GROUNDWATER PROTECTION PLAN

AUGUST 5, 2019

MAIN CAMPUS

LEXINGTON, KENTUCKY

PREPARED BY:

UK Environmental Management Department

GROUNDWATER PROTECTION PLAN
FOR THE UNIVERSITY OF KENTUCKY'S
LEXINGTON MAIN CAMPUS

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A. GENERAL INFORMATION

A.1 Name and Address of Facility

Facility Name:	University of Kentucky (Lexington Campus)
Facility Address:	Environmental Management Department 355 Cooper Drive Lexington, Ky. 40506
County:	Fayette
Mailing Address:	Same as facility address above
Latitude:	38° 01' 40" N
Longitude:	84° 30' 25" W

A.2 Person Developing GPP

Name:	Robert Kjelland, P.G., CHMM
Title:	Director, Environmental Management Department
Address:	355 Cooper Drive Lexington, Ky. 40506
Telephone number:	859-257-3285

A.3 Person Responsible for Implementing GPP

Name:	Mary Vosevich
Title:	Vice President for Facilities Management & Chief Facilities Officer
Address:	225 Peterson Service Building Lexington, Ky. 40506
Telephone Number:	859-257-5929

A.4 Brief Description of Facility Operation

Founded in 1865 as a land-grant institution, the University of Kentucky's (UK's) main campus consists of approximately 824 acres in Lexington, Kentucky as shown on **Figure 1**. From its early beginnings, with only 190 students and 10 professors, UK is now home to more than 31,000 students and approximately 16,000 employees. UK is one of a small number of universities in the United States that has programs in agriculture, engineering, a full complement of health colleges including medicine and pharmacy, law, and fine arts on a single campus. The University consists of 17 academic and professional colleges where students can choose from more than 200 majors and degree programs at the undergraduate and graduate levels. The colleges are Agriculture, Food and Environment; Arts and Sciences; Business and Economics; Communication and Information; Dentistry; Design; Education; Engineering; Fine Arts; Graduate School; Health Sciences; Law; Medicine; Nursing; Pharmacy; Public Health; and Social Work.

Primary activities at UK include research, teaching, health care, athletics, dining services, student housing, physical plant maintenance, and off-campus agricultural research. Operations are conducted in various buildings scattered throughout campus. The various buildings are surrounded by urban residential and commercial properties. The significant streets that connect

the main campus to downtown Lexington include Woodland Avenue, Rose Street, Limestone Street/Nicholasville Road, Martin Luther King Boulevard, and Broadway Road.

Limestone/Nicholasville Road is the most prominent street corridor through campus with major campus cross streets intersecting Limestone Street/Nicholasville Road including Alumni drive, Cooper Drive, Virginia Avenue/Huguelet Drive, Euclid Avenue/Avenue of Champions, and Maxwell Street. The Newtown Pike extension has recently been added as a significant campus gateway.

Since 2012, UK's main campus has undergone a period of rapid construction and growth. During this time, an excess of $2 billion has been invested in improvements to housing, research, and academic infrastructure. These improvements have encompassed more than six million square feet and 125 separate projects.

B. ACTIVITIES THAT HAVE THE POTENTIAL TO POLLUTE GROUNDWATER

Table 1 presents the five activities that take place on the UK main campus for which a Groundwater Protection Plan is required as stipulated in the corresponding regulatory citation. Additional detail on each activity is provided in Section C.

Table 1. Regulated Activities at UK

Activity	Regulatory Citation
Pesticide or fertilizer application for institutional lawn care	401 KAR 5:037, Sec.2(2)(d)
Storage, treatment, disposal, or handling of hazardous waste, solid waste, or special waste in drums, or other containers	401 KAR 5:037, Sec. 2(2)(f)
Commercial[1] storing or related handling in bulk quantities[2] of raw materials, intermediate substances or products, finished products, substances held for recycling, or other pollutants held in tanks, drums, or other containers or in piles	401 KAR 5:037, Sec. 2(2)(g)
Storing or related handling of deicing agents at a central location	401 KAR 5:037, Sec. 2(2)(j)
Application or related handling of deicing materials	401 KAR 5:037, Sec. 2(2)(k)

Conversely, **Table 2** presents those activities that take place on the UK main campus but are specifically excluded from having to be included in a GPP.

Table 2. Non-Regulated Activities at UK

Activity	Regulatory Citation
Normal use or consumption of products sized and packaged for personal use by individuals	401 KAR 5:037,Sec. 2(4)(a)
Activities conducted entirely inside enclosed buildings, the building has a floor sufficient to prevent the release of pollutants to groundwater and there are no floor drains, or all floor drains within the building are connected to an on-site sewage discposal system	401 KAR 5:037, Sec. 2(4)(c)
Storing municipal solid waste in a container located on property where the municipal solid waste is generated and which is used solely for the purpose of collection and temporary storage of that municipal solid waste prior to off-site disposal	401 KAR 5:037, Sec. 2(4)(e)
Installing and operating sewer lines or water lines approved by the cabinet	401 KAR5:037, Sec. 2(4)(f)
Emergency response activities conducted in accordance with local, state, and federal law	401 KAR 5:037, Sec. 2(4)(j)

C. PRACTICES SELECTED TO PROTECT GROUNDWATER FROM POLLUTION

For each general regulated activity listed in **Table 1** this section provides the associated specific UK activity that takes place at its main campus along with the best management practices[3] (BMPs) that will be used to protect groundwater.

C.1 Pesticide or Fertilizer Application

Appendix 1 describes those activities and associated groundwater protection BMPs related to the application of pesticides and fertilizers at UK's main campus.

C.2 Storage, Treatment, Disposal, or Handling of Hazardous/Special Wastes

UK operates a facility on the main campus that stores and treats hazardous waste in drums or other containers. **Appendix 2** describes those activities and associated groundwater protection BMPs related to the storage, treatment, disposal, or handling of hazardous wastes in drums or other containers at that facility.

No waste is stored, treated or disposed in landfills, incinerators, surface impoundments or piles at the UK main campus. Furthermore, no special waste (as defined in KRS 224.50-760(1)(a) is stored, treated or disposed at the UK main campus. Solid waste generated by UK is classified as *municipal* solid waste and is specifically excluded from groundwater protection planning as noted in 401 KAR 5:037, Sec. 2(4)(e).

C.3 Storing or Related Handling of Materials in Bulk Quantities

Appendix 3 describes those activities and associated groundwater protection BMPs designated for the storing or related handling in bulk quantities of raw materials, intermediate substances or products, finished products, substances held for recycling, or other pollutants held in tanks, drums, or other containers or in piles at UK's main campus.

C.4 Storing or Related Handling of Deicing Agents

Appendix 4 describes those activities and associated groundwater protection BMPs that are related to the storing or related handling of deicing agents at UK's main campus.

C.5 Application or Related Handling of Deicing Materials

Appendix 4 describes those activities and associated groundwater protection BMPs that are related to the application or related handling of deicing materials at UK's main campus.

D. IMPLEMENTATION SCHEDULE

All of the practices descreibed in Section C are currently being implemented.

E. EMPLOYEE TRAINING

Managers or supervisors responsible for facilities or activities covered by this Groundwater Protection Plan are responsible for properly instructing and training personnel to satisfy its requirements. The training requirements for each specific regulated activitiy that takes place on the UK main campus are provided in the applicable section of **Appendix 1 - 4**.

In addition, all affected employees receive annual awareness training which covers:

- Content – Review of the Groundwater Protection Plan
- Awareness – Importance of groundwater protection
- Responsibilities – Activities that have the potential to impact groundwater quality, inspection schedule, and spill response

Briefings for personnel are to be conducted at intervals frequent enough to ensure adequate understanding of the requirements. Such training will include reviews of any known spills, other failures (including malfunctioning components and equipment), and new precautionary measures adopted as a result of these events. All new employee shall receive training prior to assuming responsibility for implementing any of the requirements of this Groundwater Protection Plan.

F. INSPECTION SCHEDULE

Managers and supervisors for facilities and activities covered by this Groundwater Protection Plan are responsible for conducting inspections on a periodic basis commensurate with the complexity, conditions and circumstances of the covered facility or activity. The inspection schedule for each regulated activity that takes place on the UK main campus are provided in the applicable section of **Appendix 1** - **4**.

In addition, each covered facility or activity will be inspected annually by a representative of the Environmental Management Department. During these inspections, the site-specific inspection records maintained by the responsible person at the location of each covered facility will be reviewed. The EMD will also conduct a visual inspection of applicable areas for evidence of spills, leaks or releases that have potential impact to groundwater.

G. CERTIFICATION STATEMENT

I, Mary Vosevich, *certify that this Groundwater Protection Plan complies with the requirements of 401 KAR 5:037. I have reviewed the terms of the plan and will implement its provisions. I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.*

Mary A. Vosevich
Signature

8/7/19
Date

H. RECORD RETENTION

Section 4(7) of 401 KAR 5:037 provides for public inspection of Groundwater Protection Plans. The plan and inspection records are to be kept on site at the University and all records retained for a period of 6 years.

RECERTIFICATION AND REVISION OF GPP

The regulation requires the person responsible for implementing the Groundwater Protection Plan to review the entire plan every three years. If no changes have occurred in responsible personnel, activities, or protective practices, the plan may be recertified by signing and dating another certification statement under Section G. If changes occur at any time, the plan must be revised to address the modifications.

REFERENCES

1 – “Commercial” means services at stores, offices, restaurants, warehouses, and other service and nonmanufacturing activities, excluding households and industries. (401 KAR 5:037, Sec. 1(6))

2 – “Bulk quantities” means undivided quantities of any substance equal to or greater than 55 U. S. gallons liquid measure or 100 pounds net dry weight transported or held in an individual container. (401 KAR 5:037, Sec. 1(5))

3 – “Best management practices” means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the Commonwealth. Best management practices also include treatment requirements, operating procedures, and practices to control plant site run-off, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. (401 KAR 5:037, Sec. 1(3))

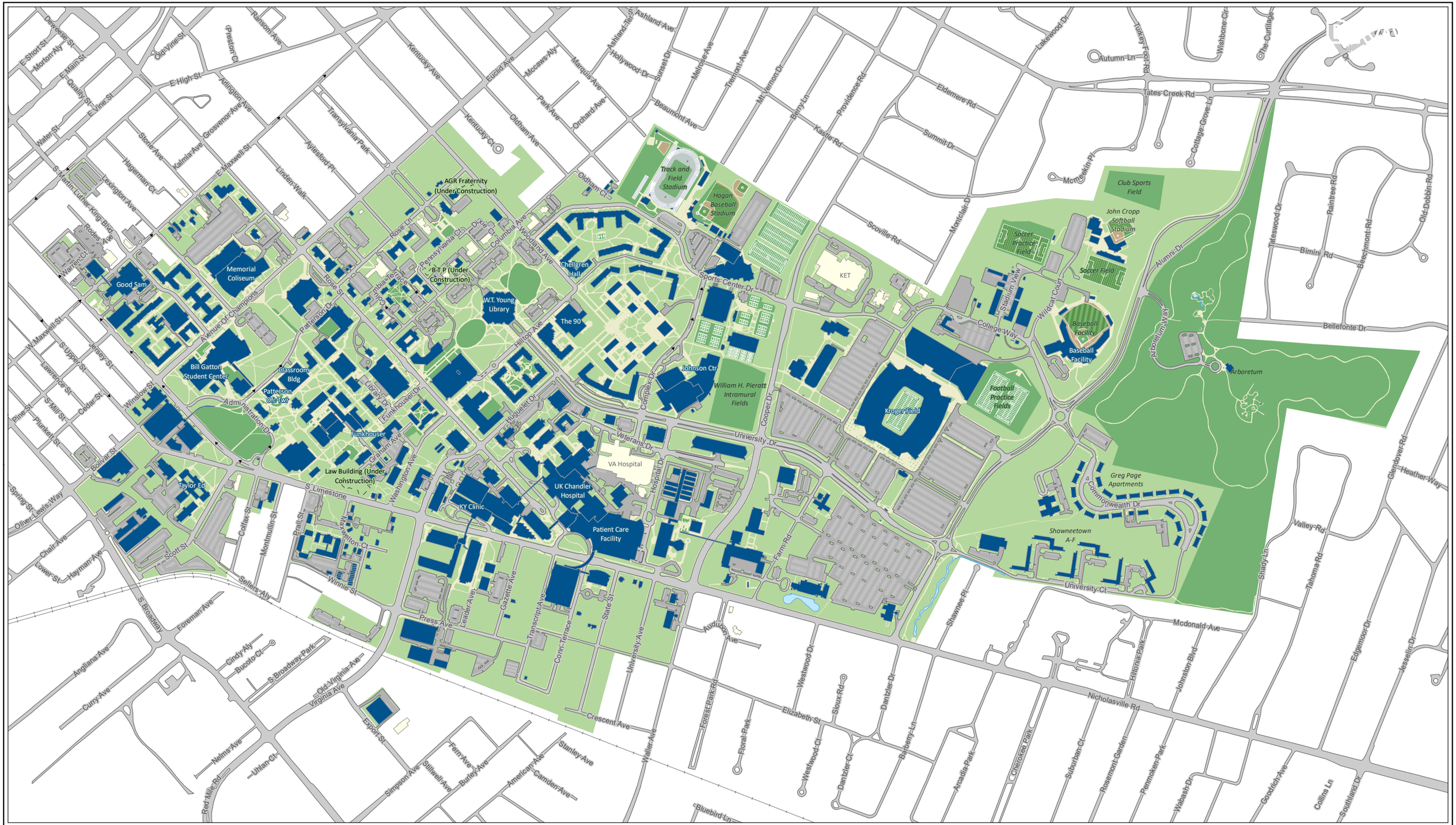

Figure 1

University of Kentucky - Lexington Campus

N

0 400 800

Feet

Created by UK Facilities Information Services
Geospatial.Requests@uky.edu
REV: 20180925

APPENDIX 1
UNIVERSITY OF KENTUCKY
GROUNDWATER PROTECTION PLAN

Groundwater Protection Practices
Pesticide or Fertilizer Application for Institutional Lawn Care

This appendix to the Groundwater Protection Plan for UK's main campus provides descriptions of those best management practices (BMPs) designed to protect groundwater quality from activities which involve pesticide or fertilizer application. The BMPs for this activity are provided below in Section A1.1 and in **Figure A1-1** which is an excerpt from UK's *Environmental Handbook*.

A1.1 BEST MANAGEMENT PRACTICES

A1.1.1 Application of Pesticides/Fertilizers

Pesticides and fertilizers are used for grounds and vegetation management on UK property. This includes their storage and their application to facility grounds. The following BMPs are compliant with local, state, and federal law:

- These products are applied according to manufacturer's recommendations.

- UK will only use commercial fertilizers that contain a detailed fertilizer analysis which has been properly registered with the UK's Regulatory Services, Division of Fertilizer Inspection.

- UK will utilize established industry standards to prevent the contamination of surface water and groundwater.

- Slow release and organic formulations are the primary methods of fertilization. Additionally, all fertilizer applications will comply with recommendations from soil and/or tissue analysis conducted by the UK's College of Agriculture Division of Regulatory Services.

- Staff who apply pesticides are licensed applicators. A licensed applicator is a person who has received training, passed a test, and received a license from the state of Kentucky Department of Agriculture. Licensed applicators are personally responsible to maintain a current license.

- On rare occasions, unlicensed staff may only apply pesticides with the Signal Word: *Caution*. Unlicensed staff must always be in direct line of site of a licensed applicator during the handling, mixing, hauling, application, or storage of pesticides with the signal word: *Caution*.

- Staff will apply pesticides and fertilizers using properly maintained and calibrated equipment, utilizing proper application techniques.

- Staff will comply with label recommendations and the UK *Storm Water Quality Management Plan*[1] BMPs to maintain adequate set back from all bodies of water, riparian areas, and storm water systems.

- Cleaning of spray or applicator equipment is permitted if the location is greater than 100 feet from a creek, stream, or drainage ditch.

- No pesticide or fertilizer may be sprayed on water surfaces or ponds except for those specifically labeled for such applications.

- No pesticide or fertilizer may be disposed of by burying the excess material on site.

- All Applications of pesticides and fertilizers must be recorded and documented. Records must be stored in readily accessible manner and made available within one business day. Records must include the following information:

    - ✓ Name and address (GPS location) where the pesticide/fertilizer was applied.
    - ✓ Specific crop and site, to which the pesticide/fertilizer was applied.
    - ✓ Year, month, day, and time of application.
    - ✓ Trade name and EPA registration number of the pesticide(s) applied.
    - ✓ Amount of the pesticide applied and percentage of active ingredient per unit of the pesticide used (for every pesticide if a mixture).
    - ✓ Type and amount of the pesticide disposed of, method of disposal, date(s) of disposal, and location of the disposal site.
    - ✓ Temperature, wind direction, humidity, chance of precipitation.
    - ✓ Equipment utilized.
    - ✓ Name and license number of applicator.
    - ✓ Fertilizer type (granular or liquid).
    - ✓ Nutrients ratio including micros.
    - ✓ Application rate expressed in pounds per 1,000 square feet.

- UK attempts to limit the volume of pesticide application through spot treatment and using less pesticide when infestations are light.

A1.1.2 Storage of Pesticides/Fertilizers Storage

Good storage practices for pesticides and fertilizers are inexpensive ways of preventing pollution. The following storage practices are used at UK to reduce stormwater pollution and prevent groundwater impact:

- All pesticides and fertilizers are stored in their original labeled containers until used in a labeled applicator.

- Pesticides and fertilizers are stored under roof on an impervious surface with adequate secondary containment required to prevent run-off.

- All pesticides must be mixed utilizing an approved mixing/loading pad.

- As part of an approved Rinsate and Disposal Plan pesticide and fertilizer containers are triple rinsed when emptied with the rinse water collected and recycled through the applicator system (i.e. there is no discharge of pesticide or fertilizer contaminated water to the storm sewer or the sanitary sewer).

- Empty pesticide and fertilizer containers will be punctured or destroyed prior to disposal. If the containers are not recyclable they will be disposed of in a landfill permitted by the State of Kentucky Division of Waste Management.

- Safety Data Sheets (SDSs) are maintained at every grounds location/site where pesticides and fertilizers are stored and mixed.

- SDSs are to be inspected monthly for accuracy. A cover sheet will be maintained in the SDS Binder to record the inspections and inspectors.

- A copy of both the chemical label and SDS will remain with the applicator during the duration of the application.

- Applicator will carry a spill management kit when making every application.

- Pesticide and fertilizer inventories will be taken monthly to ensure that product does not become obsolete through lack of use and to confirm that there have been no leaks, spills, or damages to containers.

A4.2 INSPECTIONS

Inspections which are applicable to the application of pesticides or fertilizers are described in the "Facility Checklist" portion of **Figure A1-1**.

A4.3 TRAINING

Training of personnel responsible for the application of pesticides or fertilizers will be conducted as noted in **Figure A1-1** and, therefore, will be conducted annually.

1 – University of Kentucky *Storm Water Quality Management Plan*, October 2018 (ehs.uky.edu/env/media/stormwater_quality_plan.pdf)

Carefully pour chemicals directly into the sprayer tank and use a water supply with a backflow preventor to dilute to the needed concentration.

DO

- ✓ Place drums on pallets to move with a forklift.
- ✓ Store chemicals in the original container in a clean, dry location.
- ✓ Check spray equipment for leaks before use.
- ✓ Use a water supply that has a backflow preventer .
- ✓ Carefully watch the fill sight tube to avoid overfilling the spray tank.
- ✓ Rinse empty containers three times and pour rinse water into the spray tank.
- ✓ Apply all chemicals per label directions.
- ✓ Have a spill kit and an empty container available when chemicals are delivered or moved.
- ✓ Replace used spill kit materials promptly after use.

DON'T

- ✖ Don't accept leaking containers from delivery trucks.
- ✖ Don't overfill the spray tank.
- ✖ Don't reuse or burn empty chemical containers.

Tips and Tricks

- ! Park delivery vehicle on the uphill side of the tank to drain delivery hose easily.
- ! Contact UK Environmental Management for list of needed spill kit contents
- ! UK Environmental Mgmt. 859-323-6280

Materials & Waste Management

- ▲ Return refillable chemicals containers to the vendor if applicable.
- ▲ Store containers in a designated location to protect from damage, destruction or theft.
- ▲ Containers that cannot be returned or recycled will be punctured and sent to a solid waste landfill that has agreed to accept the containers.
- ▲ Do not dispose of absorbed materials and soils that contain chemicals and are hazardous. Contact UK Environmental Management for assistance.

Facility Checklist

- ☐ Check *EACH* delivery shipment and do not accept leaking containers.
- ☐ Check chemical mixing and spraying operations *WEEKLY.*
- ☐ Check equipment including sprayers and pumps *WEEKLY* during application season.
- ☐ Check chemicals spill kits *MONTHLY* and promptly restock after use.
- ☐ Check chemical storage location *ANNUALLY.*
- ☐ Review chemical handling procedures *ANNUALLY*, improve as needed.
- ☐ Ensure SDS sheets are current and available *ANNUALLY.*
- ☐ Ensure personnel handling and applying chemicals are trained and licensed.

If…Then

- ➤ Quickly contain and clean up spills or leaks using absorptive devices from spill kits.
- ➤ Return spilled chemicals to the spray tank.
- ➤ Contain absorbed material from spills or leaks and distribute it at a target chemical application site.
- ➤ If absorbed chemical material cannot be used, conduct a waste determination. Clean-up from spilled materials that are found to be non-hazardous can be disposed in a solid waste landfill.
- ➤ Contact UK Environmental Management for guidance regarding spills.
- ➤ Call 911 immediately for large spills.

Training: 1 per Year **Season:** Spring

Relevant Environmental Programs		
	○ Air Quality	● GWPP
	○ 401/404/WQC	● Waste
	● KPDES	● Pesticides
	● MS4	○ SPCC

UK

PESTICIDE AND HERBICIDE DELIVERY, STORAGE AND HANDLING

5.7

Figure A1-1
Pesticide and Herbicide Delivery, Storage and Handling
(Excerpted from UK's *Environmental Protection Handbook*, Sec. 5.7: ehs.uky.edu/env/)

APPENDIX 2
UNIVERSITY OF KENTUCKY
GROUNDWATER PROTECTION PLAN

Groundwater Protection Practices Storage, Treatment, Disposal or Handling of Hazardous Waste in Drums or Other Containers

This appendix to the Groundwater Protection Plan for UK's main campus provides descriptions of those best management practices (BMPs) designed to protect groundwater quality from activities which involve the storage and handling of hazardous waste in drums or other containers. The Environmental Quality Management Center (EQMC) is an 11,000-square-foot on-campus facility and is permitted to store and treat hazardous waste generated by UK. Permit No. KYD000-830-851 allows for the storage of a wide range of regulated hazardous waste which is maintained in specific locations within the EQMC until such time at it is transferred to a commercial entity for final disposal/treatment at an off-site facility. The BMPs that follow are excerpted from that permit.

A2.1 BEST MANAGEMENT PRACTICES[1]

Waste unloading operations take place when waste is transported to the EQMC in containers via an EMD vehicle. Unloading operations are conducted at the receiving area within the interior of EQMC. All containers are inspected for leaks or damage, and pallets, if used, are inspected for any signs of spilled material. Inspection of containers by EMD personnel prior to acceptance at the EQMC minimizes the potential for spills during waste handling operations. Records accompanying a shipment of containers are reviewed prior to unloading at the EQMC. The containers are typically moved to the appropriate compatibility location by hand or by cart. The EQMC's interior receiving area is observed daily during operational hours for leakage or accumulated liquids. Documented inspections of this area are conducted on a weekly basis.

Waste loading operations at the EQMC take place at the exterior loading dock when wastes are scheduled for transportation by a commercial carrier to an offsite commercial facility. The loading dock is designed to contain the contents of a 55-gallon container if a leak were to occur. The dock is equipped with a loading platform, bumpers and lighting to minimize the potential for accidental releases. EMD personnel responsible for loading waste are instructed in the proper operational procedures and use of equipment necessary to prevent hazards during these operations. The exterior loading dock is inspected daily while in use (i.e., when loading activities are being conducted).

A2.2 INSPECTIONS[2]

The inspection schedule implemented at the EQMC is based on operational experience and knowledge of the EQMC's systems and equipment, as well as, knowledge of the rates of possible deterioration of storage systems and equipment utilized at the EQMC. The inspection schedules, described in **Figure A2-1** specifies the type of equipment and storage systems inspected, examples of general issues which may occur, and the required frequency of the inspections.

General inspections are required for equipment categorized as monitoring, safety and emergency, security, and operational to prevent, detect, and respond to environmental or public health hazards. Safety and emergency equipment is inspected monthly for availability and readiness in the event of an emergency. Preventative maintenance of operational equipment is routinely conducted to ensure safe operation.

Given the size of the EQMC, any abnormalities of the containment systems or any accumulation of substances therein would be evident to EMD personnel during the course of their routine daily duties. Documented inspections of the secondary containment structures for container storage, treatment, and receiving/unloading areas are conducted on a weekly basis. Additionally, the exterior loading dock/bay is inspected daily while in use (i.e., when loading activities are conducted for transport to off-site TSD facilities).

The EMD Director and/or Assistant Director are ultimately responsible for the continual implementation of the inspection program. Hazardous Materials Specialists will be directly responsible for implementing the inspection program.

A2.3 TRAINING[3]

EMD personnel, with hazardous waste duties, must undergo an approximate eight hour orientation training program, which includes but is not limited to, to the following elements.

- Overview of the EQMC operations and organizational structure of the University, EMD, and EQMC.
- Introduction to local, state and federal regulations applicable to waste management operations conducted at the EQMC.
- Health and safety orientation including general safety rules, chemical hazard communication training, and an overview of personal protective equipment.
- General overview of emergency response procedures.

EMD personnel are required to successfully complete the introductory training program within six months from the date of their employment or assignment to the EQMC or to a new position at the EQMC.

EMD personnel involved in the management of hazardous waste will successfully complete classroom instruction, as well as, on-the-job training to perform their duties in a way that ensures the EQMC's compliance with all applicable requirements and regulations. Personnel involved in

the management of hazardous waste are not allowed to work unsupervised until adequate training has been completed. The employee's supervisor will determine when the employee has acquired sufficient knowledge of the skills necessary to perform unsupervised hazardous waste management tasks.

EMD personnel will also receive continuing and refresher training at a frequency to maintain proficiency in job skills, increase safety, quality, and compliance consciousness and to teach new skills as necessary. EMD personnel involved in operations associated with waste treatment or storage at the EQMC will receive annual refresher training in compliance with 29 CFR 1910.120 (p). Changes in pertinent regulations will be identified and current compliance status will be reviewed, as well as a review of updated University policies and procedures with respect to waste management and any amendments.

1 - Excerpt from Permit KYD000-830-851, Condition III.K - Attachment F, Section 4.1
2 - Excerpt from Permit KYD000-830-851, Condition III.K - Attachment F, Section 2
3 - Excerpt from Permit KYD000-830-851, Condition III.B.5 – Attachment H, Section 1.1.1 and 1.1.2

Figure A2-1
Storage, Treatment, Disposal or Handling of Hazardous Waste in Drums or Other Containers
Inspection Schedules and Criteria

EQMC Waste Management Areas			
Attribute	**Inspection Criteria to Use**	**Inspection Area**	**Frequency**
Container lids secure	• Visually inspect containers • Using gloves, check ALL container caps to insure tightness. • Using bung wrench, check all bungs on drums to insure they meet the torque specification	Container Storage Areas Bulking and Treatment Rooms Receiving Area	Weekly
Container Integrity	• Visually inspect containers and floor for leaks. Clean up if necessary and transfer material to a new container if necessary.		
Proper labeling	• Check each container to ensure proper labeling with “Hazardous Waste” or “Non-RCRA Regulated Waste”, Used Oil, or Universal Waste as appropriate • Check each container for accumulation date and ensure the date is less than 12-months old		
Absorbent Material Inventory	• Inventory the supplies in the storage area and on the truck to ensure adequacy. • Replenish if the level of supplies is below the established acceptable level.		
Floor Integrity	• Visually inspect and ensure any concrete cracks or gaps are adequately marked to ensure containers are not stored in the vicinity of the crack/gap. Report the condition in order for repair to be scheduled.		
Floor Sealant Integrity	• Determine if any floor sealant damage penetrates to the concrete. If so, adequately marked to ensure containers are not stored in the vicinity of the crack/gap. Report the condition for repair to be scheduled.		
Adequate aisle space	• Ensure there is a single row of containers near the containment berm. If more than 1 row is present in the storage areas, ensure a minimum of 3 feet between rows.	Container Storage Areas	Weekly
Equipment/pumps Condition	• Visually inspect equipment and pumps for leaks. Clean up if necessary • Discard and reorder damaged equipment	Bulking / Treatment Rooms	Weekly
Exhaust system operable	• Check fan indicator lights on panel to make sure they are green • Check magnahelic gauges in bulking room to make sure they are in acceptable range • Make sure calibration is current		

	• Initiate any necessary repairs or calibration by contacting the Building Operator or the OHS Department		
Container Integrity	• Visually inspect loading dock and bay for spilled materials. Clean up if necessary	Loading Dock	Weekly And While in Use
Protective Mat for Storm Drain	• Inspect the protective mat for damage. Replace as necessary.		
Absorbent Materials	• Inventory the supplies in the storage area and on the truck to ensure adequacy. • Replenish if the level of supplies is below the established acceptable level.		
Floor Integrity	• Visually inspect and ensure any concrete cracks or gaps are adequately marked to ensure containers are not stored in the vicinity of the crack/gap. Report the condition in order for repair to be scheduled.		
Integrity of sealant (floor and storm water drain interior)	• Determine if sealant damage penetrates to the concrete. If so, repair the sealant as necessary. Report the condition in order for repair to be scheduled.		

EQMC Equipment/Materials/PPE Inspection		
Attribute	**Inspection Criteria to Use**	**Frequency**
Security alarms	• Make sure Simplex box indicator is working	Monthly
Combustible gas panel	• Check panel in administration office to make sure all indicators are registering at approximately “0” • Check the sensors in the gas cylinder room, the treatment room, the bulking room, and the flammable storage room to make sure they are registering approximately “0” • Make sure the calibration for the panel in the administration office is current (within 1 year) and the calibration gas is available and within its useful life	Monthly
PPE	• EMD personnel inspect assigned PPE and report the results/inventory to EMD personnel responsible for the monthly inspection • Inventory the equipment in EQMC and the truck to ensure adequacy. Re-order as necessary.	Monthly
Doors	• Open and close each door. Request repair if not working properly • Check the handle on each exterior door to ensure it is locked. • Unlock each door with key, ensure the door closes and relock to ensure lock is functioning.	Monthly
Emergency Lighting System	• Check that the emergency lights are functioning by walking through the EQMC after the building lights have been shut off	Monthly
Warning Signs	• Inspect the warning signs on each door for wearing or deterioration. Replace as necessary.	Monthly
Communications	• Ensure the phone in the Receiving Area phone has a dial tone	Monthly

EQMC Equipment/Materials/PPE Inspection		
Attribute	**Inspection Criteria to Use**	**Frequency**
(Phone)	• Dial a number (suggest personal cell phone) to ensure the phone is functioning properly	
HVAC System	• Ensure all indicator lights are functioning properly on the panel located on the wall adjacent to the Flammable Gas Storage (Room 114) • Listen for air movement in each area of the EQMC	Monthly
Safety Shower/Eye Wash	• Check tag on each unit to ensure testing has been conducted at the proper interval. • Inspect for leaks at each unit and initiate a repair request if leaking.	Monthly
Fire Extinguishers	• Check each location to ensure an extinguisher is present • Check the unit tag to ensure it was inspected within the acceptable time (1 year) • Check the unit pressure gauge and ensure it is in the “green zone	Monthly
Fire Alarms	• Check the panel beside the EQMC front door to ensure there are no trouble indicators	Monthly
CO_2 System	• Check the panel to ensure there are no trouble indicators	Monthly
First Aid Kits	• Ensure a kit is available in the designated locations (telephone desk in the Receiving Area and supplies cabinet in Administration area). • Check each kit against the inventory list and replenish supplies as needed • Check the expiration date of any supplies (Calcium Gluconate). Replace as needed.	Monthly

All unacceptable conditions identified during the EQMC inspection will be immediately corrected or reported to the Director or Assistant Director so that a repair or replacement may be scheduled. In the event of a corrective action that cannot be immediately corrected, the condition will be reported to the Director or Assistant Director in order that a determination may be made regarding the appropriateness to continue to operate.

APPENDIX 3
UNIVERSITY OF KENTUCKY
GROUNDWATER PROTECTION PLAN

Groundwater Protection Practices
Petroleum Underground and Aboveground Storage Tanks
and
Coal Pile Storage

This appendix to the Groundwater Protection Plan for UK's main campus provides descriptions of those best management practices (BMPs) designed to protect groundwater quality from activities which involve storing or related handling of bulk quantities of raw materials, intermediate substances or products, finished products, substances held for recycling, or other pollutants held in tanks, drums or other containers, or in piles. Any of the above activities that are conducted entirely inside enclosed buildings with a floor sufficient to prevent releases of pollutants to groundwater are excluded from this planning process.

Those activities on UK's main campus that qualify include the following:

- Storage and dispensing of gasoline, diesel fuel and fuel oil in aboveground storage tanks (ASTs) or underground storage tanks (USTs) for fueling vehicles, in emergency generators or as fuel for boilers. Fat and grease from cafeteria operations are also stored in ASTs.

- Storage of coal in piles.

A3.1 UNDERGROUND AND ABOVEGROUND STORAGE TANKS

A3.1.1 Best Management Practices

The storage of bulk quantities of gasoline, diesel fuel, fuel oil, and fats/greases in ASTs or USTs is also regulated by 40 CFR 112 which establishes the procedures, methods, equipment, and other requirements to prevent the discharge of the tanks' contents into surface water. To meet that regulatory obligation UK has developed and maintains a Spill Prevention, Control and Countermeasure (SPCC) Plan for each regulated tank. The responsibility for managing these USTs and ASTs is associated with one of five UK functional units located on the Lexington Main Campus and five unique SPCC Plans are available for each of these units as noted below:

1. Physical Plant Division – SPCC Plan, dated October 2017
2. Dining Services Division – SPCC Plan, dated October 2017
3. Medical Center Physical Plant Division – SPCC Plan, dated October 2017
4. Good Samaritan Hospital – SPCC Plan, dated October 2017
5. Athletics Facilities – SPCC Plan, dated October 2017

The ASTs and USTs used for the storage of bulk quantities of gasoline, diesel fuel, fuel oil, and fats/greases by each of the five units are summarized in **Tables A1 – A22**. The groundwater protection BMPs for these tanks are provided in the following sections of the aforementioned SPCC Plans:

- Section 7.5 - Discharge Prevention Measures
- Section 7.6 - Discharge and Drainage Controls
- Section 7.7 - Discharge Countermeasures

Physical Plant Division

Table A1. Central Heating Plant (Building #0004)

Source	Volume (gal)	Contents	Location
Underground Storage Tank	30,000	Fuel Oil	North of Building

Table A2. Peterson Service Building (Building #0005)

Source	Volume (gal)	Contents	Location
Oil Storage Tank	300	Used Oil	Basement Dock Area (exterior beneath roof overhang)

Table A3. Chemistry-Physics Building (Building #0055)

Source	Volume (gal)	Contents	Location
Emergency Generator	500	Diesel Fuel	Service Court, North of Building
Emergency Generator	200	Diesel Fuel	Service Court, North of Building

Table A4. Cooling Plant #2 Building (Building #0204)

Source	Volume (gal)	Contents	Location
Underground Storage Tank	4,000	Diesel Fuel	NW of Building
Underground Storage Tank	10,000	Gasoline	NW of Building

Table A5. Medical Center Heating and Cooling Building (Building #0085)

Source	Volume (gal)	Contents	Location
Underground Storage Tank	30,000	Fuel Oil	Outside / East of Building
Underground Storage Tank	30,000	Fuel Oil	Outside / East of Building
Underground Storage Tank	30,000	Fuel Oil	Outside / East of Building

Table A6. Plant Science Building (Building #0312)

Source	Volume (gal)	Contents	Location
Aboveground Storage Tank	2,000	Diesel Fuel	Outside / West of Building

Table A7. Central Utility Plant (Building #0514)

Source	Volume (gal)	Contents	Location
Aboveground Storage Tank	3 x 30,000	Fuel Oil	Outside / North of Building
Aboveground Storage Tank	20,000	Diesel Fuel	Outside / North of Building

Table A8. Student Center (Building #0676)

Source	Volume (gal)	Contents	Location
Oil Storage Tank	5,000	Diesel Fuel	Northeast Bldg. Corner (AST in underground vault)

Dining Services Division

Table A9. DS-01: The 90 [Building 0139]

Source	Volume (gal)	Contents	Location
Oil Dumpster	300	Used cooking oil	Outside near loading dock

Table A10. DS-02: K-Lair Grill [Building 0100]

Source	Volume (gal)	Contents	Location
Oil Dumpster	150	Used cooking oil	Inside compacter bay

Table A11: DS-03: Blazer Dining [Building 0012]

Source	Volume (gal)	Contents	Location
Oil Dumpster	150	Used cooking oil	Outside on receiving dock

Table A12: DS-04: Bowman's Den [Building 0427]

Source	Volume (gal)	Contents	Location
Oil Dumpster	150	Used cooking oil	Outside near loading dock

Table A13: DS-05: Memorial Coliseum [Building 0019]

Source	Volume (gal)	Contents	Location
Oil Dumpster	150	Used cooking oil	Outside next to dumpster on SE corner of building

Table A14: DS-06: Kroger Field (Commonwealth Stadium) [Building 0222]

Source	Volume (gal)	Contents	Location
Oil Dumpster	150	Used cooking oil	Outside on receiving dock

Table A15: DS-07: Steak n Shake [Building 0462]

Source	Volume (gal)	Contents	Location
Oil Dumpster	225	Used cooking oil	Outside next to dumpster/compactor area

Table A16: DS-08: Student Center [Building 0676]

Source	Volume (gal)	Contents	Location
Oil Dumpster	____	Used cooking oil	_____

Medical Center Plant Division

Table A17. MCPPD-03: College of Nursing (Building #0232)

Source	Volume (gal)	Contents	Location
Above Ground Storage Tank	1,500	Diesel Fuel	North of Building

Table A18. MCPPD-04: UK Chandler Medical Center (Buildings #0230, #0293, #0297, #0284)

Source	Volume (gal)	Contents	Location
Aboveground Storage Tank	10,000	Diesel Fuel	South of Critical Care / near dock
Aboveground Storage Tank for Emergency Generator	500	Diesel Fuel	Sanders Brown Room 120A

Good Samaritan Hospital

Table A19. Good Samaritan Hospital (Building #8633)

Source	Volume (gal)	Contents	Location
Steel Aboveground Storage Tank	10,000	Fuel Oil	Outdoors, Southeast of Hospital Building on S. Martin Luther King Blvd.
Steel Aboveground Storage Tank	2,000	Diesel	Outdoors, Southeast of Parking Structure at Chiller Building

Athletics Facilities

Table A20. UKA-05: Shively Grounds Annex (Building #0449)

Source	Volume (gallons)	Contents	Location
Oil Storage Tank	100	Diesel Fuel	West of Storage Building
Emergency Generator	200	Diesel Fuel	North of Storage Building

Table A21. UKA-08: Joe Craft Football Training Facility (Building #0280)

Source	Volume (gallons)	Contents	Location
Emergency Generator	380	Diesel Fuel	East side of building (Exterior)

Table A22. UKA-11: New Baseball Stadium

Source	Volume (gallons)	Contents	Location
Emergency Generator	555	Diesel Fuel	Exterior - Mechanical Service Area

A3.1.2 Inspections

The individual SPCC Plans also serve as a guide for the inspections of USTs and ASTs. Therefore, inspections will be performed as required by Section 7.16 of the plans. The owner or operator of a facility subject to 40 CFR § 112 must conduct periodic integrity testing of its bulk containers, periodic integrity and leak testing of the valves and piping, and inspections as required by 40 CFR § 112 in accordance with written procedures that the owner or operator or the certifying engineer develop for the facility. The facility must keep on-file these written procedures and a record of the inspections and tests, signed by the appropriate supervisor or inspector. Records of inspections and tests kept under usual and customary business practices will suffice.

Designated personnel within each of the functional units conduct monthly visual inspections of all the oil storage containers and oil handling areas. Comprehensive annual inspections are also conducted to ensure the monthly visual inspections have been thoroughly and properly conducted. All inspections are documented and signed by the inspector.

A3.1.3 Training

Training of personnel responsible for operating and managing the USTs and ASTs will be conducted as noted in the individual SPCC Plans. Therefore, training will be performed as required by Section 7.17 of the plans. In accordance with the requirements of 40 CFR 112.7(f), spill prevention training for oil handling personnel will be completed at least once every year. The training will highlight and describe known discharges or failures, malfunctioning components, and any recently developed precautionary measures. Further descriptions or comments should be attached on a separate sheet of paper if necessary. Each person who participated in the briefing is listed on the Employee Training Log with printed name, signature, and the date of participation in the training. The training of oil-handling employees will address the following topics:

☐ The operation and maintenance of equipment to prevent discharges;

☐ Discharge procedure protocols (including spill communication procedures);

☐ Applicable pollution control laws, rules and regulations;

☐ General facility operations;

☐ The contents of the SPCC plan; and

☐ Review of any spills that occurred in the previous year.

A3.2 COAL PILES

A3.2.1 Best Management Practices

Coal fuel reserves for UK's two on-campus heating plants noted as Central Heating Plant and Medical Center Heating Plant, are maintained at two primary stockpile locations on the main campus. Each of the two heating plants also maintains a smaller, fuel-stock supply and these piles are located adjacent to the plants. No treatment of the coal takes place prior to use.

The coal for the Central Heating Plant is retrieved from the primary stockpile pile located near Cooling Plant #2 using front-end loading equipment and transported the short distance across South Upper St. to the smaller secondary storage pile location adjacent to the plant until needed for fuel-stock. The primary storage pile is on concrete and surface water runoff is directed to storm drains that have been retrofitted with filtration systems. Such systems are designed to filter out silts and sediments associated with coal storage and that are typically contained in first-flush storm events. The smaller fuel-stock pile is on asphalt and surface water run-off is directed to a storm drain which is also equipped with a filtration system.

The coal for the Medical Center Heating Plant is retrieved from the primary stockpile pile located between Wildcat Court and Stadium View using front-end loading equipment which places the coal into dump-trucks for transport and placement on a concrete pad adjacent to the plant for fuel-stock storage. The primary storage pile is on a diked concrete pad and surface water is directed to one discharge pipe which drains to a concrete underground settling unit. After passing through this unit, water is discharged into an earthen drainage ditch This unit allows any entrained coal sediment to settle out. The smaller fuel stock is located on asphalt adjacent to the plant and surface water is directed through hay bales to remove coal silt and sediment prior to discharge into storm drains.

Groundwater protection BMPs for the bulk storage of coal in piles includes:

- Storing the coal on concrete or asphalt-coated surfaces equipped with drainage systems capable of directing run-off for treatment prior to discharge.

- Following the manufacturer's recommended frequency for cleaning of the filtration systems.

- Following good housekeeping procedures to eliminate escape of coal from the storage pads which includes using a street sweeper on a monthly basis to perform cleaning of the surfaces adjacent to the piles.

A3.2.2 Inspections

Monthly visual inspections are conducted of each stockpile. **Figure A3-1** provides an example inspection record.

A3.2.3 Training

Annual training will be provided for all facility personnel involved in managing the coal piles. Training is held on BMP maintenance and management and inspection criteria.

FIGURE A3-1
PHYSICAL PLANT DIVISION
COAL STORAGE PILES GROUNDWATER PROTECTION PLAN INSPECTION RECORD

d

DATE	INSPECTED BY	INSPECTED ITEM (Check All That Apply)	OBSERVATIONS (i.e., Condition of general area, in-drain filtration units, hay bales, settling basin)	ACTIONS TAKEN (if necessary)
		□ Central HP Primary Pile □ Central HP Fuel-Stock Pile □ MC HP Primary Pile □ MC HP Fuel-Stock Pile		
		□ Central HP Primary Pile □ Central HP Fuel-Stock Pile □ MC HP Primary Pile □ MC HP Fuel-Stock Pile		
		□ Central HP Primary Pile □ Central HP Fuel-Stock Pile □ MC HP Primary Pile □ MC HP Fuel-Stock Pile		
		□ Central HP Primary Pile □ Central HP Fuel-Stock Pile □ MC HP Primary Pile □ MC HP Fuel-Stock Pile		
		□ Central HP Primary Pile □ Central HP Fuel-Stock Pile □ MC HP Primary Pile □ MC HP Fuel-Stock Pile		
		□ Central HP Primary Pile □ Central HP Fuel-Stock Pile □ MC HP Primary Pile □ MC HP Fuel-Stock Pile		
		□ Central HP Primary Pile □ Central HP Fuel-Stock Pile □ MC HP Primary Pile □ MC HP Fuel-Stock Pile		
		□ Central HP Primary Pile □ Central HP Fuel-Stock Pile □ MC HP Primary Pile □ MC HP Fuel-Stock Pile		

HP – Heating Plant; MC – Medical Center

APPENDIX 4
UNIVERSITY OF KENTUCKY
GROUNDWATER PROTECTION PLAN

Groundwater Protection Practices
Storing or Related Handling and Application of Deicing Agents

This appendix to the Groundwater Protection Plan for UK's main campus provides descriptions of those best management practices (BMPs) designed to protect groundwater quality from activities which involve handling and application of deicing agents.

A4.1 BEST MANAGEMENT PRACTICES

Those BMPs which have been established for the handling and application of deicing agents are contained in UK's *Environmental Handbook* (March 2019) , Section 7.1.[1] This section is provided as **Figure A4-1**.

A4.2 INSPECTIONS

The inspections which have been established for the handling and application of deicing agents are contained in the "Facility Checklist" portion of **Figure A4-1**.

A4.3 TRAINING

Training of personnel responsible for storing or related handling and application of deicing agents will be conducted as noted in **Figure A4-1** and, therefore, will be conducted annually.

Storing rock salt in a covered dome helps to protect surface and ground water from chloride contamination.

DO

- ✓ Check for, and correct, deficiencies in salt storage units.
- ✓ Keep salt dry by covering the dome entrance or the face of the salt pile with tarps.
- ✓ Sweep the storage areas clean before salt delivery and sweep up spilled salt after delivery.
- ✓ Move delivered salt into storage immediately.
- ✓ If salt is stored on an uncovered concrete or asphalt pad, shape the salt pile to avoid pooling water and cover immediately with a tarpaulin weighted with sand bags, cinder blocks, tires on ropes, etc.
- ✓ Store dry calcium chloride indoors on pallets.
- ✓ Load salt trucks on a paved surface.
- ✓ Sweep the paved staging area prior to loading trucks and sweep spilled salt back into storage.
- ✓ Load what is needed for the job and return unused product to storage.
- ✓ Use grading, berms, swales, curbs and dikes to prevent stormwater run-on and run-off; direct downspouts away from storage and loading areas.

Tips & Tricks

- ! Traffic dividers can be used to improve stockpiles of salt.
- ! UK Environmental Management can assist with Stormwater best management practice (BMP) selection
- ! UK Environmental Mgmt. 859-323-6280

DON'T

- ✖ Don't leave salt unprotected from weather.
- ✖ Don't store salt on permeable surfaces.
- ✖ Don't use building walls as a backing for loading.
- ✖ Don't overfill storage areas.

Materials & Waste Management

▲ Dry calcium chloride or rock salt that becomes dirty is to be worked into future snow and ice operations.

Facility Checklist

- ☐ Check *EACH* salt delivery operation.
- ☐ Check salt pads *DAILY* for proper cover with tarps and signs of runoff when in use.
- ☐ Check salt storage domes and sheds *DAILY* during snow and ice season (October to April) for water-tight roof & floors, tarpaulin covers for entrances, ventilation fans, lights, and building damage. Immediately report repair needs to the facility superintendent.
- ☐ Check salt storage areas for white chloride deposits *DAILY* during snow and ice season and *WEEKLY* during the rest of the year.
- ☐ Check salt domes, sheds and pads *MONTHLY* between May and September for structural integrity and runoff issues.
- ☐ Check salt pads *ANNUALLY* during summer for cracks and wear; repair as needed.
- ☐ To prevent salt tracking watch for and move salt away from storage entrances where rain is blown in.

If…Then

- ➤ If bags of dry calcium chloride break open, sweep up and put into a new bag or clean container for future use.
- ➤ If rainfall pools around salt storage areas, construct a drainage ditch, dikes or re-grade the area to send runoff to an area treated by a Stormwater Best Management Practice.
- ➤ If possible, the entrances of new salt storage facilities will face away from prevailing weather.

Training: 1 per Year **Season:** Fall

Relevant Environmental Programs		
	○ Air Quality	● GWPP
	○ 401/404/WQC	○ Waste
	● KPDES	○ Pesticides
	● MS4	○ SPCC

7.1 STORING AND LOADING ROAD SALTS

Figure A4-1
Storing and Loading Road Salts
(Excerpted from UK's *Environmental Protection Handbook*, Sec. 7.1: ehs.uky.edu/env/)

1 – Information Sources:

401 KAR 5:031. Surface Water Standards.

401 KAR 5:050. KPDES Effluent Standards

401 KAR 5:055. Scope and applicability of the KPDES Program

401 KAR 5:065. KPDES permit conditions.

401 KAR 5:070. Provisions of the KPDES permit.

Kentucky Transportation Cabinet. *Environmental Awareness: A Road Master Training Course*. Undated. (Unit 4, KPDES Permit, Good Housekeeping BMP; Unit 5 pages 5-9 & 10, 13 to 15 and 5-19, p32)

Kentucky Transportation Cabinet and Kentucky Transportation Center. 2005. *Environmental Handbook for Management of Highways and Transportation Facilities. (Fact Sheet 2.4.1)*

New York State Department of Transportation. *Environmental Handbook for Transportation Operations A Summary of the Environmental Requirements and Best Practices for Maintaining and Constructing Highways and Transportation Systems.* Environmental Analysis Bureau. April, 2006. 33-35, 42.

Salt Institute. *The Snowfighter's Handbook: A Practical Guide for Snow and Ice Control.* 1999. Alexandria, Virginia. SI-1999-R.

City of Bowling Green. 2006. *Environmental Handbook for City of Bowling Green Facilities Management. (Fact Sheet 7.1)*

NOTES

1) UK Environmental Management is located at 355 Cooper Drive, Lexington, KY 40506-0490, 859-323-6280, ehs.uky.edu/env.