STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
KNOXVILLE ENVIRONMENTAL FIELD OFFICE
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KNOXVILLE, TENNESSEE 37921-6538
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June 29, 2015

Mr. Stephen Crouch
Senior Environmental Coordinator
University of Tennessee, Knoxville
2111 Terrace Ave.
Knoxville, TN 37996-3503

CERTIFIED MAIL
7012 3050 0001 4133 7713

RETURN RECEIPT RQUESTED

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

Dear Mr. Crouch:

On June 4, 2015, 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 must initiate immediate actions to correct outstanding violations. 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 the University of Tennessee, EH&S, during the inspection. Should you have any questions concerning this report, please do not hesitate to contact me 865-594-5467 or by email: craig.smith@tn.gov.

Sincerely,

Craig Smith

Craig Smith
Environmental Consultant
Division of Solid Waste Management
Knoxville Environmental Field Office

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
916 22nd Street
Knoxville, Tennessee, 37996-3503
TN0 00 087 9809
County: Knox

PRIMARY CONTACTS:

Stephen Crouch
Sr. Environmental Coordinator
2111 Terrace Ave.
Knoxville, Tennessee, 37996-3503
Telephone: 865-974-5084
Email Address: scrouch4@utk.edu

DATE AND START TIME OF INSPECTION:

Date: June 4, 2014
Time: 9:30 a.m.

INSPECTION PARTICIPANTS:

Stephen Crouch, Sr. Environmental Coordinator
University of Tennessee, Austin Peay Building
Telephone: 865-974-5084
Email Address: scrouch4@utk.edu

Linda Hamilton, Senior Laboratory Safety Specialist
University of Tennessee, Austin Peay Building
Telephone: 865-974-5084
Email Address: lhamil17@utk.edu

Chuck Payne, Sr. Safety Coordinator
University of Tennessee, Austin Peay Building
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April Case, Senior Safety Coordinator
University of Tennessee, Austin Peay Building
Telephone: 865-974-5084
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Kimberly Harmon, Administrative Specialist
University of Tennessee, Austin Peay Building
Telephone: 865-974-5084
Email Address: kcox2@utk.edu

Jay Price, Recycling Manager
University of Tennessee, Austin Peay Building
Telephone: 865-974-5084
Email Address: jayprice@utk.edu

James Cantu, Safety Training Specialist
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Email Address: jcantu@utk.edu

Craig Smith, Environmental Consultant
Tennessee Department of Environment and Conservation
Telephone: 865-594-5467
Email Address: craig.smith@tn.gov

REPORT PREPARED BY:

Craig Smith
Division of Solid Waste Management
Knoxville Environmental Field Office
3711 Middlebrook Pike
Knoxville, Tennessee
Telephone: 865-594-5467
Fax: 865-594-6105
Email Address: craig.smith@tn.gov

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:

University of Tennessee, Austin Peay Building US EPA ID number encompasses four buildings located on the main U.T. campus: Walters Life Sciences (WLF), Hesler Biology (HB), Science

and Engineering Research Facility (SERF), and Dabney-Buehler Hall (DBH). These buildings contain numerous research and teaching laboratories for chemistry, biology, and physics, each of which may contain from zero to several accumulation containers for small quantities of hazardous waste. These containers are retrieved regularly, stored in one of two separate 90-day storage rooms, from which they are transported for disposal.

Universal waste and other recyclables are accumulated in the general services building, under supervision of Jay Price.

GENERATOR STATUS:

LQG, Universal Waste SQH, Used oil generator

HAZARDOUS WASTESTREAMS GENERATED:

According to the annual hazardous waste stream report from March of 2015, U.T. generated the following hazardous wastes during 2014.

Waste Number/Name	*EPA Waste Codes*	*Lbs Generated in 2014*
1) Mixed Lab Waste	P098,D001,D002,D022, F003,F005	8076
2) Waste Organic Solvents	D001,22,18,19,35,39,40, F002,F003	34900
3) Metal Acid Waste	D001,02,05,08,11	11225
4) Waste Flammable Liquid, Corrosive	F003,F005	0
6) Waste Compressed Gas	D001,02,03,U029,U135	69
7) Waste Compressed Gas, Corrosive Oxidizer	D001,02,03	0
8) Waste Mixed Pesticides	D001,D020	0
9) Debris & Various Solid Waste	D004,08,U122,U238	1030
Total		55300

The multiple, varied, irregular, and highly technical processes of each specific waste generated in over one hundred labs, render discussion of specific wastes impractical.

INSPECTION FINDINGS:

Facility Site Observations:

First Day Inspection
The inspection commenced at the Environmental, Health, and Safety office at 916 22nd St. on the U.T. campus, from which Kimberly Harmon conducted me to Stephen Crouch's new office beneath the football stadium. At this office, we were met by James Cantu and Linda Hamilton, who provided keys to Mr. Crouch's office in his absence, where we easily located the files with copies of hazardous waste shipping manifests, and annual Hazardous Waste Stream Reports, filed as required, as well as Hazwoper training records with records of 8-hour annual review for appropriate individuals.

After a review of those documents, Ms. Linda Hamilton and I walked to the research buildings at DBH and SERF, where we inspected all research and teaching laboratories beginning on floor two of Dabney-Buehler Hall, proceeding in the roughly the reverse order of that depicted on **Table 1**, below. During the inspection, I examined multiple satellite accumulation containers per lab, in over one hundred labs in DBH, and SERF, which required several hours. The inspection also included the two 90-day storage areas: one at SERF, and the other at WLS, where all laboratory hazardous waste containers are brought for accumulation, packing, and transport as hazardous waste.

After inspecting the second of the two 90-day storage area (at WLS), we inspected the labs in HB, and halted the inspection for the day at around 4:00 p.m.

Due to the unusual quantity of these observations, comments made during the inspection are summarized in **Table 1** below. This table includes in index number for each photo (see attachments).

90-Day storage areas
UT maintains two 90-day storage areas, as mentioned. These areas are properly equipped with emergency alarms, spill-control, and fire-suppression equipment. Most of the containers in these areas are lab-quantities of used reagents or expired chemicals that will be disposed of in lab-packs segregated according to compatibility. All waste containers were closed, labeled and dated. Weekly inspections of these areas are conducted and logged. Only personnel who have received appropriate training regarding the handling and tracking of hazardous waste have access to these areas.

Second Day Inspection
The second day, 6/5/15, I arrived again at the EH&S office at 916 22nd Ave, where April Case provided me with copies of current and prior annual hazardous waste stream reports, the Hazardous Waste Reduction Plan, and the site Contingency Plan. After a review of these plans, I drove again to Mr. Crouch's office where I met Chuck Payne, who served as guide for my inspection of the numerous labs in WLS. Again, these findings are summarized in **Table 1**, below.

Universal Waste facility
All universal waste generated at the university is collected, packed, and shipped from the parking and maintenance building on the southwest border of the campus. All universal waste containers are kept closed, labeled, and dated as required. Transport shipments of hazardous waste are typically made two times per year. At the time of the inspection, the oldest container date that I observed was 3/15/15. No containers had been in storage in excess of one year.

Table 1: Laboratories inspected, with mention of violations

Note: labs marked "ok" indicate that hazardous waste was present, properly contained and labeled.

WLS		SERF		DBH	
E202	ok	403	ok	663	Ok
E204	No HW	401	ok	665	unlabeled in HW area? (14)
E210	ok	501	Open LiF container (22)	631	OK
E302	ok	502	ok	531	Ok
E406	ok	503	ok	502	Ok
E414	ok	506	ok	558	Ok
D305	ok	508	ok	562a	Ok
D307	ok	510	ok	454	Ok
D309	Open pipette ctnr.(33)	512	No HW	458	Open container (10,11)
D401	ok	512A	ok	459	Open container (12,13)
D403	No HW	516	ok	407/8	Ok
D407	ok	521	ok	402/3	Unlabeled containers (8)
D413	ok	616	ok	432	Bottle with hole in lid (9)
D417	ok	634	Open pipette ctnrs (21)	341	Open HW bottles with funnels (3,4)
C301	ok	621	ok	352	3 cans w/o lid, one w/o label (6,7)
C403	Open bags (32)	622	ok	308	Ok
C407	ok	623	ok	302/3	Ok
C409	ok	635	Open pipette cntnr (19,20)	346	No HW label in HW area (5)
C411	ok	701	ok	343	Ok
B314	ok	705	Open bottle (16)	340	unlabeled container in HW area (1,2)
B408	ok	702	Missing label (15)	204F	No hw
B410	No HW	715A	ok	206	Ok
A203	ok	716	ok	210	No hw
A215	ok	718	ok	211	No hw
A305	ok	719	ok	214	Ok
A313		723	Open containers (17,18)		
A403	ok	722	ok		
A413	ok	731	ok	HB	
A415	ok	732	ok	225	Open container (29)
		720	ok	218	Ok
SERF		719	ok	217	Open cntnrs (glove out) (30,31)
217	ok	729	ok	216	ok
218	Open cntnrs (24,25,26)				
225	ok				
309	ok				
310	No HW				
319	Open container (23)				
317	ok				
330	ok				
332	ok				
335a	ok				
432	ok				
433a	ok				
421	ok				
422	ok				
423	ok				
407	ok				
410	ok				

Facility File Review:

Storage area inspection records
Both 90-day storage areas are inspected weekly, and inspections are recorded in an inspection log.

Hazardous waste shipping manifests
Copies of all hazardous waste shipping manifests from at least the past three years are filed in site, as required.

Annual Hazardous Waste Stream Reports
Copies of Annual Hazardous Waste Stream Reports from at least the past three years are filed on site, as required.

Hazardous waste reduction plan
A hazardous waste reduction plan is kept up-to-date, complete with analysis per waste stream, specific waste reduction plans, and signed by the University Chancellor, as required.

Personnel training records
All personnel have received appropriate training according to their degrees of responsibility regarding hazardous waste. Records indicate that annual refresher training has been kept up-to-date for all personnel, as appropriate.

Contingency plan
UT has an up-to-date written plan for various emergencies, including hazardous chemical spill, fire, and severe weather. Copies have been submitted to local emergency response entities, as required.

VIOLATIONS:

Violation #1 - Rule 0400-12-01-.05(9)(d)1 included by reference at Rule 0400-12-01-.03(4)(e)5(i)(I) states:

> A container holding hazardous waste must always be closed during storage, except when it is necessary to add or remove waste.

Violation #1 Observation:

> During the inspection, approximately 22 open hazardous waste accumulation containers (out of many dozen) were observed in various labs. (note: the majority of these containers are kept closed.) See **Table 1**, above, for a summary and comments, and **Attachment 1** for images of these containers.

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

Marks his containers either with the words "Hazardous Waste" or with other words that identify the contents of the containers.

Violation #2 Observation:

During the inspection, approximately five (5) unlabeled hazardous waste accumulation containers (out of many dozen) were observed in various labs. (note: the majority of these containers are labeled.) See **Table 1**, above, for a summary and comments, and **Attachment 2** for images of these containers.

Signed Craig Smith Dated 6-29-2015
Craig Smith
Environmental Consultant
Division of Solid Waste Management
Knoxville Environmental Field Office

Approved R. Awasthi Dated 6-29-2015
Revendra Awasthi
Environmental Field Office Manager
Division of Solid Waste Management
Knoxville Environmental Field Office

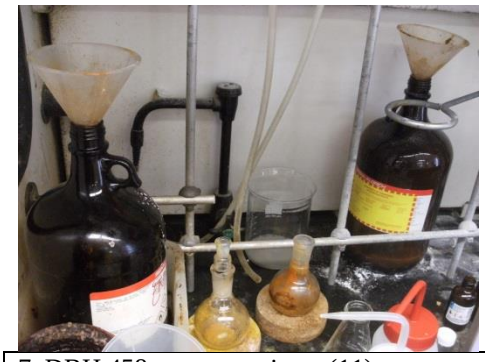
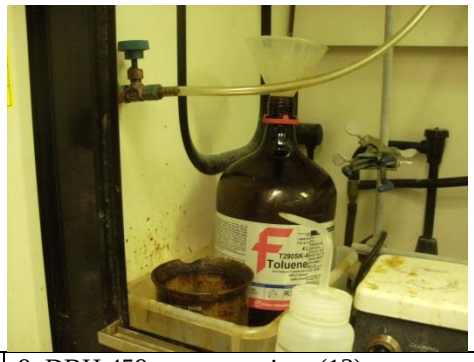
cc: Ashley Holt, DSWM/Nashville
Lisa Hughey, DSWM/Nashville
Central File, DSWM/Nashville
Enforcement Section, DSWM/Nashville
Knoxville Environmental Field Office

ATTACHMENT 1: ALLEGED OPEN HW CONTAINERS, page 1

DBH – Dabney Buehler Hall
HW – hazardous waste

SERF – Science & Engineering Research Fac.
(parenthetical number) –
photo index from **Table 1**

WLS – Walters Life Science

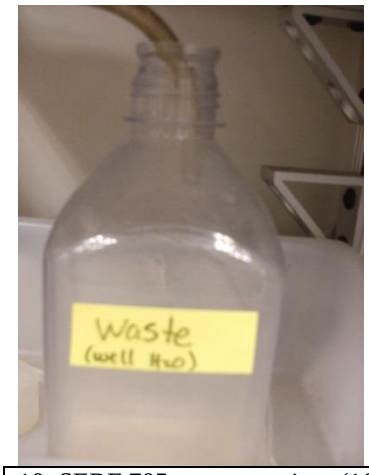
		
1. DBH 341 open container (3)	2. DBH 341 open container (4)	3. DBH 352 open container (6)
		
4 DBH 352 open container (7)	5 DBH 432 open container (9)	6. DBH 458 open container (10)
		
7. DBH 458 open containers (11)	8. DBH 459 open container (12)	9. DBH 459 open container (13)

ATTACHMENT 1: ALLEGED OPEN HW CONTAINERS, page 2

DBH – Dabney Buehler Hall
HW – hazardous waste

SERF – Science & Engineering Research Fac.
(parenthetical number) –
photo index from **Table 1**

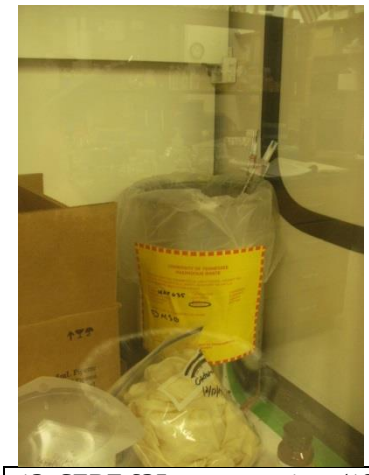
WLS – Walters Life Science



10. SERF 705 open container (16)

11 SERF 723 open container (17)

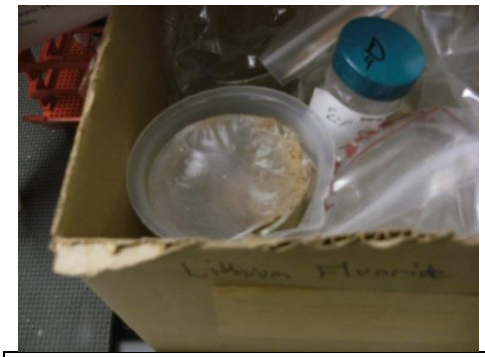
12. SERF 723 open container (18)



13. SERF 635 open container (19)

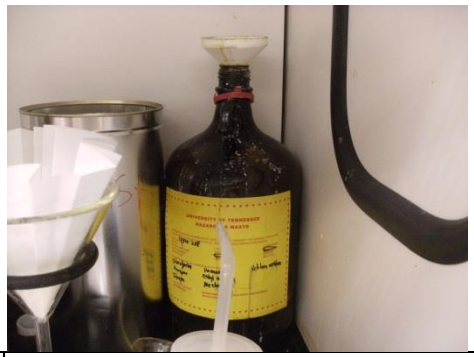
14 SERF 635 open container (20)

15 SERF 634 open container (21)



16. SERF 501 open LiF waste container (22)

17 SERF 319 open container (23)



18. SERF 218 open container (24)

ATTACHMENT 1: ALLEGED OPEN HW CONTAINERS, page 3

DBH – Dabney Buehler Hall
HW – hazardous waste

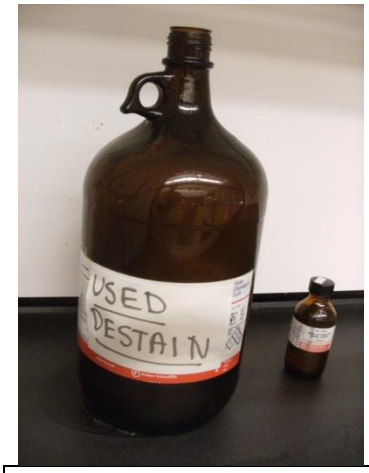
SERF – Science & Engineering Research Fac.
(parenthetical number) –
photo index from **Table 1**

WLS – Walters Life Science

19. SERF 218 open container (25)

20. SERF 218 open container (26)

21. HB 217 uncontained HW (29)



22. HB 225 OPEN CONTAINER(30)

23. HB 217 uncontained waste (31)

24. WLS C403 open bags (32)

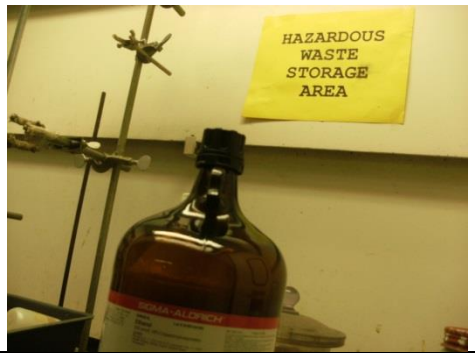
22. WLS D309 open container (33)

ATTACHMENT 2: ALLEGED UNLABELED HW CONTAINERS,

DBH – Dabney Buehler Hall

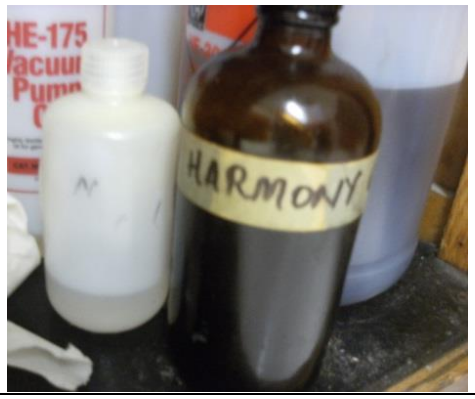
HW – hazardous waste

(parenthetical number) – photo index from Table 1



1. DBH 340, unlabeled container in HW area (1).

DBH 340, same unlabeled container in HW area (2)



2. DBH 346, Bottle in HW area not labeled as HW (5)

3. DBH 402 unlabeled container in HW area (8)

4. DBH 665, unlabeled container in HW area (14).

5. SERF 702, unlabeled container in HW area (15)