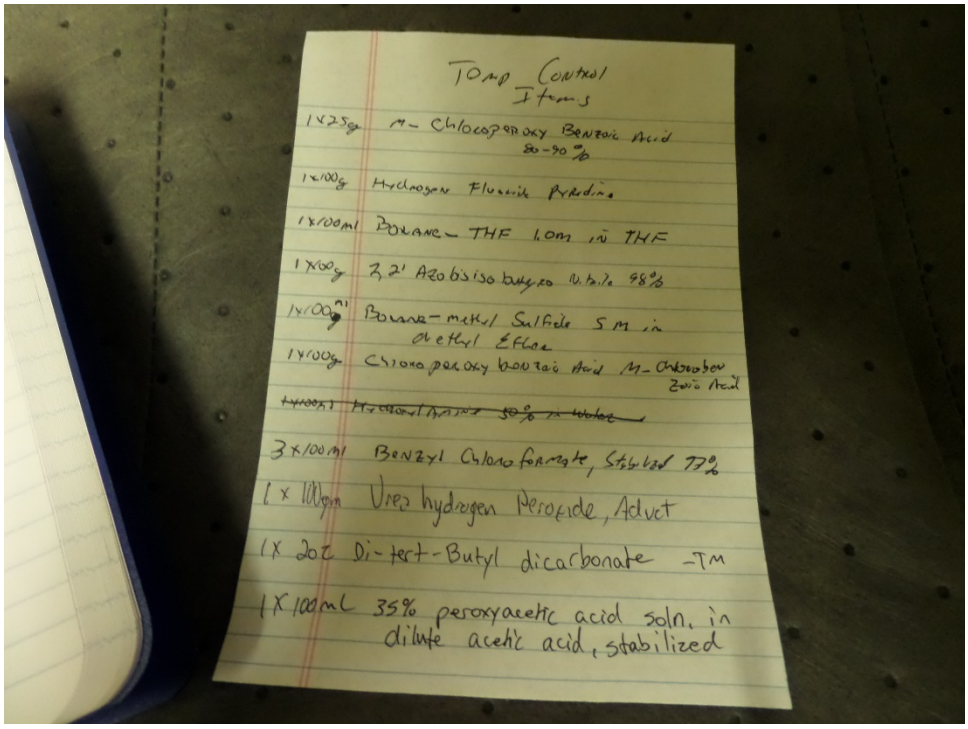

*Photograph 14: Hazardous waste accumulation containers in a vent hood in Room 107.*


*Photograph 15: EQMC's access door to the hazardous waste storage area.*

*Photograph 16: Partial view of the Flammables Storage Room 115.*

*Photograph 17: Partial view of the Flammables Storage Room 115.*

*Photograph 18: General of the EQMC's RCRA permitted area.*




*Photograph 19: List of reactive hazardous wastes in a refrigeration unit in the Reactive Storage Room 119.*


*Photograph 20: Consolidation containers in the Bulking Room 120.*