



STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
KNOXVILLE ENVIRONMENTAL FIELD OFFICE

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KNOXVILLE, TENNESSEE 37921-6538

July 31, 2017 PHONE (865) 594-6035 STATEWIDE 1-888-891-8332 FAX (865) 594-6105

Mark Smith, Director
University of Tennessee, Environmental Health & Safety
1425 Tee Martin Drive
414 East Stadium Hall
Knoxville, TN 37996

CERTIFIED MAIL
7016 0910 0002 1344 0677
RETURN RECEIPT REQUESTED

Re: **Hazardous Waste Compliance Evaluation Inspection**
University of Tennessee, Austin Peay Building
EPA ID # TN0 00-087-9809, Knox Co.

Dear Mr. Smith:

On July 11, 2017 the Division of Solid Waste Management (DSWM) conducted a Hazardous Waste Compliance Evaluation Inspection (CEI) at the referenced facility. The inspection was conducted to evaluate the facility's compliance with the *Tennessee Hazardous Waste Management Act*, T.C.A. §68-212-101 *et seq.*, with the *Used Oil Collection Act of 1993* T.C.A. 68-211, Part 10, and with Tennessee's Hazardous Waste Regulations (Division Rule Chapter 0400-12-01) promulgated pursuant to those Acts. During the inspection, violations of Tennessee's hazardous waste management regulations were identified. The attached Inspection Report/Notice of Violation (NOV) details inspection findings. University of Tennessee, Austin Peay Building must initiate immediate actions to correct outstanding violations. In addition, please submit all requested documentation to the DSWM by August 30, 2017. The DSWM will conduct a follow-up inspection within thirty days to verify the facility's compliance status.

The DSWM appreciates the courtesy and cooperation shown by University of Tennessee during the inspection. Should you have any questions concerning this report, please do not hesitate to contact me at 865-594-5465 or by email: Pamela.Rudd@tn.gov.

Sincerely,

Pamela Rudd

Pamela Rudd
Environmental Scientist
Division of Solid Waste Management
Knoxville Environmental Field Office

Enclosure: 2017 Hazardous Waste Inspection Report

cc: Ashley Holt, DSWM/Nashville
Lisa Hughey, DSWM/Nashville
Central File, DSWM/Nashville
Enforcement Section, DSWM/Nashville
Knoxville Environmental Field Office File

HAZARDOUS WASTE INSPECTION REPORT

SITE/PHYSICAL LOCATION:

University of Tennessee, Austin Peay Building
Room 123, Austin Peay Building
Knoxville, TN 37996
EPA ID # TN0 00-087-9809
County: Knox

PRIMARY CONTACT:

Mike Rotella, Senior Environmental Coordinator
University of Tennessee, Environmental Health & Safety
1425 Tee Martin Drive
414 East Stadium Hall
Knoxville, TN 37996
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MAILING ADDRESS:

Mark Smith, Director
University of Tennessee, Environmental Health & Safety
1425 Tee Martin Drive
414 East Stadium Hall
Knoxville, TN 37996

DATE AND START TIME OF INSPECTION:

Date: July 11, 2017
Time: 9:00 a.m.

INSPECTION PARTICIPANTS:

Mike Rotella, Senior Environmental Coordinator
University of Tennessee, Environmental Health & Safety
Telephone: 865-974-5084
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April Case, Team Leader
University of Tennessee, Environmental Health & Safety
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REPORT PREPARED BY:

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PURPOSE OF INSPECTION:

This routine inspection was conducted to evaluate University of Tennessee, Austin Peay Building's compliance with the applicable requirements of Tennessee's Hazardous Waste Management Act T.C.A. 68-212, Parts 1 and 3, with the Used Oil Collection Act of 1993 T.C.A. 68-211, Part 10, and with the regulations adopted pursuant to those Acts. Inspection findings are based upon site observations, file review, and verbal and written information provided by facility personnel during the inspection (including the identification of all physical locations where wastes are generated and managed by the facility). The facility is encouraged to advise the DSWM of any information in the report or attached letter that the facility deems to be incorrect. Any such communication should be submitted to the Division within fifteen (15) days following receipt of this report.

FACILITY DESCRIPTION:

The EPA ID number assigned to University of Tennessee, Austin Peay Building encompasses five buildings located on the main campus in an area called "the hill". These buildings include: Walters Life Sciences, Hesler Biology, Science and Engineering, Dougherty, and Dabney-Buehler. Hazardous waste is primarily generated from research and teaching laboratories located throughout the referenced buildings.

GENERATOR STATUS:

Large Quantity Generator of Hazardous Waste
Small Quantity Handler of Universal Waste

HAZARDOUS WASTE STREAMS GENERATED:

The Hazardous Waste Stream and Annual Report for the year 2016 was available for inspection. According to the report submitted to the Division of Solid Waste Management, the following hazardous waste streams were generated in the year 2016.

Waste Number/ Name	EPA Waste Codes	How is the waste generated?	Pounds Generated in 2016
1/ Mixed Lab Waste	D001, D002, D004, D005, D011, D022, F003, F005, P030, P098, F027	research and teaching lab waste	14,491
2/ Waste Organic Solvents	D001, D018, D019, D022, D035, D039, D040, F002, F003	research and teaching lab waste	10,925
3/ Metal Acid Waste	D001, D002, D005, D008, D011	research and teaching lab waste	3,560
6/ Waste Compressed Gas	D001, D002, D003, U029, U135	research and teaching lab waste	2,361
7/ Waste Compressed Gas, Corrosive Oxidizer	D001, D002, D003, U135	research and teaching lab waste	2
9/ Debris & Various Solid Waste	D001, D004, D008, U122, U238	research and teaching lab waste	410

INSPECTION FINDINGS:

Facility Site Observations:

The Division inspector arrived at University of Tennessee, Environmental Health & Safety (EHS) Office at 9:00 a.m. and met with Kim Harmon and April Case. After discussing the nature of the inspection and facility logistics, it was decided to begin the inspection at Fleming Warehouse where universal waste is collected and stored. This was followed by visiting satellite accumulation and 90 day storage areas located in Science and Engineering, Dabney-Buehler, Dougherty, Walters Life Sciences, and Hesler Biology. Since Mike Rotella was attending a training session that morning, Ms. Case escorted the Division inspector. Mr. Rottella later joined the inspection at Dabney-Buehler. A review of relevant paperwork and a closing conference rounded out the inspection.

Fleming Warehouse

Universal waste generated on the main campus is collected and stored at this location prior to recycling. Lamps are recycled by Lighting Resources in Johnson City while rechargeable batteries are recycled by Powerhouse Recycling. Any lead-acid batteries are shipped to Tennessee Metals for core recycling.

Several universal waste lamp containers were observed in storage. One box was found open (labeled lid found on pallet next to box) and the box was not dated to demonstrate storage time (Photo 1). University of Tennessee procedure to demonstrate storage time involves placing a storage date on the box. An additional box of lamps was found stored for more than one year (Photo 2).



Photo 1) One box of universal waste lamps was found open and not dated.

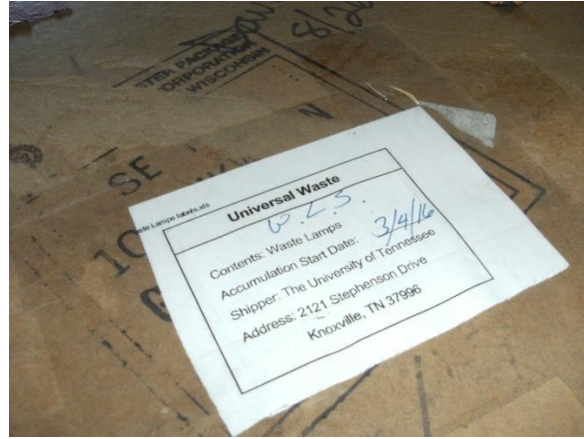


Photo 2) One box of universal waste was found stored for more than one year. This container was dated 3/4/2016.

Previously, aerosol cans were collected throughout the main campus for puncturing. Recently, due to the volume of cans and the time-consuming task of puncturing, the facility elected to discontinue this practice. Currently, aerosol cans are collected throughout campus and brought to a central accumulation area (90 day) inside the warehouse where they are managed as hazardous waste. The cans are ultimately repackaged into a Gaylord box for storage prior to shipment. Two containers of aerosol cans were found unlabeled, open, and without accumulation start dates (Photo 3). Additionally, weekly inspections are not conducted on containers in this area. However, the area is equipped with emergency equipment, spill equipment and University of Tennessee staff utilizes cell phones for emergency communication.



Photo 3) Two containers full of aerosol cans were found stored in a 90 day storage area. The containers were not labeled, open, and not dated. Additionally, weekly inspections are not conducted for containers in this area.

Science and Engineering Building

90 Day Storage Area

This 90 day storage area is located behind the building in a locked room near the loading dock. Many various sized containers ranging from 50 mL to 30 gallon were found stored. Three 30-gallon containers and one 1-gallon container were found with no accumulation start dates (Photos 4-7). All other containers, including the four undated containers, were found labeled with the words “hazardous waste” and closed. The storage area was equipped with a spill kit, emergency equipment, and personnel use cell phones for communication. A copy of the contingency plan is also available in the event of an emergency. Weekly inspections are conducted and recorded in a log which was available for review.

EHS personnel explained that when lab personnel bring waste to the room, the personnel surrendering the waste is required to sign a log sheet to document their name, lab room number, and whether they have received training. Any training deficiencies are addressed by Lab Safety EHS personnel.



Photo 4) 90 Day Area: One 30-gallon container of hazardous waste was not dated.

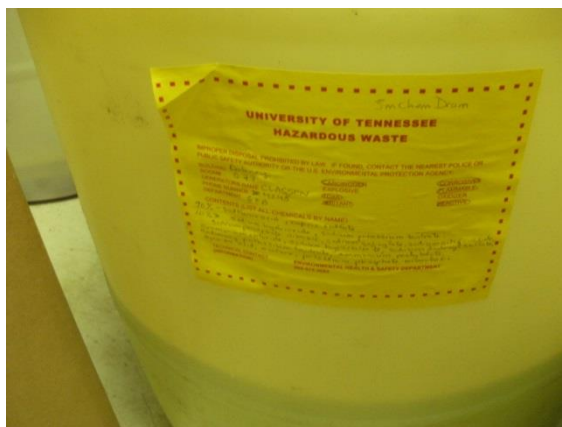


Photo 5) 90 Day Area: One 30-gallon container of hazardous waste was not dated.

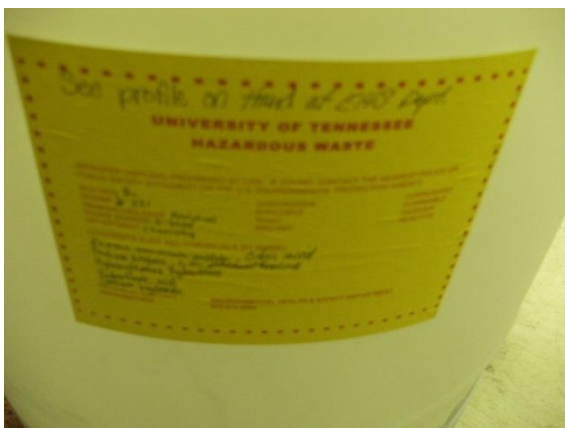


Photo 6) 90 Day Area: One 30-gallon container of hazardous waste was not dated.

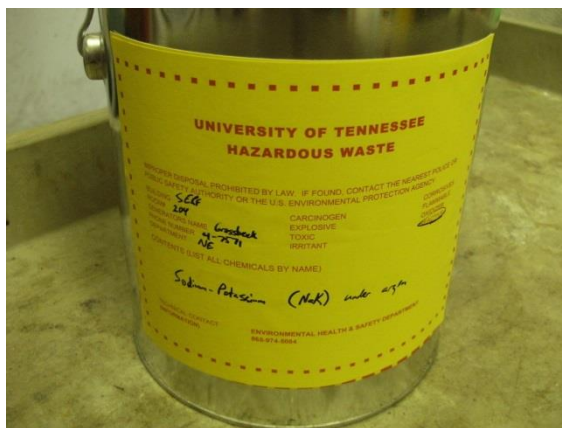


Photo 7) 90 Day Area: One 1-gallon container of hazardous waste was not dated.

Satellite Accumulation Areas

- Room 217: Several containers of hazardous waste were observed. While all were found labeled “hazardous waste,” one 30-gallon container and one 15-gallon container were not properly closed (Photos 8-9). The Division recommends personnel improve housekeeping for its hazardous waste satellite storage by making all hazardous waste labels clearly visible and removing other obstacles in the storage area. Also observed were various chemical glassware stored on top of hazardous waste labels which were placed on the tops of the container lid. Since the glassware held or previously held chemicals, the integrity of the label is compromised. As a best management practice, lab personnel should place hazardous waste labels on the side of the container.
- Room 225: One container of hazardous waste was found labeled and closed.
- Room 502: This lab was empty.
- Room 503: This lab was empty.
- Room 508: This lab was empty.
- Room 705: Four 4L, one 1L, and several small containers were stored in the lab hood. All were labeled and closed.
- Room 702: This large lab manages several satellite areas at each of their five lab hoods. All were found properly closed and labeled. However, three 4L ion chromatography (IC) effluent containers of hazardous waste were observed. These three were not labeled or properly closed (Photos 10-12).
- Room 729: Several containers of hazardous waste were observed at a storage area in the lab hood. All were labeled and closed.
- Room 723: One 4L container of hazardous waste was observed labeled and closed.
- Room 722B: Several various-sized containers of hazardous waste were observed. All were found labeled but one 500 mL container was found open (Photo 13). All others were closed.
- Room 722: One 4L container of hazardous waste was observed labeled and closed.

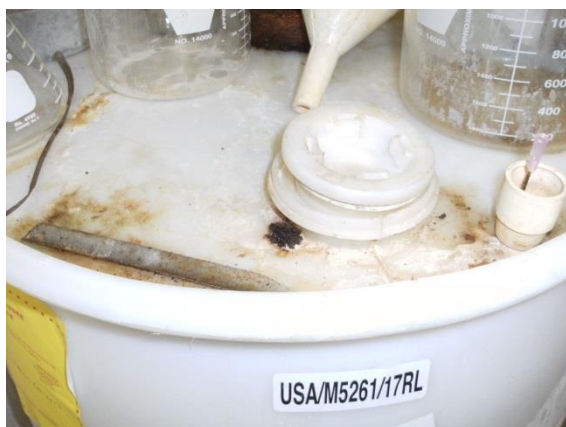


Photo 8) Room 217: One 30-gallon container of hazardous waste was not properly closed. The bung was not screwed into the container.



Photo 9) Room 217: One 15-gallon container of hazardous waste was not properly closed. The metal ring was not fastened to the lid to prevent spillage.



Photos 10-12) Room 702: Three 4L containers of IC hazardous waste effluent were observed (from left to right: waste methonal, waste sulfuric acid, waste potassium hydroxide). None were labeled or closed properly. These lids were not fully fastened onto their waste container.



Photo 13) Room 722B: One 500 mL container of hazardous waste was found open.

Dabney-Buehler Building

Satellite Accumulation Areas

- Rooms 602-603: Four 1-gallon containers of hazardous waste were stored in various lab hoods. While all four were labeled, all four were found open (Photos 14-17). Hazardous waste is also stored in various-sized container inside a flammable cabinet in this room. All of these containers were labeled and closed.
- Room 663: Several containers of hazardous waste were observed. All were labeled and closed.
- Room 458: One 30-gallon and four 4L containers of hazardous waste were observed. All were labeled and closed.
- Room 432: Three 4L containers of hazardous waste were observed. While all were labeled, one 4L was not fully closed (Photo 18).

- Room 434: One 30-gallon, one 4L, and one flammable cabinet of various-sized containers (4L- 500 mL) were observed. All were labeled and closed.
- Room 332: One 30-gallon, seven 4L, and one 1L containers were observed. All were labeled and closed.



Photo 14) Room 602-603: One 1-gallon of hazardous waste was open.



Photo 15) Room 602-603: One 1-gallon of hazardous waste was open.

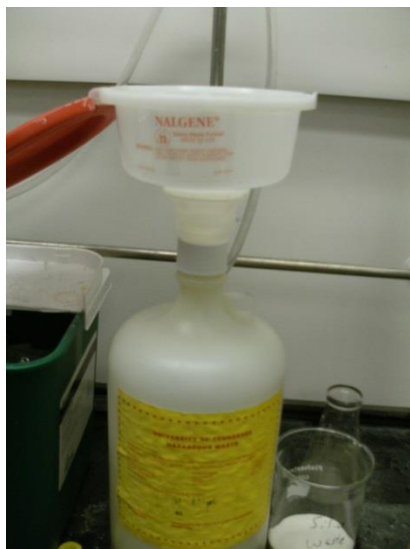


Photo 16) Room 602-603: One 1-gallon of hazardous waste was open.



Photo 17) Room 602-603: One 1-gallon of hazardous waste was open.



Photo 18) Room 432: One 4L container of hazardous waste was not fully closed.

Dougherty Building

Satellite Accumulation Areas

- Rooms 302: Three 4L containers of hazardous waste were observed. All were labeled and closed.
- Room 103A: One 30-gallon container of hazardous waste was observed. The container was labeled and closed.

Walters Life Sciences Building

Satellite Accumulation Areas

- Rooms 309/313 C&D: Two 4L, one 1L, one vial, and one baggie containers of hazardous waste were observed at a storage area in the lab hood. All were labeled and closed.
- Room D305: This lab was empty.
- Room B311: This lab was empty.
- Room A305: Two 2-gallon, two 1-gallon, one 1L, and one 4L containers were observed. All were labeled and closed.
- Room D413: Six various-sized containers were observed. While five were found closed and labeled, one small container of waste sodium azide (P105) was closed but was not labeled (Photo 19).
- Room D417: Two small containers of hazardous waste were observed. The containers were labeled and closed.



Photo 19) Room D413: One small container of waste sodium azide (P105) was not labeled, as required.

90 Day Storage Area

This 90 day storage area is located Room M209 of Walters Building. The room is kept locked by EHS personnel. Several various-sized containers ranging from 50 mL to 4L were observed. The containers were stored in segregated secondary containment bins filled with absorbent. One 30-gallon container was also observed. All were labeled “hazardous waste”, closed, and dated.

EHS personnel explained that when lab personnel bring waste to the room for storage, the personnel surrendering the waste is required to sign a log sheet to document their name, lab room number, and whether they have received training. Any training deficiencies are addressed by Lab Safety EHS personnel.

The storage area is equipped with emergency equipment, spill equipment, and personnel use cell phones for communication. A copy of the contingency plan is also available in the event of an emergency. Weekly inspections are conducted and recorded in a log which was available for review.

Hesler Biology Building

Satellite Accumulation Areas

- Room 434: One 4L container of hazardous waste was observed labeled and closed.
- Room 433: Several containers of hazardous waste were observed in the lab hood. One baggie of hazardous waste was not properly labeled or closed (Photo 20). The Division does not approve of placing hazardous waste in bags marked as biohazard. Since hazardous waste is managed and ultimately treated/disposed of differently than biohazard waste, improper storage containers may cause waste to be mismanaged and ultimately not treated/disposed of properly, in accordance with TN Rules for Hazardous Waste.
- Room 438: One 4L container and one pan of hazardous waste-contaminated wipes and personal protective equipment (PPE) were observed. The wipes and PPE were not properly containerized in a labeled, closed container (Photo 21).
- Room 325: One small container of waste alcohol was observed labeled and closed.
- Room 331: One 4L container of labeled and closed hazardous waste was observed.
- Room 317: Several various-sized containers of hazardous waste were observed. One bag of waste osmium tetroxide-contaminated (P087) pipettes was observed. This bag was not

closed or labeled, as required (Photo 22). Additionally, this waste was accumulated in a biohazard bag. As stated above, the Division does not approve of placing hazardous waste in bags marked as biohazard. Since hazardous waste is managed and ultimately treated/disposed of differently than biohazard waste, improper storage containers may cause waste to be mismanaged and ultimately not treated/disposed of properly, in accordance with TN Rules for Hazardous Waste.



Photo 20) Room 433: One bag of hazardous waste was found not labeled or closed. Additionally, the Division does not approve of using biohazard bags to store hazardous waste as this may not facilitate proper disposal/treatment management, in accordance with TN Rules for Hazardous Waste.



Photo 21) Room 438: One pan of hazardous waste-contaminated PPE and wipes were found observed. The wipes and PPE were not properly containerized in a labeled, closed container.



Photo 22) Room 317: One bag of waste osmium tetroxide-contaminated (P087) pipettes was observed. This bag was not closed or labeled, as required. Additionally, the Division does not approve of using biohazard bags to store hazardous waste as this may not facilitate proper disposal/treatment management, in accordance with TN Rules for Hazardous Waste.

Facility File Review:

Manifests

Manifests for the past three years were available for review and found acceptable with all required signatures. Hazardous waste is manifested off-site by Veolia (NJD080631369) to one of the following treatment, storage, and disposal facilities: Veolia in West Carrollton, OH (OHD093945293), Veolia in Sargent, IL (ILD098642424), Veolia in Port Arthur, TX (TXD0000838896) and Veolia in Menomonee Falls, WI (WID003967149). Some hazardous waste was also shipped via Clean Harbors (MAD039322250) to Clean Harbors in El Dorado, AR (ARD069748192).

Hazardous Waste Annual Reports

Annual reports for the past three years were available for review.

Hazardous Waste Reduction Plan

A hazardous waste reduction plan was available for review and found acceptable.

Training

Hazardous waste training was reviewed and found to be acceptable. Personnel job titles, job description, and training required were also available for review.

Weekly Inspection Logs

Weekly inspections of both the Science and Engineering and Walters 90 day storage areas are recorded in a log, which was available for review. However, weekly inspections have not been conducted on the 90 day storage area at Fleming Warehouse where aerosol cans are accumulated.

Contingency Plan

The contingency plan was available for review and found to be acceptable, containing all required elements. Additionally, arrangements with the local authorities have been made and documented in the contingency plan.

VIOLATIONS:

Violation #1 - Rule 0400-12-01-.03(4)(e)5(i)(I) states:

- (4) Pre-transport Requirements [40 CFR 262 Subpart C]
 - (e) Accumulation Time [40 CFR 262.34]
 - 5. (i) A generator may accumulate as much as 55 gallons of hazardous waste or one quart of acute hazardous waste listed in Rule 0400-12-01-.02(4)(b) or (4)(d)5, in containers at or near any point of generation where waste initially accumulate, which is under the control of the operator of the process generating the waste, without a permit or interim status and without complying with part 2 of this subparagraph provided he:
 - (I) Complies with Rule 0400-12-01-.05(9)(b), (c), and (d)1;

Rule 0400-12-01-.05(9)(d)1 states:

- (9) Use and Management of Containers [40 CFR 265 Subpart I]
 - (d) Management of Containers [40 CFR 265.173]
 - 1. A container holding hazardous waste must always be closed during storage, except when it is necessary to add or remove waste.

Violation #1 Observation:

The University of Tennessee, Austin Peay Building failed to close 14 satellite storage containers of hazardous waste. These containers were identified in the following locations:

Building/Room #	Quantity and Container size	Photo Number
Science and Engineering Room 217	One 30-gallon and one 15-gallon	8-9
Science and Engineering Room 702	Three 4L	10-12
Science and Engineering Room 722B	One 500mL	13
Dabney-Buehler Room 602-603	Four 1-gallon	14-17
Dabney Buehler Room 432	One 4L	18
Hesler Biology Room 433	One bag of contaminated PPE and wipes	20
Hesler Biology Room 438	One pan of PPE and wipes	21
Hesler Biology room 317	One bag of P087 contaminated pipettes	22

Required Action:

All satellite containers of hazardous waste must be closed during storage, except when the operator is adding or removing waste.

Violation #2 - Rule 0400-12-01-.03(4)(e)5(i)(II) states:

- (4) Pre-transport Requirements [40 CFR 262 Subpart C]
 - (e) Accumulation Time [40 CFR 262.34]
 - 5. (i) A generator may accumulate as much as 55 gallons of hazardous waste or one quart of acute hazardous waste listed in Rule 0400-12-01-.02(4)(b) or (4)(d)5, in containers at or near any point of generation where waste initially accumulate, which is under the control of the operator of the process generating the waste,

without a permit or interim status and without complying with part 2 of this subparagraph provided he:

- (I) Complies with Rule 0400-12-01-.05(9)(b), (c), and (d)1; and
- (II) Marks his containers either with the words "Hazardous Waste" or with other words that identify the contents of the containers.

Violation #2 Observation:

The University of Tennessee, Austin Peay Building failed to label a total of seven satellite containers of hazardous waste. These containers were identified in the following locations:

Building/Room #	Quantity and Container size	Photo Number
Science and Engineering Room 702	Three 4L	10-12
Walters Room D413	One small container of P105 (sodium azide)	19
Hesler Biology Room 433	One bag of contaminated PPE and wipes	20
Hesler Biology Room 438	One pan of PPE and wipes	21
Hesler Biology room 317	One bag of P087 contaminated pipettes	22

Required Action:

All satellite containers of hazardous waste must be labeled with the words "hazardous waste" or with words to identify the waste contents while in storage.

Violation #3 - Rule 0400-12-01-.03(4)(e)2(ii) states:

- (4) Pre-transport Requirements [40 CFR 262 Subpart C]
 - (e) Accumulation Time [40 CFR 262.34]
 - 2. Except as provided in parts 6, 7 and 8 of this subparagraph, a generator may accumulate hazardous waste on-site for 90 days or less without a permit or without having interim status, provided that:
 - (ii) The date upon which each period of accumulation begins is clearly marked and visible for inspection on each container;

Violation #3 Observation:

The University of Tennessee, Austin Peay Building failed to provide accumulation start dates for two containers of waste aerosol cans located in Fleming Warehouse 90 day storage area (Photo 3) and four containers located in the Science and Engineering 90 day storage area (Photos 4-7).

Required Action:

The facility must ensure all hazardous waste containers located in 90 day storage areas are marked with an accumulation start date.

Violation #4 - Rule 0400-12-01-.03(4)(e)2(i)(I) states:

- (4) Pre-transport Requirements [40 CFR 262 Subpart C]
 - (e) Accumulation Time [40 CFR 262.34]
 - 2. Except as provided in parts 6, 7 and 8 of this subparagraph, a generator may accumulate hazardous waste on-site for 90 days or less without a permit or without having interim status, provided that:
 - (i) The waste is placed:

- (l) In containers and the generator complies with the applicable requirements of Rules 0400-12-01-.05(9), (27), (28), and (29), and/or

Rule 0400-12-01-.05(9)(d)1 states:

- (9) Use and Management of Containers [40 CFR 265 Subpart I]
 - (d) Management of Containers [40 CFR 265.173]
 - 1. A container holding hazardous waste must always be closed during storage, except when it is necessary to add or remove waste.

Violation #4 Observation:

The University of Tennessee, Austin Peay Building failed to close two containers of waste aerosol cans located in the Fleming Warehouse 90 day storage area (Photo 3).

Required Action:

The facility must ensure all containers of hazardous waste located in 90 day storage areas are kept closed.

Violation #5 - Rule 0400-12-01-.03(4)(e)2(iii) states:

- (4) Pre-transport Requirements [40 CFR 262 Subpart C]
 - (e) Accumulation Time [40 CFR 262.34]
 - 2. Except as provided in parts 6, 7 and 8 of this subparagraph, a generator may accumulate hazardous waste on-site for 90 days or less without a permit or without having interim status, provided that:
 - (iii) While being accumulated on-site, each container and tank is labeled or marked clearly with the words, "Hazardous Waste";

Violation #5 Observation

The University of Tennessee, Austin Peay Building failed to label two containers of waste aerosol cans located in the Fleming Warehouse 90 day storage area with the words “hazardous waste” (Photo 3).

Required Action:

The facility must ensure all containers of hazardous waste located in 90 day storage areas are labeled with the words “hazardous waste”.

Violation #6 - Rule 0400-12-01-.03(4)(e)2(i)(I) states:

- (4) Pre-transport Requirements [40 CFR 262 Subpart C]
 - (e) Accumulation Time [40 CFR 262.34]
 - 2. Except as provided in parts 6, 7 and 8 of this subparagraph, a generator may accumulate hazardous waste on-site for 90 days or less without a permit or without having interim status, provided that:
 - (i) The waste is placed:
 - (l) In containers and the generator complies with the applicable requirements of Rules 0400-12-01-.05(9), (27), (28), and (29), and/or

Rule 0400-12-01-.05(9)(e) states:

- (9) Use and Management of Containers [40 CFR 265 Subpart I]
 - (e) Inspections [40 CFR 265.174]

At least weekly, the owner or operator must inspect areas where containers are stored. The owner or operator must look for leaking containers and for deterioration of containers caused by corrosion or other factors.

(Comment: See subparagraph (b) of this paragraph for remedial action required if deterioration or leaks are detected.)

Violation #6 Observation

The University of Tennessee, Austin Peay Building failed to conduct weekly inspections on containers of waste aerosol cans located in the 90 day storage area at the Fleming Warehouse (Photo 3).

Required Action:

Weekly inspections must be conducted on containers located in 90 day storage areas to ensure containers are in compliance with hazardous waste management requirements.

Violation #7 - Rule 0400-12-01-.12(2)(d)4(i)(I) states:

- (2) Standards for Small Quantity Handlers of Universal Waste [40 CFR 273 Subpart B]
 - (d) Waste Management [40 CFR 273.13]
 - 4. Universal Waste Lamps.
 - (i) A small quantity handler of universal waste must manage lamps in a way that prevents releases of any universal waste or component of a universal waste to the environment as follows:
 - (I) A small quantity handler of universal waste must contain any lamp in containers or packages that are structurally sound, adequate to prevent breakage, and compatible with the contents of the lamps. Such containers and packages must remain closed and must lack evidence of leakage, spillage or damage that could cause leakage under reasonably foreseeable conditions.

Violation #7 Observation

The University of Tennessee, Austin Peay Building failed to store one box of lamps in a closed, structurally sound container (Photo 1). This box was identified at the Fleming Warehouse.

Required Action:

All universal waste lamps must be stored in closed, structurally sound containers to prevent breakage.

Violation #8 - Rule 0400-12-01-.12(2)(f)3states:

- (2) Standards for Small Quantity Handlers of Universal Waste [40 CFR 273 Subpart B]
 - (f) Accumulation Time Limits [40 CFR 273.15]
 - 3. A small quantity handler of universal waste who accumulates universal waste must be able to demonstrate the length of time that the universal waste has been accumulated from the date it becomes a waste or is received. The handler may make this demonstration by:

- (i) Placing the universal waste in a container and marking or labeling the container with the earliest date that any universal waste in the container became a waste or was received;
- (ii) Marking or labeling each individual item of universal waste (e.g., each battery or thermostat) with the date it became a waste or was received;
- (iii) Maintaining an inventory system on-site that identifies the date each universal waste became a waste or was received;
- (iv) Maintaining an inventory system on-site that identifies the earliest date that any universal waste in a group of universal waste items or a group of containers of universal waste became a waste or was received;
- (v) Placing the universal waste in a specific accumulation area and identifying the earliest date that any universal waste in the area became a waste or was received; or

Violation #8 Observation

The University of Tennessee, Austin Peay Building failed to demonstrate the storage time for one box of lamps stored at the Fleming Warehouse (Photo 1).

Required Action:

Small quantity handlers of universal waste are required to demonstrate the length of time that universal waste has been stored. The facility's current practice is to place an accumulation start date on the container to track storage time.

Violation #9 - Rule 0400-12-01-.12(2)(f)1 states:

- (2) Standards for Small Quantity Handlers of Universal Waste [40 CFR 273 Subpart B]
 - (f) Accumulation Time Limits [40 CFR 273.15]
 - 1. A small quantity handler of universal waste may accumulate universal waste for no longer than one year from the date the universal waste is generated, or received from another handler, unless the requirements of part 2 of this subparagraph are met.

Violation #9 Observation

The University of Tennessee, Austin Peay Building stored one box of universal waste lamps for more than one year. This box of lamps was observed at the Fleming Warehouse (Photo 2).

Required Action:

Small quantity handlers of universal waste may only accumulate universal waste for no longer than one year prior to recycling.

REMARKS / RECOMMENDATIONS:

1. The Division recommends replacing hazardous waste labels observed on two 4L containers of hazardous waste observed in Dabney-Buehler Room 458. Both of these were stored in the lab hood (pictured below).



2. The Division does not approve of using biohazard bags to store hazardous waste. Since hazardous waste is managed and ultimately treated/disposed differently than biohazard waste, improper storage containers may cause waste to be mismanaged and ultimately not treated/disposed properly, in accordance with TN Rules for Hazardous Waste.
3. Concerning Room 217 at the Science and Engineering Building, the Division strongly recommends lab personnel improve housekeeping for its hazardous waste satellite storage by making all hazardous waste labels clearly visible and removing other obstacles in the storage area. Also observed were various chemical glassware stored on top of hazardous waste labels which were placed on the tops of the container lid. Since the glassware held or previously held chemicals, the integrity of the label is compromised. As a best management practice, lab personnel should place hazardous waste labels on the side of the container.

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