



# MS4 STORMWATER QUALITY POLLUTION PREVENTION

*Bailee Young, MS4 Section Manager*  
*Environmental Quality and Public Works Committee*  
*October 22, 2024*





# MS4 Permit – Program Elements

## Public Engagement

- |   |                                      |
|---|--------------------------------------|
| 1 | Public Education and Outreach        |
| 2 | Public Involvement and Participation |

## Pollution Prevention

- |   |   |
|---|---|
| 3 | Illicit Discharge Detection and Elimination   |
| 4 | Construction Site Stormwater Runoff Control   |
| 5 | Post-Construction SW Management               |
| 6 | Pollution Prevention for Municipal Operations |
| 7 | Industrial Facility SW Pollution Prevention   |

## Monitoring and Reporting

- |    |  |
|----|--|
| 8  | Water Quality Monitoring                   |
| 9  | Reporting and Recordkeeping                |
| 10 | Total Maximum Daily Loads/ Impaired Waters |





## Departments Responsible for Inspections

<b>MCMs</b>	<b>Departments</b>
Illicit Discharge Detection and Elimination	C&M
Construction Site Stormwater Runoff Control	C&M
Post-Construction SW Management	MS4 and SLM
Pollution Prevention for Municipal Operations	DES
Industrial Facility SW Pollution Prevention	C&M

<b>Departments</b>	<b>Staff</b>
C&M	13
MS4	3
SLM	7
DES	1
<b>Total</b>	<b>24</b>





## 2023 IDDE Summary

### IDDE Status Summary

Complete	122
Open	65

### Investigation Result Summary

Investigation Ongoing	2
Problem Found & Monitor	63
Problem Resolved	71
Transient Discharge	35
Unconfirmed	16

Employee Reported 114

### Compliance Actions for Report period: 1/1/2023 to 12/31/2023

No Action Required	175
NOV	8
Public Education	2
Verbal	1
Warning	1



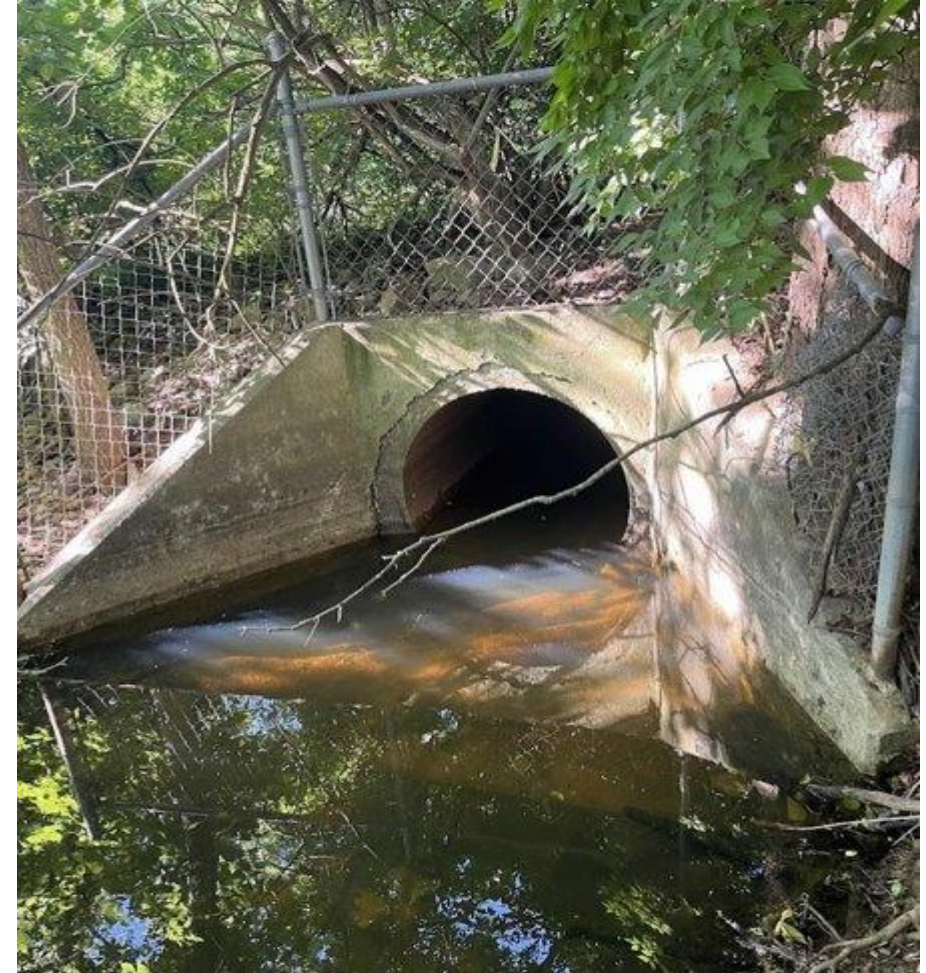
Purpose: Detect and eliminate illicit connections and improper disposal of wastes into the municipal separate storm sewer system (MS4) by determining the types and sources of illicit discharges entering the system.





## Dry Weather Screening Inspections

- “Major Outfall”
  - 440 in 2023
  - A pipe with a cross-sectional area greater than or equal to an inside diameter of 36-inches
  - A single conveyance with a drainage area more than 50 acres
  - A pipe system draining “industrial-zoned land use” with an inside diameter of 12- inches or greater
  - A single conveyance other than a pipe with an “industrial-zone land use” drainage area of more than 2 acres







## Dry Weather Screening Requirements

- Permit Requirements -
  - Screen 20% of the major outfalls per year and screen 100% of the major outfalls by the end of permit year 5





## Dry Weather Screening

- Physical indicators
  - Outfall damage
  - Deposits or stains
  - Abnormal vegetation
  - Poor pool quality
  - Pipe benthic growth
  - Odor
  - Color
  - Turbidity
  - Floatables
- Test sample for
  - Chlorine
  - Fluoride
  - Ammonia
  - Detergents
  - pH
  - Temperature
  - TDS







# Construction Site Stormwater Runoff Control

- Land Disturbance
  - Commercial Properties
  - Residential Subdivisions
  - Residential Home Lots
  - LFUCG Capital Projects
  - Demolition Projects
  - ESC Complaints
- Sites are inspected monthly
- Targeted sites are inspected 2x per month
  - Land disturbances > 5 acres
  - Or require a 404 Permit, Water Quality Certification, or Stream Construction/Floodplain Permit from KDOW



Inspectors use the same form that LDP permit-holders could be using for self-inspection.

LFUCG Ordinance Article 10, Chapter 16, Sections 101-105







## Curb Inlets - Case Studies

- Stormwater pipe inlets and curb/drop inlets and outlets are properly protected







## Vegetative Buffer – Case Studies

- 50 Foot Buffer strip along streams, sinkholes, and wetlands is marked and is free of construction activity







## Silt Fence – Case Studies

- Silt fence is installed, properly trenched in, and maintained down slope of bare areas







## Construction Access – Case Studies

- Construction entrance and parking area are properly stabilized with No. 2 stone





# Construction Site Enforcement

**Table 1. Summary of Construction Stormwater Enforcement Actions and General Applications.**

<b>Enforcement Action</b>	<b>General Application</b>
Informal Notice	Minor non-compliance with local or state requirements; minor deviations between the site plan(s) and actual field conditions, relatively minor BMP maintenance deficiencies, etc.
Notice of Violation	Non-compliance with local or state requirements, deviations between site plan(s) and actual field conditions, BMP maintenance deficiencies, etc.
Citation	Violations representing a serious and significant threat or risk to public health, safety, public welfare, or the environment; recurring violations
Administrative Order	Resolution of violations documented by NOVs and/or Citations through execution of a compliance agreement or other approach
Stop Work Order	Site conditions that are materially detrimental or injurious threats to public health, safety, welfare, and/or the environment
Permit Block	Persistent, chronic, violations of LFUCG ordinances or permit provisions; non-compliance with enforcement requirements; non-payment of fines
Criminal Prosecution	Knowing, wanton, and serious violation of LFUCG ordinances

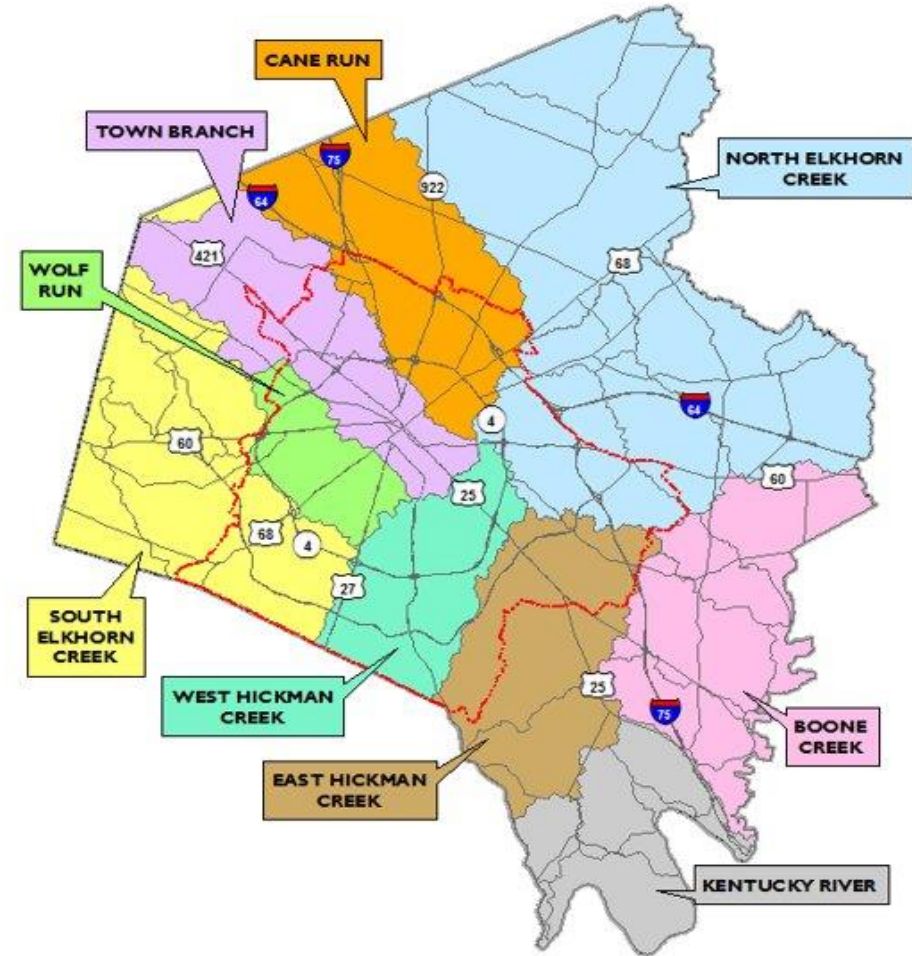






## Post-Construction SW Management

- Detention Basins (1,243) *(Semi-Annually)*
- Retention Ponds (103) *(Quarterly)*
- Private Water Quality Control Devices(1,150) *(Annually)*
- LFUCG Water Quality Devices (96) *(Annually)*
- Underground Detention Basins (130) *(Annually)*
- Critical Culvert Inspections (49) *(Monthly)*







## Post-Construction Enforcement

- Property Owner's Responsibility:
  - Warning Letter
  - Notice of Violation Letter
    - Follow-up Inspection
  - Notice of Violation Letter #2
    - Follow-up Inspection #2
  - Enforcement Referral
- LFUCG's Maintenance Responsibility:
  - Unit Price Contract
  - Record date of Compliance Achieved

MAYOR  
Linda Gordon

 **LEXINGTON**

CHARLES MARTIN  
DIRECTOR  
WATER QUALITY

**NOTICE OF VIOLATION**

COLDIRON VEITH CONSTRUCTION CORP  
557 GOLDEN TROPHY TRL  
LEXINGTON KY 40514

PROPERTY 2100 HADDON LEXINGTON KY 40509  
DATE & TIME OF OFFENSE FEBRUARY 20, 2024 13:30 AM

You are hereby given notice that the violations cited below must be abated within **14** calendar days of the date of this notice. Failure to correct the violations within the time period specified will result in a civil citation and a civil penalty.

**Violation(s) of the Zoning Ordinance:**

- ☐ Excavating, grading, or filling which disturbs the natural grade of the floodplain (Article 19-7(a)(1))
- ☐ Failure to comply with the floodplain storm water standards established by the final record plan or the development plan for the property during construction or with requirements established by these standards during or after construction (Article 19-7(g))
- ☐ Failure to comply with the standards for or with conditions attached to the special permit (Article 19-8i)
- ☐ Failure to complete the required erosion and sediment control work and/or failure to comply with all the requirements, conditions and/or terms of the grading permit and/or the erosion and sediment control plan, including failure to properly install and/or maintain proper erosion and/or sediment control features on the property (Article 20)
- ☐ Failure to obtain a grading permit as required (Article 20-4(d))

**Violation(s) of the Subdivision Regulations**

- ☐ Failure to comply with the requirements of the Storm water Disposal Standards during construction, or to properly maintain the easements and/or facilities required by these standards during or after construction (Article 6-7)
- ☐ Failure to comply with the Standards for Environmentally Sensitive Areas and Geologic Hazard Areas and/or with requirements established by this section during or after construction (Article 6-11)

**Violation of the Code of Ordinances**

- ☐ Mud, earth, and/or debris in or upon the street, sanitary sewer, storm sewer and/or other drainage facility of the Urban County Government (Section 14-60)
- ☐ Prohibited or illicit discharge/connections into the stormwater/sanitary system (Section 16-93 & 16-94)
- ☐ Mandatory connection to the public sanitary sewer system (Section 16-36)
- ☐ Damage to the sanitary sewer system and/or failure to comply with the Sanitary Sewer Manual (Section 16-40 & 16-41)
- ☐ Materials found on or in the sanitary sewer manhole (Section 16-40.1 & 14-60)
- ☐ Failure to comply with the Stormwater Manual (Section 16-85)
- ☒ Failure to properly maintain a detention basin, retention pond or any other stormwater control device located on the owners property. (Article X Section 16-87 & 16-88)

**ID: NE+34+E2. Flume needs cleaned for positive drainage! Please let me know when maintenance has been performed or give a schedule for when you plan to perform maintenance.**

If you have questions or desire further information you may contact:

Name of LFUCG Representative: Kenneth Newby  
Address: 125 Lisle Industrial Ave, Ste. 180, Lexington, KY 40511  
Issued by Kenneth Newby this 20TH day of FEBRUARY 2023.

Title: Engineering Technician Principal  
knewby@lexingtonky.gov  
Phone Number: (859) 425-2432  
Signed: 





## Detention Basin – Case Studies







## Stormwater Quality Device– Case Studies







## Stormwater Quality Device – Case Studies







## Critical Drainage Culverts



- 49 structures inspected
- Once per month and within 3 working days of a rainfall greater than or equal to 1 inch in a calendar day





## Critical Drainage Culverts

•Before



•After





# Municipal Operations

- Inspect stormwater quality controls (96) *quarterly* on LFUCG property which include:
  - Retention Ponds
  - Detention Basins
  - Other SW Control Devices
- Inspect Municipal Waste Facilities (4) *annually*
- Inspect Municipal Facilities that have a SWPPP (50) annually
  - Fleet Services, Streets & Roads, and DES Operations Area
  - Pools
  - Golf Courses
  - Natural Areas
  - Parks
  - Maintenance Facilities
  - Pump Stations

2023 City Owned BMP Inventory

ID Number	Address	BMP TYPE
CR+05+BMP007	1875 Magrathiana	Bio Filtration
CR+05+BMP008	1875 Magrathiana	Bio Filtration
CR+05+BMP009	1875 Mcgrathiana	Wetland
CR+05+BMP010	1875 Mcgrathiana	Bioswale
CR+05+BMP011	1875 Mcgrathiana	Wetland
CR+09+BMP012	Rain Garden Way	Permeable Pavers
CR+09+BMP013	Rain Garden Way	Median Rain Garden
CR+09+BMP014	Rain Garden Way	Permeable Pavers
CR+09+BMP015	Rain Garden Way	Permeable Pavers
CR+10+BMP008	1704 Elverton	Water Quality Unit
CR+10+BMP018	1578 Kirk Court	Suntree Nutrient Separating Baffle Box
CR+10+BMP019	1560 La Salle	Suntree Nutrient Separating Baffle Box
CR+11+BMP001	2311 Cabot Drive	Water Quality Unit
CR+11+BMP002	2311 Cabot Drive	Water Quality Unit
CR+11+BMP003	1846 Millbank Road	Suntree Nutrient Separating Baffle Box
KR+RSA34+BMP001	3885 Raven Run Way	Rain Garden
NE+26+BMP030	1276 Eastland Dr	Snout
NE+26+BMP031	1276 Eastland Dr	Snout
NE+28+BMP001	2589 Winchester RD	Pavers
SE+45+BMP006	2500 Bowman Mill RD	Filter Insert
SE+45+BMP007	2500 Bowman Mill RD	Filter Insert
SE+45+BMP010	2500 Bowman Mill RD	Filter
SE+46+BMP002	3570 Clays Mill Rd	Water Quality Unit
SE+47+BMP006	616 Wellington Way	Contech Water Quality Unit
SE+47+BMP007	3200 Clays Mill Rd	Contech Water Quality Unit
SE+47+BMP039	601 Wellington Way	Infiltration Basin
SE+54+BMP001	3570 Clays Mill Rd	Suntree Nutrient Separating Baffle Box
TB+08+BMP011	Alexandria Dr	Contech Water Quality Unit
TB+15+BMP043	669 Byrd Thurman Drive	Contech Water Quality Unit
TB+15+BMP044	669 Byrd Thurman Drive	Contech Water Quality Unit
TB+15+BMP045	1779 Old Frankfort Pike	Snout
TB+15+BMP046	1779 Old Frankfort Pike	Water Quality Unit
TB+15+BMP047	1779 Old Frankfort Pike	Infiltration Trench
TB+23+BMP001	416 Rebmman LN	Constructed Wetland
TB+24+BMP005	342 South Limestone	Streetscape Rain Garden
TB+24+BMP006	385 South Limestone	Streetscape Rain Garden
TB+24+BMP007	342 South Limestone	Streetscape Rain Garden
TB+24+BMP008	342 South Limestone	Streetscape Rain Garden







# Municipal Waste Facility Inspection

## November 8, 2023 Inspection Summary

The LFUCG MS4 annual inspection for municipal facilities program has been developed with components for scoring facility performance related to environmental protection, as well as procedures for notification of management and enforcement where significant environmental impacts have occurred or are occurring. A completed inspection checklist with scoring is included. The facility received a score of 85% and an inspection of the property showed the following findings:

- Solid Waste Handling –Leakage was seen from one of the bales of plastic materials stored on the north side of the building. This bale was stored near a storm drain. It is recommended that bales be stored in areas away from and/or not on top of stormwater drains.

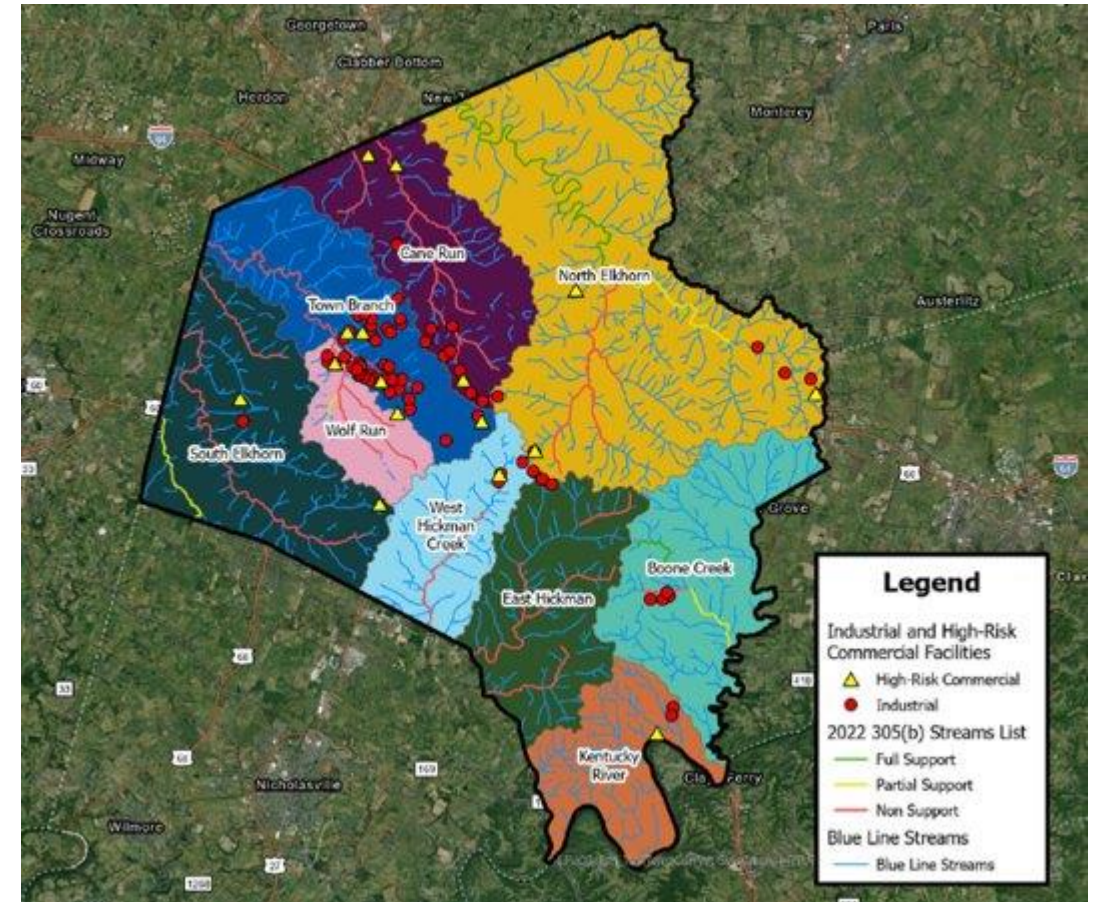


Location: Municipal Recycling Facility		Score: 85%
Solid Waste Handling	Points	Information
Solid waste dumpster closed and in good shape <i>Point Value 2 points</i>	2	
Grounds and surrounding area free of litter <i>Point Value 1 point</i>	1	Property in a condition expected based on the industry.
Adequate trash and recycling containers available <i>Point Value 1 point</i>	1	
Non-process materials (tires, batteries) not accumulated in excess <i>Point Value 1 point</i>	1	
Universal waste, used oils and containerized waste properly stored and labeled <i>Point Value 1 point</i>	1	
Chemical Handling and Storage		
Outdoor chemical bale storage have containment and/or shelter adequate to prevent discharge to stormwater system or environment <i>Point Value 3 points</i>	0	There was some visible leaking from plastic bales stored outside very close to a storm drain.
Spill response supplies readily available <i>Point Value 1 point</i>	1	
Maintenance Practices		
Equipment stored outside clean, leak free or contained <i>Point Value 2 points</i>	2	
Maintenance activities conducted indoors when possible <i>Point Value 1 point</i>	1	
Oil/water separators, sanitary and storm inlets cleaned and maintained <i>Point Value 2 points</i>	2	inlets are reportedly inspected and cleaned routinely
Operational Practices That Could Impact Stormwater		
Spill, leaks, and drips cleaned up immediately <i>Point Value 2 points</i>	2	
Stormwater detention pond clean and vegetation buffer maintained <i>Point Value 1 point</i>	1	
Area is free of vegetation stress and erosion areas <i>Point Value 2 points</i>	2	
<b>Total Points (20 possible)</b>	<b>17</b>	
Previous Year Summary		
Previous Score 85%		
<b>Other not specified and photographs–</b> Condition described below.		



## Industrial Facilities

- Inspect at least 90% of High-Risk Commercial Facilities(14) each permit cycle
  - “...reasonable potential to discharge stormwater containing pollutants of concern at a significant level.”
  - Examples: horse and livestock facilities, utility operations centers, outdoor storage and fabrication facilities
- Inspect at least 70% of the Industrial Facilities(64) at least once every two years
  - Any facility with a KPDES permit
- Conduct dry weather screening at the outfalls of industrial and high-risk commercial facilities each permit cycle







# Industrial Facilities

## 2023 Industrial Facilities Inventory

- Alltech Inc<sup>1</sup>
- Amazon (Lex1)<sup>1</sup>
- Amazon (Lex2)<sup>1</sup>
- Amazon (DKY5)<sup>\*1</sup>
- ATS Asphalt Emulsion<sup>1</sup>
- ATS Asphalt Terminal<sup>1</sup>
- ATS Construction Plant 12<sup>1</sup>
- ATS Construction Plant 14<sup>1</sup>
- ATS Construction Plant 16<sup>1</sup>
- ATS Construction Plant 17<sup>1</sup>
- Aventics<sup>1</sup>
- Avon Protection (formerly Ceradyne)<sup>2</sup>
- Blue Grass Auto Parts<sup>1</sup>
- Blue Grass Airport<sup>2</sup>
- Brandeis Machinery & Supply<sup>2</sup>
- Bulk Plants - Lexington<sup>2</sup>
- C&R Asphalt<sup>2</sup>
- Clark Materials Handling<sup>2</sup>
- Cohen - Old Frankfort (formerly Baker Iron)<sup>2</sup>
- Cohen - 7th (formerly Baker Iron)<sup>2</sup>
- Con-Way Freight (XPO Logistics)<sup>1</sup>
- Dixie Consumer Products (GP)<sup>1</sup>
- FCPS - Liberty Rd Bus Terminal<sup>2</sup>
- FCPS - Miles Point Way Bus Terminal<sup>2</sup>
- Fed Ex<sup>1</sup>
- Forterra<sup>1</sup>
- Frito-Lay<sup>1</sup>
- H&R Oil<sup>1</sup>
- Harrod Concrete & Stone - Blue Sky<sup>2</sup>
- Harrod Concrete & Stone - Forbes<sup>2</sup>
- Haynes Trucking<sup>1</sup>
- International Paper<sup>1</sup>
- Irving Materials Inc. (formerly Congleton)<sup>2</sup>
- ITW Powertrain<sup>1</sup>
- JM Smucker's<sup>1</sup>
- KTC Fayette Co. Maintenance Lot<sup>2</sup>
- KY MDA Bluegrass Station<sup>2</sup>
- Lee Masonry Products<sup>2</sup>
- LexTran<sup>1</sup>
- Linkbelt Construction Equipment<sup>2</sup>
- Marathon Petroleum<sup>1</sup>
- Midwest Metals Corporation<sup>2</sup>
- Old Castle<sup>1</sup>
- Parker Hannafin<sup>2</sup>
- Pepsi-Cola<sup>1</sup>
- Prestress Services<sup>2</sup>
- R&L Carriers<sup>2</sup>
- Republic Services (M&M Sanitation)<sup>2</sup>
- RJ Corman Railroad<sup>2</sup>
- Ruskin<sup>1</sup>
- Safety Kleen System<sup>1</sup>
- Sallee Horse Vans<sup>2</sup>
- Schneider Electric<sup>1</sup>
- SRC of Lexington, Inc<sup>2</sup>
- Strategic Materials<sup>1</sup>
- Tforce Freight (UPS Freight)<sup>1</sup>
- Thoroughbred Disposal, LLC<sup>2</sup>
- Triple Crown Concrete (Ready Mix Concrete)<sup>2</sup>
- UPS Ground Hub<sup>1</sup>
- Valero - Lexington<sup>1</sup>
- Vulcan Construction - Elk Lick Falls<sup>2</sup>
- Vulcan Construction - Manchester<sup>2</sup>
- Vulcan Georgetown Quarry<sup>2</sup>
- West Rock (Rock Tenn)<sup>2</sup>

## 2023 High-Risk Commercial Facilities Inventory

- Bluegrass Stockyards<sup>1</sup>
- Coca-Cola
- Contract Machining<sup>1</sup>
- Fastrak Express (formerly Creech)
- FCPS - Miles Point Way Bus Terminal
- Keeneland Association
- Kentucky Horse Park<sup>2</sup>
- Kosmos Cement (formerly Cemex)<sup>1</sup>
- KU - Central Substation
- KU - Lexington Operations Center
- KY American Water - Cedar Creek<sup>2</sup>
- KY American Water - Richmond Rd<sup>2</sup>
- Red Mile Horse Track
- Thoroughbred Center
- Woodall Construction

1 – Inspected during 2023.

2 – Inspected during 2022.

1 – Inspected during 2023.

2 – Inspected during 2022.

\* – Added during 2023.





## Industrial Inspections

### *Facilities to Review:*

- Stormwater BMPs
- Waste Management
- Materials Management
- Equipment and Vehicle O&M
- Spill Containment
- Parking Lot and Other Areas
- Drainage Systems



### *Check for:*

- Litter/debris
- Waste contained and covered
- Leachable materials covered
- Spill kits available
- Secondary containment for fuel tanks







## 2023 Inspections – Key to Compliance

Types of inspections conducted by LFUCG staff:	Total 2023 Inspections
Illicit Discharge/ Spill Investigations	187
Dry Weather Screening of Stormwater Discharge Outfalls	244
Active Construction Sites	5,412
Targeted Construction Sites	423
Detention Basins Round 1 & 2	2,485
Stormwater Retention Ponds	410
Water Quality Control Devices (Inserts, filters, infiltration areas)	1,150
Underground Detention Facilities	130
Critical Drainage Culverts	731
Water Quality Control Devices – City Owned	384
Municipal Operation Stormwater Inspections	54
Industrial and High-Risk Commercial Facilities	33
<b>Total</b>	<b>12,151</b>



# Questions?



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