



STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
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September 21, 2017

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

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

Dear Mr. Smith:

On September 12, 2017 the Division of Solid Waste Management (DSWM) conducted a Hazardous Waste Follow-Up Compliance Schedule Evaluation (CSE) 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. The attached follow-up report details inspection findings. No violations were identified during the inspection.

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,

A handwritten signature in blue ink that reads "Pamela Rudd".

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

Enclosure: 2017 Hazardous Waste Follow-Up 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 FOLLOW-UP 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
Telephone: 865-974-5084
Email Address: mrotella@utk.edu

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: September 12, 2017
Time: 9:30 a.m.

INSPECTION PARTICIPANTS:

Mike Rotella, Senior Environmental Coordinator
University of Tennessee, Environmental Health & Safety
Telephone: 865-974-5084
Email Address: mrotella@utk.edu

Pamela Rudd, Environmental Scientist
TDEC, Division of Solid Waste Management
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REPORT PREPARED BY:

Pamela Rudd
Division of Solid Waste Management
Knoxville Environmental Field Office
3711 Middlebrook Pike
Knoxville, TN 37921
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PURPOSE OF INSPECTION:

This follow-up 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

FOLLOW-UP INSPECTION FINDINGS:

Facility Site Observations:

The Division inspector arrived at University of Tennessee, Environmental Health & Safety (EHS) Office at 9:30 a.m. and met with Mike Rotella. The follow-up inspection to investigate items previously cited began at Walters Life Sciences followed by Hesler Biology, Science and Engineering, Dabney-Buehler, and Fleming Warehouse.

Walters Life Sciences Building

During the previous inspection, one small container of waste sodium azide (P105) was not properly labeled when stored in its satellite accumulation area in Room D413. This container was turned in to EHS personnel at the 90 day storage area for handling. According to Mr. Rotella, this item was recently shipped off site for disposal. Three containers of hazardous waste were observed during the follow-up visit. All were found labeled and closed, as required (Photo 1).



Photo 1) Room D413: The previous unlabeled container was collected by EHS personnel for disposal. Three containers of hazardous waste were observed. All were labeled and closed.

Hesler Biology Building

During the previous inspection, three laboratories in this building were identified with hazardous waste storage issues.

- Room 433: Previously, hazardous waste was placed in a biohazard bag for storage. Additionally, the bag was not labeled or dated. Hazardous waste is currently stored in zip-lock bags with proper labeling and segregated from any biohazard waste (Photo 2).
- Room 438: Previously, hazardous waste-contaminated PPE and wipes were not properly containerized in a labeled, closed container. At the time of the follow-up, the satellite storage area was found empty as personnel had moved out of this lab (Photo 3).
- Room 317: Previously, P-listed waste (P087) was found in an unlabeled and open biohazard bag. This waste is currently storage in a large clear baggie which was found closed and labeled (Photo 4).

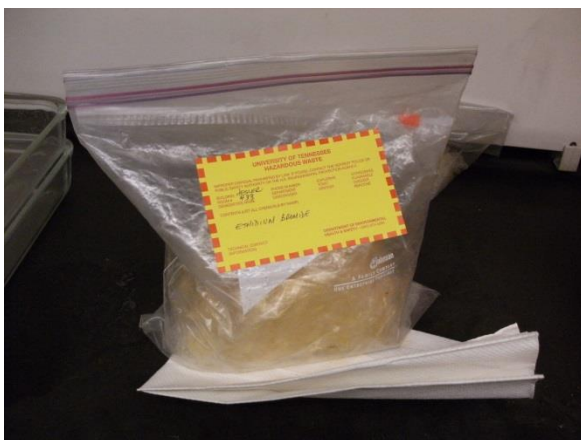


Photo 2) Room 433: Hazardous waste is segregated from biohazardous waste and stored in labeled and closed baggies.



Photo 3) Room 438: This satellite storage area was found empty.



Photo 4) Room 317: This satellite storage area was found empty.

Science and Engineering Building

90 Day Storage Area

During the initial inspection, four containers of hazardous waste were identified without accumulation start dates. While the facility had recently shipped waste off site for disposal, a total of 23 various-sized containers were found in storage. All were inspected and found labeled, closed, and dated. A couple representative photos were taken for compliance demonstration (Photos 5-6).



Photo 5) 90 Day Area: All containers were labeled, closed, and dated.



Photo 6) 90 Day Area: All containers were labeled, closed, and dated.

Satellite Accumulation Areas

During the previous inspection, three laboratories in this building were identified with hazardous waste storage issues.

- Room 217: Previously, two containers of hazardous waste were found not properly closed. During the follow-up inspection, two containers found in satellite storage were observed closed and labeled (Photo 7).
- Room 722B: Previously, one 500 mL container of hazardous waste was found open. During the follow-up inspection, one 4L container was observed in satellite storage. The container was both labeled and closed (Photo 8).
- Room 702 (actually 705): During the initial inspection, three 4L containers were identified at the IC machines. As a result of conversations with lab personnel at the time, Division personnel understood that all three containers were receiving waste effluent from the analytical machines. However, due to new information provided by EHS personnel after discussing the process with the Laboratory Primary Investigator, it was determined that only one of the containers (waste methanol) is used to collect waste. The remaining two containers were product used by the IC machine for analysis. Regarding the container of waste methanol previously identified during the initial inspection, the container was found unlabeled and open. During the follow-up inspection, the container was found labeled and closed (Photo 9).



Photo 7) Room 217: Containers of hazardous waste were found closed and labeled.

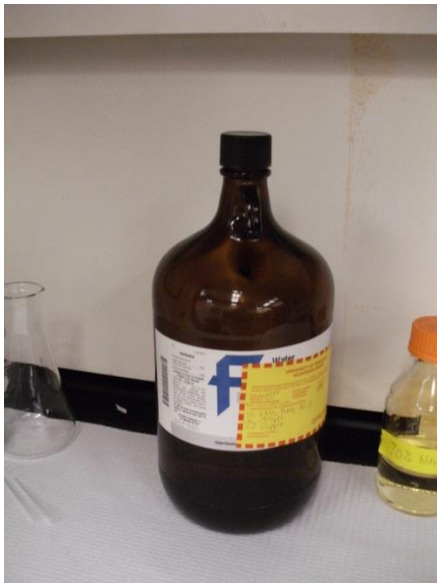


Photo 8) Room 722B: The open 500mL container of waste previously identified was collected by EHS personnel for storage. However, one 4L container observed was found both labeled and closed.



Photo 9) Room 702: The one container of waste methanol was found properly labeled and closed.

Dabney-Buehler Building

Satellite Accumulation Areas

During the previous inspection, two laboratories in this building were identified with hazardous waste storage issues.

- Room 602-603: Previously, four 1-gallon containers were found open. All four were observed closed during the follow-up inspection (Photos 10-13).
- Room 432: Previously, one 4L container was observed open. During the follow-up inspection a total of three 4L containers were found in storage and all were properly closed as well as labeled. (Photo 14).



Photos 10-13) Room 602-603: The four 1-gallon storage containers were found properly closed as well as labeled.



Photo 14) Room 432: Three 4L containers were found properly labeled and closed.

Fleming Warehouse

During the previous inspection, the facility was collecting aerosol cans in a 90 day storage area. However, the storage containers were not properly labeled, dated, or closed. In addition, weekly inspections of the area were not conducted on this area. EHS personnel and university staff have decided to discontinue the 90 day storage area at this location. Aerosol cans are no longer stored at this location but immediately taken to the 90 day storage area at the Science and Engineering Building. No hazardous waste was observed in this area at the time of the follow-up inspection (Photo 15).



Photo 15) Fleming Warehouse: This was the previous location of the 90 day storage area for the accumulation of aerosol cans. This storage area has been closed.

In addition to the 90 day storage area, universal waste is collected and stored at this facility prior to shipment for recycling. Previously, one box of lamps was found open and undated while an additional box was found stored for more than one year. During the follow-up inspection, one box of lamps was observed in storage. The lamps were properly closed, labeled, and a storage date was placed on the label (Photos 16-17). The lamps previously observed during the initial inspection were shipped off site.

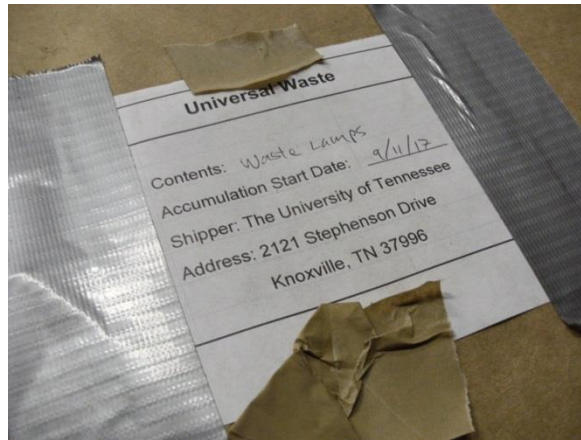


Photo 16-17) Fleming Warehouse: One box of lamps was observed. The box was properly labeled, closed, and a storage date was provided.

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 on July 11, 2017:

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
Science and Engineering Room 217	One 30-gallon and one 15-gallon
Science and Engineering Room 702	Three 4L
Science and Engineering Room 722B	One 500mL
Dabney-Buehler Room 602-603	Four 1-gallon
Dabney Buehler Room 432	One 4L
Hesler Biology Room 433	One bag of contaminated PPE and wipes
Hesler Biology Room 438	One pan of PPE and wipes
Hesler Biology room 317	One bag of P087 contaminated pipettes

Action Taken for Violation #1:

All satellite containers of hazardous waste were observed closed at the time of the follow-up inspection. While some of the containers previously identified have been collected for disposal, any containers located in the same satellite storage areas were found in compliance (Photos 1-2, 4, and 7-14).

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 on July 11, 2017:

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
Science and Engineering Room 702	Three 4L
Walters Room D413	One small container of P105 (sodium azide)
Hesler Biology Room 433	One bag of contaminated PPE and wipes
Hesler Biology Room 438	One pan of PPE and wipes
Hesler Biology room 317	One bag of P087 contaminated pipettes

Action Taken for Violation #2:

All satellite containers of hazardous waste were observed properly labeled at the time of the follow-up inspection. This is demonstrated in photos (Photos 1-2, 4, and 7-14).

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 on July 11, 2017:

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 and four containers located in the Science and Engineering 90 day storage area.

Action Taken for Violation #3:

All containers observed in the 90 day storage area in the Science and Engineering Building were found with accumulation start dates (Photos 5-6). The 90 day storage area previously identified at Fleming Warehouse for the accumulation of aerosol cans was closed and hazardous waste is no longer stored here (Photo 15).

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:
 - (I) 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 on July 11, 2017:

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.

Action Taken for Violation #4:

The 90 day storage area at the Fleming Warehouse was closed and hazardous waste is no longer stored here (Photo 15). The 90 day storage area at Science and Engineering was also visited during this follow-up inspection and all containers were found closed (Photo 5-6).

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 on July 11, 2017:

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".

Action Taken for Violation #5:

The 90 day storage area at the Fleming Warehouse was closed and hazardous waste is no longer stored here (Photo 15). The 90 day storage area at Science and Engineering was also visited during this follow-up inspection and all containers were found labeled (Photo 5-6).

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:
 - (I) 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 on July 11, 2017:

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.

Action Taken for Violation #6:

The 90 day storage area at the Fleming Warehouse was closed and hazardous waste is no longer stored here (Photo 15). Therefore, weekly inspections are no longer required.

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 on July 11, 2017:

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

Action Taken for Violation #7:

One box of universal waste lamps was observed at the Fleming Warehouse. The box was properly closed (Photos 16-17).

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 on July 11, 2017:

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

Action Taken for Violation #8:

A storage date was provided on the container of universal waste lamps observed at the Fleming Warehouse (Photos 16-17).

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 on July 11, 2017:

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.

Action Taken for Violation #9:

The container previously observed as stored for more than one year was shipped off site for recycling. The one box of universal waste lamps in storage at the Fleming Warehouse was stored for less than one year with a date of 9/11/2017.

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

Date 9/21/2017

Reviewed Gerald Webster
Gerald Webster, PG
Environmental Scientist
Division of Solid Waste Management
Knoxville Environmental Field Office

Date 9/21/2017

Approved R. Awasthi
Revendra Awasthi, CHMM
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Knoxville Environmental Field Office

Date 9/21/2017