ARS000002

Authorization to Discharge Under the National Pollutant Discharge Elimination System and the Arkansas Water and Air Pollution Control Act

2018 Annual Report

2019-04-01

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1.0 Introduction

The City of Little Rock (City) and the Arkansas Department of Transportation (ARDOT) are co-permittees under the National Pollutant Discharge Elimination

System (NPDES) permit ARS000002 (Permit) in accordance with the Arkansas Water and Air Pollution Control Act and the Clean Water Act. The purpose of the Permit is to outline the activities required for ARDOT and the City of Little Rock to lawfully discharge waters from within the territorial boundaries of the City via the municipal separate storm sewer system (MS4) into the Arkansas River and its tributaries. Compliance with the terms of the permit is assured by the adoption of storm water quality management plans (SWQMP) which provide guidance on best practices to mitigate the pollution of waterways to the maximum extent practicable (MEP). The Permit became effective 2012-04-01 and is currently administratively effective at the time of this report.

Each section of this report follows the reporting requirements as identified in section 6.9 of the Permit. For clarity, the requirements as given in the permit are shown in quotes, followed by a description of compliance activity associated with the requirement. Where separate reporting by the co-permittees is required, subsections for each permittee are provided.

Requirement:

> Annual Report - Each co-permittee shall contribute to the preparation of an annual system-wide report to be submitted by April 1 of each year between the effective date of the permit and the date of expiration. The report shall be in the form as outlined in the SWQMP and shall include the following separate sections, with an overview for the entire MS4 and subsections for the co-permittees where applicable. Preparation and submittal of a system-wide annual report shall be conducted by the co-permittees. The report shall indicate if the co-permittees have failed to provide required information on the portions of the MS4 for which they are responsible. The co-permittees shall be responsible for timely submittal of the system-wide report. Each co-permittee shall be responsible for content of the report relating to the portions of the MS4 for which it is responsible, and for failure to provide information for the system-wide annual report. Each co-permittee shall sign and certify their portion of the annual report.

2.0 Executive Summary

The City and ARDOT have provided policies and ordinances to ensure compliance with the City of Little Rock NPDES permit. The City provides quarterly reports of water quality within various tributaries of the Arkansas River, and these reports do not appear to indicate a trend toward either improvement or deterioration of water quality. ARDOT and the City provide enforcement of policies, inspections, maintenance, monitoring and public education to promote the health of the MS4. These activities include hundreds of miles of storm sewer maintenance, thousands of miles of street maintenance, dozens of public outreach

activities and partnerships with volunteers and non-profit organizations. In 2018, these programs cost approximately $25 million in direct and administrative expenses. Both ARDOT and the City operate under a SWQMP which has provided effective controls for maintaining the quality of surface waters within Little Rock.

3.0 Municipal Separate Storm Sewer Report

3.1 Changes to Sormwater Quality Management Program

Requirement:

> Proposed changes to the stormwater quality management programs that are established as permit conditions, including an update on areas added to the MS4 due to annexation or other legal means

The City of Little Rock and ARDOT propose no changes to the SWQMP for 2018. Approximately 284 acres of land was annexed into the City of Little Rock during 2018. A map of annexations to Little Rock is given in Appendix B.

3.2 Revisions to Assessments and Fiscal Analysis

Requirement:

> Revisions, if necessary, to the assessments of controls and the fiscal analysis reported in the permit application under 40 CFR 122.26 (d)(2)(v) and 40 CFR 122.26 (d)(2)(vi)

The City of Little Rock and ARDOT propose no revisions to the assessments of controls and fiscal analysis of the permit application.

3.3 Discharge Monitoring Report Summary

Requirement:

> A summary of the data, including monitoring data that is accumulated throughout the reporting year

Discharge sampling shows a high level of variability between sampling locations and between sampling periods. City staff has not determined any consistent correlation between sampling locations and measured parameters.

Figure 1 presents all reported measurements represented as a percentage of recommended limits for aquatic life as given in the EPA's Regulation No. 2: Regulation Establishing Water Quality Standards for Surface Waters of the State of

Arkansas. Recommended limits for nitrogen and phosphorous are have been derived from the EPA's ecoregional criteria for Region IX: Southeastern Temperate Forested Plains and Hills. Where specific guidance has is not provided (including hardness, flow, total suspended solids and biological oxygen demand), these factors are represented as a percentage of 95th percentile of all measurements taken from the area since the beginning of the discharge monitoring program.

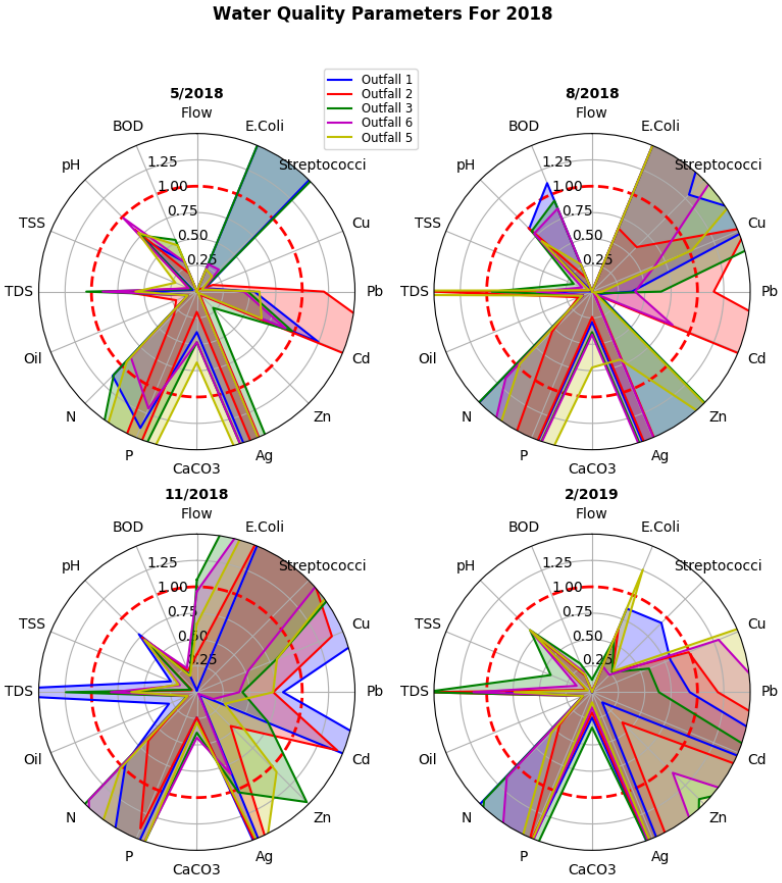

Figure 1: Normalized measurements of water quality parameters

Additional tables and charts of discharge monitoring are provided in Appendix E.

3.4 MS4 Budget Summary

Requirement:

Estimated annual expenditures and projected budget for the year following each annual report.

ARDOT costs to implement with SWMP part of the general operating budget are anticipated to be approximately $900,000 for the upcoming permit year. ARDOT has 3 crews with a total of 58 personnel dedicated to working in the Little Rock metropolitan area that have an annual salary of approximately $1,948,000. These crews can be supported by other crews that are assigned as needed throughout District Six.

City maintenance of the MS4 is paid for by the City Street Fund and is tasked to the 215 employees of the Public Works. In 2018 $8.6 million was budgeted for the maintenance expenses of streets and storm drains, which is expected to become $8.4 million in 2019. Administrative expenses of the Public Works, which includes overhead costs necessary for administration of the NPDES permit, where $4 million in 2018 to $4.9 million in 2019. The City also invests in its storm drainage infrastructure through capital improvement projects financed by sales tax. These improvements are financed in 3-year cycles, with 2018 falling into the 2015-2018 cycle. $2.8 million is spent on each of the seven wards for a total estimated expense of $19.9 million of capital improvements, which include municipal drainage improvements. The City is also the beneficiary of a water quality grant from the Arkansas Natural Resources Commission and the Environmental Protection Agency for the construction of low impact development improvements on Main Street from Markham to Capitol Avenue. $1.4 million is expected to be spent in 2019.

Operations and maintenance costs of the MS4 are met by the City Street Fund. These expenses are summarized in the table below.

Public Works Street Fund Operating Expenses

Activity	2018	2019
Administration	984491	1997357
Operations Administration	3093825	2906002
Street and Drainage Maintenance	7579120	7388095
Storm Drain Maintenance	993872	1045613
Work Pool	162984	151998
Resource Control and Scheduling	423782	381072
Control Devices	940121	925953
Signals	1155223	1171683
Parking Meters	110603	111634
Civil Engineering	1808901	1804462
Traffic Engineering	3414186	3413682
Parking Enforcement	302248	301607
Total	20969356	21599158

Table 1: Operating expenses directly and indirectly related to MS4 maintenance

3.5 Enforcement, Inspection and Education

Requirement:

> A summary describing the number and nature of enforcement actions, inspections, and public education programs;

3.5.1 ARDOT Enforcement, Inspection and Education

ARDOT conducts inspections of its construction projects and maintenance facilities in accordance with existing regulations and ARDOT policy. Two stormwater related articles were published in the Department's Arkansas Highways magazine in the May/June Magazine of 2018. The articles published in the Arkansas Highways Magazine are featured on the Stormwater section of the website for easier access. This publication is provided to all Department personnel and the public statewide. Several hundred stormwater education brochures were distributed during environmental education events as well as Arkansas Environmental Education Association events, the Arkansas State Fair, DrainSmArt and other community related activities throughout the year. The Department has added several stormwater-related educational brochures in English and Spanish on its website. The Department has also made stormwater educational material available at six public libraries in the Little Rock area.

In 2018, no warning letters were sent to contractors on any ARDOT construction projects in Little Rock for failure of timely BMP replacement or repair.

3.5.2 Little Rock Enforcement, Inspection and Education

Enforcement

The City Public Works is authorized by ordinance to enforce City codes pertaining to stormwater management plans and flood prevention. Through the performance of periodic inspections and complaints, the Public Works took 41 enforcement actions in 2018. The majority of enforcement activity is the issuance of notices of violations by Public Works inspectors for grading permit violations. A summary is given in the table below.

Storm Water Ordinance Enforcement Actions

Category	Actions Taken
Grading Permit Violations	4

Category	Actions Taken
Unlawful Discharge	5
Sanitary Sewer Overflows	1
Obstruction to MS4	4
Total	41

Table 2: Summary of notices and citations issued by the City of Little Rock for stom water code violations

Inspections

The City Public Works inspects both private and public construction projects for compliance with NPDES requirements. Publicly funded construction projects are inspected at or near a daily basis while private construction projects under Public Works issued permits are inspected periodically as well as following requests, complaints or prior to issuance of certificates of occupancy.

Education

The City Public Works serves as a repository of information for the Public for topics of water quality and the MS4. Brochures, graphic material and staff are made available to the public Monday through Friday during normal business hours. Supplemental information is provided on the City website. Public outreach pertaining to water quality is disseminated frequently by the City Sustainability Commission and their partner organizations. The City Mayor has made sustainability a priority for the City Public Works department and the public-private partnerships they have facilitated have taken the lead in public education.

Sustainability Commission

The Mayor's Sustainability Commission was established in 2008 to advise the City on sustainable practices. Since that time, the Commission has worked with various groups in the City to develop new environmentally green policies that have positively impacted city government and the residents of Little Rock.

LRTV

Little Rock TV (LRTV) is a municipal government access channel where the City of Little Rock is able to broadcast public service information as well as televised events to the general public. LRTV has in its program rotation several advertisements related to public education about water quality. The rotation is similar to a slideshow with billboards cycling at 15 to 20 second intervals. The storm water education billboards run inside of of loops 15 to 60 minutes long run 23-24 times per day. The total runtime of these billboards in 2018 would be

36-148 minutes. Examples of the water quality billboards are given in appendix D. Also, as of February 2019, LRTV has included in its programming a short educational video from University of Arkansas Research and Extension (UAEX) entitled *If It Rains It Drains!*

Figure 2: Educational video developed by UAEX to promote water quality education shown on LRTV.

Public Outreach Events

The City sustainability officer and sustainability educator hosted or are were featured speakers at approximately outreach events in 2018. Some of these include public speaking events at the following locations:

Public Education and Outreach Events

Date	Group	Location	Attendees
3/6/2018	Mills High School Scholars Program	MRF and Landfill	60 students

Date	Group	Location	Attendees
3/7/2018	Clinton School Social Enterprise Class	MRF and Landfill	4 graduate students
3/13/2018	Lawson Elementary kindergarten class	classroom presentation	32 student
3/22/2018	Our House Spring Break Program	MRF and Landfill	60 students
4/2/2018	Boy Scout Troop	Holy Souls	10 kids from 6th grade to seniors in high school
5/14/2018	Capitol View-Stifft Station N.A.	Oyster Bar	~30 adults“
7/24/2018	Ozark Mission Project	Church in Cammack Village	3 groups of 10-12 kids
7/31/2018	Ozark Mission Project	Church in Cammack Village	4 groups of 10-12 kids
8/9/2018	Woodland Heights Senior Living	living facility by CARTI, 10-11:15	10 seniors
10/3/2018	Pulaski Academy Green Team	PA at lunch time	~20 people“
11/1/2018	Pennbrook/Clover Neighborhood Association	Lower Funeral Home at 6:30 p.m.	~20 people“
11/9/2018	Anthony School	Ohio St. off Mississippii	5 students, 2 teachers

Date	Group	Location	Attendees
11/5/2018	Pulaski Academy entire school	PA at 12:30	400 students
11/30/2018	Lisa High school Env Studies group	MRF and landfill tour	45 students, two teachers
11/30/2018	LR Sustainability Commission	landfill tour	8 commissioners
12/2/2018	Unitarian Universalist Church	Reservoir location	10 adults
12/10/2018	AR Electric Coop	AR Electric Coop off I-30	25 employees at ice cream social
1/11/2019	The Anthony School	school, 10:30-11:15 & 1:30-3:00	about 35 kids in three different grade levels (3rd, 4th, 5th)
1/15/2019	The Anthony School	5th grade class	20 students
1/17/2019	The Anthony School	6th grade class	20 students
1/24/2019	LifeQuest Group	2nd Pres Church	60 attendees
1/29/2019	Rockefeller Elementary	school	3 classes of 20 students
2/12/2019	The Anthony School	7th grade class	20 students
2/19/2019	Sierra Club	Oyster Bar	25 attendees

Date	Group	Location	Attendees
2/20/2019	The Anthony School	8th grade class	15 students
2/21/2019	The Anthony School	Green Team	10 students

Table 7: Public speaking presentations given by the City of Little Rock's recycling and sustainability educator.

Topics included recycling, sustainability, water quality and other topics outlined in the commission's Roadmap To 2020. Aside from speaking, the sustainability officers also provide promotional content for social media and the City Government Access Channel (LRTV).

The City of Little Rock Public Works also participated in the 2018-05-10 Forests to Faucets Festival at Lake Willastein hosted by Central Arkansas Water (CAW). The event was attended by 185 5th graders who spent the day learning about the importance of water and its many uses. The Public Works provided a display and educational presentation about the City of Little Rock MS4, its relationship to the environment and how it is maintained.

Figure 3: Public Works staff demonstrates a small model storm sewer system to 5th grade students.

Private Partners

Non-government organizations assist the City with meeting its water quality goals directly through cleanups, such as Friends of Fourche Creek (FoFC) and the Keep Little Rock Beautiful (KLRB), as well as promotional and educational activity. FoFC regularly communicates with the public about floatables and othe risks to waterways through Facebook and television and radio interviews. With a small grant from the City of Little Rock Public Works, Audubon Arkansas has produced a children's coloring book with educational material about the importance of our waterways which has been distributed to the following locations:

- Audubon Arkansas – Field trip visitors and Afterschool Programs
- Arkansas State Fair
- Area Elementary Schools
- Centre at University Park
- Central Arkansas Water
- LR Wastewater Reclamation Authority

Audubon Arkansas is also a partner with the local Drain Smart program, where local artists promote awareness of the MS4 with painted murals on curb inlets with high visibility to the public. In 2018 12 murals were commissioned, and another 6 locations are proposed for 2019.

3.6 Changes to Water Quality

Requirement:

Identification of water quality improvements or degradation

The City and ARDOT have not identified any changes to water quality in 2018.

3.7 Pollution Prevention measures

The City of Little Rock is supported by the Pulaski County Regional Recycling & Waste Reduction District (RRWRD) which facilitates recycling, reuse and the responsible disposal of materials which impact water quality.

Residents are provided with a 65-gallon bin for curbside collection of papers, plastics, glass and metals for recycling. Bins can be requested online or by phone through the City's 3-1-1 non-emergency service request system. RRWRD also coordinates the operation of Green Stations, which dispose of automotive fluid and fluorescent lighting. The Green Station in Little Rock is located at 10001 Kanis Road which is collocated with the electronic waste recycling drop off.

Approximately $34,170.48 is spent annually to support the Pulaski County RRWRD. Public promotion of these measures is included within annual expenses

of both the Sustainability Summit and the Wetlands Maintenance and Sustainability Summit which totaled $64,000 in 2018. Public service announcements are given on LRTV and are included in the annual operating expenses of $300,000 for the LRTV program.

3.7.1 Motor Vehicle Fluids

Requirement:

> The co-permittees shall ensure the establishment or availability of a program to collect used motor vehicle fluids for recycle or proper disposal. The program will identify locations where used vehicle fluids may be taken for recycling or disposal in accordance with state requirements. The City of Little Rock will publicize materials which can be recycled or disposed, times available to the public for using the facilities, and locations. The annual report shall include the amount of materials collected (weight or volume), the amount of money used for advertising, the method of advertising used to inform the public, and the overall cost of the program.

3.7.1.1 ARDOT Motor Vehicle Fluids

ARDOT implemented a program to recycle automotive oil as well as oil from its equipment before March 1, 1997. During the 2018, 1,035 gallons of oil and gas products as well as 12,259 gallons of antifreeze were recycled from equipment used by crews working in Little Rock.

3.7.1.2 Little Rock Motor Vehicle Fluids

The City of Little Rock operates and services a substantial fleet of vehicles ranging from police cars to sweepers. The Fleet Services department maintains contracts with waste disposal professionals to manage the large volume of motor vehicle fluids necessary to operate and maintain the City's motor pool.

In an effort to reduce emissions, some of the City of Little Rock's motorpool run on compressed natural gas (CNG). A fueling and service station for these vehicles is located at 501 Ferry Street. Motor vehicle waste from this facility is summarized below:

Recycled Automotive Waste from CNG Facility

Material	Quantity	Measure
Oil filters	500	ea

Material	Quantity	Measure
Used oil	7.5	gal
Used cleaning agents	28	gal

Table 13: Recycled materials from the compressed natural gas fueling facility located at 501 Ferry Street in downtown Little Rock.

The Fleet Services department is located adjacent to Public Works operations and services the majority of the vehicles in the City motor pool. The greatest volume of motor vehicle fluids comes from this facility and is summarized below:

Recycled Automotive Waste from Little Rock Fleet Services Facility

Material	Quantity	Measure
Oil filters	2000	ea
Used oil	1020	gal
Used cleaning agents	520	gal
Antifreeze	427	gal

Table 15: Recycled materials from the municipal fleet services facility located at 3314 J E Davis.

The Solid Waste services department is located outside of the City of Little Rock; however, their operations serve residents within the city. Their facility services the fleet of trucks which transport waste from homes to the municipal landfill. Motor vehicle waste from this facility is summarized below.

Recycled Automotive Waste from the Municipal Landfill

Material	Quantity	Measure
Oil filters	2050	ea
Used oil	1354	gal
Used cleaning agents	117	gal

Table 14: Recycled materials from the municipal landfill facility located at 10803 Ironton Cufoff immediately outside of Little Rock.

In Little Rock, 7,644 gallons of oil, antifreeze and gasoline were collected by the RRWRD Green Station in 2018. Recycling of motor vehicle fluids is promoted at the sustainability summit and other speaking events by the City sustainability

officer as well as on social media and LRTV; however, itemized costs of advertising for motor vehicle fluid recycling are not collected.

3.7.2 Household Hazardous Waste

Requirement:

> The City of Little Rock shall ensure the establishment or availability of a program to collect household hazardous waste materials for recycle, reuse, or proper disposal. The amount of materials collected (weight or volume), the amount of money used for advertising, the method of advertising used to inform the public, and the overall cost of the program will be included in the annual report. Recycling of household hazardous waste is promoted at speaking events by the City sustainability officer as well as by content on social media and LRTV. The City does not collect itemized advertising costs for household hazardous waste recycling. The household hazardous waste collected in 2018 by the Little Rock Green Station is shown in table the table below.

Recycled Household Hazardous Waste

Item	Quantity
Fluourescent Lights	8,823 lights
U-Shaped and Incandescent	8 Bulbs
Herbicides	1 55gal drum
Pesticides	1 55gal drum

Table 3: Summary of waste items collected by Little Rock Green Stations

3.8 Structural Controls

Requirement:

> Structural Controls: Each co-permittee shall operate and maintain any stormwater structural controls over which it has jurisdiction, in a manner so as to reduce the discharge of pollutants to the MEP.

3.8.1 ARDOT Drainage Maintenance Report

Requirement:

> Arkansas State Highway and Transportation Department will inspect the drainage system for which it is responsible at least once/month. The inspections should include a schedule of maintenance for correcting deficiencies in the system.

ARDOT spent $35,907.98 to purchase materials to construct or repair catch basins, junction boxes, and ditch paving, and to purchase replacement drainage culverts. ARDOT spent a total of $284,355.37 for materials and installation and associated ditch cleaning of minor drainage structures. ARDOT spent $19,511.89 to machine clean and reshape existing ditches, remove and properly dispose of 1,313.5 cubic yards of excess material. ARDOT spent $2,103.10 to purchase riprap, matting, geotextiles, sod, seed, and fertilizer to repair and prevent ditch and slope erosion. The total cost of purchase and installation was $20,900.89.

3.8.2 Little Rock Drainage Maintenance Report

Requirement:

> The City of Little Rock will inspect 20 percent of the drainage system each year. The drainage system consists of curb and guttering, piping, and open ditches in the City of Little Rock right-of-way and public easements. Areas with recurring drainage problems shall be inspected more frequently. The City of Little Rock will also maintain and clean the ponds along Coleman Creek and within War Memorial Park. These ponds should be inspected twice per year.

Operations

The City of Little Rock Public Works Operations provides preventative and complaint-driven maintenance for the MS4. Annual inspections for inadequate drainage are conducted for each of the seven wards as well as periodic inspections of streets and drainage by the street foremen. The 3-1-1 service provides residence with the ability to create and document requests for service and also acts as a scheduling tool for maintenance activity. Over 2500 requests for service were made in 2018 for repairs and maintenance to the MS4.

3-1-1 Maintenance Requests for City of Little Rock MS4

Type of Request	Number of Requests
Ditch Maintenance	1645
Inlet and catch basin cleaning	873
Inlet and catch basin repair	87

Table 4: Service requests taken online and by phone through the Little Rock 3-1-1 system

The requests for maintenance in the 3-1-1 service only partially address the scope of the maintenance activity provided by the Public Works Operations staff. A complete list of the maintenance operations performed by the Public Works and associated costs is given in the table below.

Public Works Operations MS4 Maintenance Summary

Activity	Quantity	Units	Cost
Catch basin repair	102	Ea	$126,765
Catch basin cleaning	918	Ea	$118,158
Storm Sewer Repair	922	LF	$187,661
Emergency Storm Sewer Cleaning	30	LF	$823.47
Ditch maintenance, hand cleaning	614412	LF	$666,259
Ditch maintenance, Excavation	20220	LF	$124,398
Ditch maintenance, Channel construction	3160	LF	$39,972
Ditch maintenance, Litter removal	694377	LF	$98,960
Ditch maintenance, Mowing	529	acres	$54,243
Ditch maintenance, Stabilization (rip-rap)	426	sq-yd	$33,383
Street sweeping, Miles swept	21775	curb-mi	$649,388
Street sweeping, Litter removed	1829	cyd	$25,174
Ditch spraying, minor and major	10.5	acres	$3,136.89
Unclassified maintenance activity	16916	man-hr	$325,546

Table 5: Unit quantities and costs associated directly with the maintenance of the MS4

Parks and Recreation

Additionally, many of the open channels and waterways of the MS4 are within municipal parks. The 49 employees of the Parks and Recreation department provide intensive maintainenance, including litter removal and mowing, of the 4,200 acres of developed park land and also monitor and maintain the 1,900 acres of undeveloped parks with the City of Little Rock.

The City Parks and Recreation department provides weekly as well as post-event maintenance of War Memorial Park, which includes the ponds along Coleman Creek. Parks and Recreation has removed sediments and organic matter from the floor of the pond once in 2004 and again in 2009 to preserve fish habitat. The discharge from these ponds is also naturally filtered by the bioswale located downstream of a splash pad within the park. At MacArthur Park, the City Parks and Recreation department has performed monthly sampling of the pond with the assistance of the Arkansas Health Department to measure the efficacy

of their campaign to reduce public feeding of geese. The data is not sufficient to demonstrate change of the water quality within the pond; however, continued monitoring is planned for the following year. A summary of results is shown below.

E Coli Sampling at MacArthur Park

Date	Quantity	Units
2018-09-21	461.1	#/100ml
2018-11-09	PRESENT	-
2018-12-14	PRESENT	-

Table 12: The measurements taken at MacArthur Park Pond are not equivalent to the assays taken at the prescribed outfalls. 'Present' indicates that e.coli have been identified by the density of colony-forming-units has not been determined.

Maintenance of the MS4 in public areas is supplemented by volunteer efforts, such as those by the FoFC and KLRB commission. The FoFC conducts over 20 cleanups a year that removes waste such as floatables, tires and even refrigerators from the Fourche Creek Bayou.

3.9 Areas of New Development

Requirement:

> Areas of New Development: Each co-permittee shall utilize a comprehensive master planning process to develop, implement, and enforce controls which will reduce, to the MEP, the discharge of pollutants from areas of new development and significant redevelopment after construction is completed. The City of Little Rock will require permanent controls, as required by the Little Rock Code of Ordinances, to be implemented at newly developed areas to control the increased volume of water that will be discharged.

The City of Little Rock shall notify construction sites disturbing (clearing, grading, or other construction activities) 1 or more acres within their MS4 boundary of the requirement to contact the Arkansas Department of Environmental Quality (ADEQ), Water Division, about the stormwater regulations and as how to obtain coverage under NPDES Construction Stormwater General Permit (ARR150000) and to develop a Stormwater Pollution Prevention Plan (SWPPP) and to install and maintain erosion and sediment control for the site prior to the start of construction. The City of Little Rock shall also notify sites that are over 5 acres or more within their MS4 boundary of the requirements that they must

submit a Notice of Intent (NOI), permit fee and SWPPP to the Arkansas Department of Environmental Quality to obtain coverage under NPDES Construction Stormwater General Permit prior to the start of construction

3.9.1 ARDOT New Development Summary

The following projects were under contract in Little Rock at various times during 2018:

- BB0618 – I-430/Rodney Parham Road Interchange Improvements (LR)
- CA0608 – Baptist Hospital – University Avenue (Widening) (LR)

Quantities and associated costs of erosion control materials are listed in the table below.

Controls for ARDOT 2017 Projects

Item	Quantity	Units	Paid Cost
Concrete Ditch Paving	747.59	Square Yards	$51,292.09
Drop Inlet Silt Fence	404.7	Linear Feet	$3,642.30
Dumped Rip Rap	264.79	Cubic Yards	$17,974.10
Filter Sock	360	Linear Feet	$2,772.00
Mulch Cover	10.14	Acres	$8,334.18
Rock Ditch Checks	5.93	Cubic Yards	$444.75
Sand Bag Ditch Checks	844	Bag	$7,933.50
Seeding	3.61	Acres	$4,641.30
Silt Fence	9,391.00	Linear Feet	$26,187.37
Solid Sodding	1,245.04	Square Yards	$4,774.69
Temporary Seeding	6.24	Acres	$3,425.76
Wattle	300	Linear Feet	$2,910.00
Total			$134,332.04

Table 6: Payable quantities of erosion controls used in ARDOT highway construction jobs

3.9.2 Little Rock New Development Summary

Chapter 29 of City code requires that all construction, subdivision approvals and remodeling activities have a stormwater management and drainage plan approved by the Public Works with the exceptions of residential single family or duplex structures, commercial or industrial structures on lots less than one acre or additions of less than 500 square feet to existing commercial or industrial

structures. Permitted stormwater management and drainage plans must conform to the City SWQMP and City Storm Water Management and Drainage Manual.

Review of stormwater management and drainage plans for new construction projects is the responsibility of the City Public Works and includes the evaluation of construction plans for compliance of erosion control, detention and storm sewer design. All construction projects on lots larger than one acre are instructed to contact ADEQ to obtain the necessary permitting. In 2018 Public Works reviewed 117 new construction permits.

3.10 Roadways

Requirement:

> Roadways: Each co-permittee shall operate and maintain public streets, roads, and highways for which they are responsible in a manner so as to reduce, to the Maximum Extent Practicable (MEP), the discharge of pollutants. The Arkansas State Highway and Transportation Department will sweep all State Highway routes within the City of Little Rock on which curbs and barrier walls are provided once per month. The City of Little Rock will sweep the Central Business District three times a week, one hundred fifty (150) miles of arterial street on which curbs and barrier walls are provided once per week, and the balance of the arterial streets on a monthly basis. Each co-permittee will keep records which will include the number of sweeper units used, amount of debris collected (weight or volume), and problem areas which contribute the highest volume of debris. The annual report shall contain the above information.

3.10.1 ARDOT Roadway Maintenance

ARDOT reports the following actions to meet this requirement: - Spent $972.77 to purchase material to pickup litter by ARDOT personnel; total cost to pickup litter by ARDOT Personnel and contract; 5,861.5 cubic yards of litter picked up and disposed of by ARDOT personnel and contract; $0 to purchase materials to pickup litter by jail inmate program. - ARDOT in cooperation with the Arkansas Beautiful Commission promotes an Anti-Litter Program to encourage people not to litter and to cite those people who do litter. This program includes training for law enforcement personnel, advertising anti-littering laws, enforcement awards, prisoner litter pick, and a violator reporting system. - Adopt-A-Highway Litter Pickup: $550.58 total cost to provide bags, pick up filled bags and dispose of Adopt-A-Highway litter; The Adopt-A-Highway groups did not report the amount of litter they collected. There are currently Adopt-A-Highway groups in Little Rock who have adopted 25 miles of highway. - Street Sweeping: ARDOT spent $217,619.60 total cost to operate 2 vacuum sweepers in Little Rock which

picked up 1,233.5 cubic yards of debris during the year. -The Department conducts herbicide applications with 51 certified applicators under Arkansas State Plant Board regulations as well as the requirements of the NPDES Pesticide Permit. Fertilizers are applied at the minimum rate necessary according to the guidelines contained in the Department's Standard Specifications manual.

ARDOT also reports the following 'problem areas' for roadway maintenance for 2018

- I-430 river crossing - limited shoulder space and high traffic
- I-30 south terminal - limited shoulder space and high traffic
- South terminal interchange - limited shoulder space and high traffic
- I-630/I-30 itnerchange - limited shoulder space and high traffic
- Hwy 10 - leaves and lawn debris in gutters and high traffic

3.10.2 Little Rock Roadway Maintenance

The City of Little Rock services public streets through cleaning, debris removal and repair. Streets are maintained by City employees with assistance provided by volunteers organized by community members, local non-profits and City staff.

- The City of Little Rock supports the Adopt-A-Street program which currently has 212 groups who have adopted 158.25 miles of streets. These volunteer groups do not report quantities of litter removed.
- The City Wide Cleanup, an effort by the Keep Little Rock Beautiful organization is an annual drive to remove litter from the City. In March 2018 821 volunteers collected 60 bags of recyclables and 31 tons of waste. The event covered 418 city blocks, 65 of parks and 3.55 miles of waterways, resulting in the removal of 458 tires from Fourche Creek.
- The Public Works operates nine sweepers which swept 21,780 curb-miles and collected 1,830 cubic yards of litter in 2018 at an estimated cost of $674,600.

3.11 Flood Control Projects

Requirement:

> Flood Control Projects: Each co-permittee shall ensure any flood control project it undertakes assesses, and minimizes to the MEP, the impacts on water quality of receiving waters. All flood control projects will be reviewed by the City of Little Rock. The annual report shall contain a summary of any flood control projects that were reviewed during the reporting period.

3.11.1 ARDOT Flood Control

ARDOT reports no flood control projects for 2018.

3.11.2 Little Rock Flood Control

The City of Little Rock reports no flood control projects for 2018.

3.12 Spill Prevention and Response

Requirement:

> Spill Prevention and Response: Each co-permittee shall implement a program to prevent, contain, and respond to spills that may discharge into the MS4. The co-permittees will have supervisory personnel trained for methods of containing spills. The Arkansas Department of Environmental Quality is to be notified immediately after a spill occurs. The criteria for containing and controlling a spill shall be addressed in the Stormwater Quality Management Program. The annual report shall include a summary of any spills and their appropriate responses that occurred within the reporting period.

3.12.1 ARDOT Spill Response Summary

ARDOT reports any spills to ADEQ and it participates in the "Keep Arkansas Beautiful" Program. It provides annual training for maintenance personnel in the identification and reporting of illicit discharges into the Department right-of-way.

ARDOT has an Oil Spill Prevention and Response Plan that is carried in ARDOT tanker vehicles and tanker vehicle operators are trained in that plan. The Environmental Division provides annual training in Spill Prevention Control and Countermeasures to maintenance personnel in the District and assists District personnel in the maintenance of Pollution Prevention Manuals at each maintenance facility.

Members of the Department's NPDES Section provided annual training, including illicit discharge detection and reporting for District 6 maintenance personnel on February 13, 2019. A make-up training class will be provided on April 24, 2019. The PowerPoint slides used in the training will be posted on the Maintenance Local Area Network for later review by district personnel and a roster of personnel trained will be maintained.

3.12.2 Little Rock Spill Response Summary

The City of Little Rock identifies spills by public reporting through 3-1-1 as well as by observations made by City personnel. Spill reports are investigated by the City Public Works, and upon identification of an unlawful discharge into the MS4, ADEQ is provided notification within 24 hours. Following the initial notification, the City conducts enforcement actions and investigation necessary to mitigate the spill. A formal written response is provided to ADEQ Water Quality division within 5 working days of the initial notification. Records of notices of violation and relevant documentation are maintained at the City Public Works. A summary of spill responses is given in the table below.

Unlawful Discharge Summary

Date	Location	Violation	Result
4/23/2018	16000 Rushmore Avenue	Sediment	Controls installed, sediment removed
4/25/2018	11700 Shady Creek Drive	Cleaning chemicals	Notice issued, BMPs amended
4/25/2018	2311 Cumberland Street	Sanitary Sewage	Service line repaired
4/27/2018	11300 Bass Pro Parkway	Food waste, grease	Waste removed, containment provided
5/7/2018	13500 Chenal Parkway	Cleaning chemicals	Notice issued, BMPs amended
8/20/2018	12400 Cantrell Road	Sediment	Controls installed, sediment removed
9/11/2018	4100 W 98th Street	Sediment	Pending trial

Date	Location	Violation	Result
10/8/2018	Piper Lane	Construction washout	Paint washout cleaned and washout installed
10/10/2018	10920 Financial Centre Parkway	Food waste, grease	New service line installed
11/15/2018	8624 W 32nd St	Sediment	Fill removed from MS4

Table 8: Summary of stormwater ordinances for unlawful discharges during the permit year

3.13 Construction Site Runoff

Requirement:

> Construction Site Runoff: Each co-permittee shall implement a program to reduce, to the MEP, the discharge of pollutants from construction sites

The annual report will include the number of permits issued, the total permitted acres of disturbed soil, and management practices which were used to achieve compliance with the 5 tons/ per acre per year soil loss tolerance. In addition, AHTD will continue to develop and make available standard details, specifications, and/or manuals identifying acceptable Best Management Practices that must be used on AHTD projects at construction sites which have more than one acre of disturbed soil, and the City of Little Rock will continue to develop and make available standard details, specifications, and/or manuals identifying acceptable Best Management Practices that must be used at construction sites in accordance with the requirements of Chapter 29 of the Little Rock Code of Ordinance.

3.13.1 ARDOT Construction Runoff Reduction

Requirement:

SWMP Reporting Requirement:

> The Department of Transportation will report annually any revisions to the Standard Specifications for Highway Construction that incorporate new BMPs for construction site runoff and erosion control.

Program Activities:

The ArDOT Standard Specifications were revised and took effect in April 2014. Wattles, Triangular Silt Dikes, and Filter Socks are included in the new Standard Specifications as approved BMPs and are being used on ArDOT construction jobs. Also, the hydraulically applied erosion control products (HECPs) are being used on ArDOT construction jobs and their effectiveness evaluated on those projects. A Special Provision for Removing and Replacing Topsoil will be incorporated on jobs as project location and size permits.

The Erosion and Sediment Control Design and Construction Manual was updated in December of 2016. ArDOT incorporates erosion control measures into all construction contracts and obtains all necessary permits for work within the Department rights-of-way. Contractors are required to obtain all necessary permits including ADEQ general storm water permits for any work beyond the rights-of-way such as; borrow pits, stockpile locations, and waste areas. The update includes the newly revised Construction General Permit (ARR150000), Short Term Activity Authorization (STAA) guidance, and updated Best Management Practices. In addition, a Special Provision requiring contractors of ArDOT jobs disturbing an acre or more soil to be certified by the Center for Training Transportation Professionals Training (CTTP) has been implemented for all jobs let after October 1, 2018.

SWMP Reporting Requirement:

> The Department of Transportation will report annually the course description and dates of construction site runoff training classes conducted for its personnel within the geographical area covered by the Permit.

Program Activities:

Beginning in February 2010, the Department instituted an erosion and sediment control training and certification course through the University of Arkansas Center for Training Transportation Professionals (CTTP) to train and certify construction and maintenance personnel. The CTTP training is also open to Department contractors. Additionally, annual NPDES Stormwater training was developed and provided by personnel from the Department's Environmental Division. In-person training for Maintenance and Construction personnel was conducted on February 13, 2019 and Make-up training will be on April 24, 2019. The PowerPoint slides used in the trainings will be posted on the Maintenance Local Area Network (LAN); and Construction training is provided on the Construction LAN. Training rosters are maintained for all employees who attended or completed annual maintenance or construction training.

SWMP Reporting Requirement:

The Department of Transportation will report annually the job numbers, job locations, and dates of site visits.

Program Activities:

Members of the Department's Environmental Division visited the following area jobs during the Permit year. Job 061102 was visited since there were few active jobs within the city of Little Rock; however the job is within the highly urbanized area.

ARDOT Construction Site Visits

Date	Location	Job Number
3/14/2018	Hwy. 67 Interchange (Cabot)	61102
6/24/2018	Hwy. 67 Interchange (Cabot)	61102
7/18/2018	Baptist Hospital-University Ave.	CA0608
11/28/2018	Baptist Hospital-University Ave.	CA0608
11/28/2018	I-430 Rodney Parham Rd. Intchng. Imprvts. (S)	BB0618

Table 9: Dates of inspections by location

3.13.2 Little Rock Construction Runoff Reduction

The City's program for reducing construction site runoff is a combination of monitoring and administrative controls which are written in the SWQMP and codified in Chapter 29 of the City of Little Rock Code of Ordinances. Construction and land alteration activities are subject to permitting by the City, and as a condition of these permits, construction activities must provide plans for erosion control, drainage and NPDES compliance where applicable. Significant land alteration activities are unlawful without a grading permit, except where allowed by Chapter 29 of City code.

In addition to submitting plans for City approval, construction activity is subject to inspection by City staff. Inspections are conducted periodically as well as prior to issuance of certificates of occupancy and any construction or land alteration activity which does not provide adequate erosion controls is subject to stop work orders and other penalties.

In 2018, the City of Little Rock Public Works permitted 117 construction projects, which disturbed a total area of 543 acres. The result of these land alteration activities is predicted to cumulatively reduce soil loss by 4900 tons/acre/year. A list of all permitted projects is provided in appendix H.

3.14 Changes to Roles and Responsibility

Requirement:

> An update on Roles and Responsibility if applicable.

ARDOT and the City of Little Rock report no changes to roles and responsibility.

3.15 Monitoring and Reporting

3.15.1 Representative Monitoring

Requirement:

> Representative Monitoring: Monitoring shall be conducted on representative outfalls, internal sampling stations, and/or in-stream monitoring locations to characterize the quality of stormwater discharges from the Municipal Separate Storm Sewer System.

The locations of sampled outfalls are given by the Permit and are believed to be representative of water quality within the MS4. Grab samples of storm water are collected only by qualified personnel and analyzed by ADEQ accredited labs. Quarterly reports are reviewed by City staff authorized in accordance with the Permit.

3.15.2 Storm Event Data

Requirement:

> Storm Event Data: Quantitative data shall be collected to estimate pollutant loadings and event mean concentrations for each parameter sampled. Records shall be maintained of all analytical results, the date and duration of the storm event sampled: rainfall measurements or estimates of the storm event which generated the sampled runoff; the duration between storm events sampled and the end of the previous measurable storm event; and an estimate of the total volume of the discharge sampled.

All discharge samples were collected during rain events which exceeded 0.1in of precipitation. The measured precipitation in the table below is an average of six ground weather stations within the limits of the City of Little Rock. The time between acquiring samples and the most recent rain event vary from one to six days. Approximately eight liters of water is required for the battery of laboratory tests performed. In total, approximately 160 liters of runoff was sampled during 2018. The City holds records of all reported samples.

Storm Event Data

Sample Location	Date	Event duration (hrs)	Rainfall (in)	Days Since Most Recent	Volume (gal)
1	4/25/2018	10	0.57	4	14400
2	4/25/2018	10	0.57	4	12342
3	4/25/2018	10	0.57	4	6163
5	4/25/2018	10	0.57	4	3744
6	4/25/2018	10	0.57	4	8640
1	6/8/2018	0.75	0.13	7	2880
2	6/8/2018	0.75	0.13	7	7200
3	6/8/2018	0.75	0.13	7	3600
5	7/18/2018	2	1.25	1	144
6	8/9/2018	4.5	1.4	4	6384
1	10/15/2018	2	1.64	2	5166720
2	10/15/2018	2	1.64	2	4636800
3	10/15/2018	2	1.64	2	4636800
5	10/15/2018	2	1.64	2	3137760
6	10/15/2018	2	1.64	2	1738080
1	2/7/2019	4	0.78	11	586080
2	2/7/2019	4	0.78	11	40320
3	2/7/2019	4	0.78	11	1520
5	2/7/2019	4	0.78	11	14400
6	2/7/2019	4	0.78	11	21600

Table 10: Precipitation summaries and discharge estimates for each sampled outfall

3.15.3 Sampling

Requirement:

> Grab Samples: Grab Samples shall be taken during the first two hours of discharge.

Representative Storm Events: Samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable storm event. Throughout 2018, the City has a contractual agreement with Environmental Services Company, Inc. for the collection, analysis and reporting of storm water samples. Samples are collected quarterly during rain events from five outfall locations as specified in NPDES permit ARS000002.

Outfall Sampling Locations

Identifier	Latitude	Longitude
Outfall 001:	34 44' 30“	92 20' 30“
Outfall 002:	34 43' 30“	92 21' 30“
Outfall 003:	34 45' 15“	92 26' 00“
Outfall 005:	34 44' 00“	92 14' 30“
Outfall 006:	34 42' 00“	92 15' 36“

Table 11: Coordinates for outfalls identified for quaterly water quality sampling

Reporting is provided electronically through the Environmental Protection Agency's NETDMR service. Electronic reports are certified by an authorized representative of the City.

3.15.4 Seasonal Loadings and Event Mean Concentrations

Requirement:

> Seasonal Loadings and Event Mean Concentrations: Data shall be maintained to provide estimates for each major outfall of seasonal pollutant loadings and event mean concentrations for a representative storm event for the parameters which the co-permittees must monitor. This information may be estimated from the monitoring results and shall take into consideration land uses and drainage areas for the outfall.

A seasonal trend analysis is given in appendix F.

3.16 Changes to Legal Authority

Requirement:

> An update on Legal Authority if applicable.

ARDOT and the City of Little Rock report no changes to legal authority.

3.17 Changes to SWQMP Resources

Requirement:

> An update on SWQMP Resources if applicable.

ARDOT and the City of Little Rock report no changes to SWQMP resources.

3.18 Changes to SWQMP Review

Requirement:

> Program Modification: The approved SWQMP shall not be modified by the co-permittees without the prior approval of the Director, unless in accordance with the items below: - Portions of the SWQMP not specifically required by 6.2 may be modified upon written notification to the permitting authority. - Modifications adding (but not subtracting or replacing) components, controls, or requirements to the approved SWQMP may be made by the co-permittees at any time upon written notification to the permitting authority. - Modifications made under this paragraph shall not become enforceable permit conditions until such time as the modifications are formally approved. - Modification requests and notifications shall be signed and shall include a certification that the co-permittees were given an opportunity to comment on proposed changes.

The co-permittees must review and revise the City of Little Rock and Arkansas State Highway and Transportation Department SWQMP to ensure compliance with the requirement to reduce the discharge of pollutants to the Maximum Extent Practicable (MEP) as contained in Section 402(p)(3)(B)(iii) of the Clean Water Act. Specifically, the co-permittees must review and revise the SWQMP sections regarding construction site runoff and public education. The co-permittees shall conduct a review of the current SWQMP and shall revise the SWQMP to include additional BMPs regarding public education and construction site runoff particularly, these revisions will include notification of ADEQ's NPDES permitting program to construction sites, institute an employee education program, increase public education, increase the frequency of construction site inspections, and notify ADEQ Enforcement Section of construction sites that do not have erosion controls installed. The co-permittees shall submit to ADEQ their suggested revisions to the SWQMP within eleven (11) months following the effective date of the permit. ARDOT and the City of Little Rock do not propose any changes to the SWQMP at this time.

4.0 Conclusions

ARDOT has expended a significant amount of money and personnel resources on such things as personnel training, litter collection, maintenance and repair of the drainage system, and other activities detailed in Section 2.1. While there is no way to measure the impact of these measures on the quality of surface water within the MS4 area, the Department believes the controls implemented are effective. The City of Little Rock values the quality of water within its territorial boundaries for the welfare of its residents and the local environment. Through the application of administrative and engineering controls, the resources and

manpower spent on maintenance and upkeep of the MS4, and the training of personnel and promotion of public awareness, the City has managed to protect the quality of its waters. Continued application of existing policies and ordinances is expected to maintain the water quality within Little Rock.

5.0 Certifications

I certify that the above Annual Report is true and correct to the best of my knowledge.

Samuel Kreimeyer

Civil Engineer I Cognizant Official City of Little Rock Public Works

Mark Headley, P.E.

District 6 Engineer Arkansas Dept. of Transportation

Appendix A

City of Little Rock and ARDOT District VI NPDES Permit

Permit number: ARS000002

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM AND THE ARKANSAS WATER AND AIR POLLUTION CONTROL ACT

In accordance with the provisions of the Arkansas Water and Air Pollution Control Act (Act 472 of 1949, as amended, Ark. Code Ann. 8-4-101 et seq.), and the Clean Water Act (33 U.S.C. 1251 et seq.),

City of Little Rock
701 West Markham
Little Rock, AR 72201

Arkansas State Highway &
Transportation Department
P.O. Box 2261
Little Rock, AR 72203-2261

are authorized to discharge

From all portions of the municipal separate storm sewer system (MS4) within the city boundaries of Little Rock, Arkansas, and owned or operated by any co-permittee listed above.

to receiving waters named:

various tributaries, then to the Arkansas River in segment 3C of the Arkansas River Basin.

The representative outfalls for sampling purposes are located at the following coordinates:

Outfall 001: Latitude: 34° 44' 30"; Longitude: 92° 20' 30"
Outfall 002: Latitude: 34° 43' 30"; Longitude: 92° 21' 30"
Outfall 003: Latitude: 34° 45' 15"; Longitude: 92° 26' 00"
Outfall 005: Latitude: 34° 44' 00"; Longitude: 92° 14' 30"
Outfall 006: Latitude: 34° 42' 00"; Longitude: 92° 15' 36"

in accordance with monitoring requirements and other conditions set forth in this permit.

Effective Date: April 1, 2012

Modification Effective Date: March 1, 2013

Expiration Date: March 31, 2017

Steven L. Drown

Steven L. Drown
Chief, Water Division
Arkansas Department of Environmental Quality

18 FEB 13
Issue Date

PART 1
PERMIT REQUIREMENTS

SECTION A: PARAMETERS AND MONITORING REQUIREMENTS: OUTFALL 001- stormwater runoff

During the period beginning on the effective date and lasting through date of expiration, the co-permittees shall monitor discharges from outfall serial number 001. Such discharges shall be monitored by the co-permittees as specified below:

Parameters	Limitations		Monitoring Requirement	
	Average	Maximum	Sample Type	Monitoring Frequency
Flow (MGD)	REPORT	REPORT	Calculated[2]	Quarterly[1]
Biochemical Oxygen Demand (mg/l)	REPORT	REPORT	Grab	Quarterly[1]
Total Suspended Solids (mg/l)	REPORT	REPORT	Grab	Quarterly[1]
Total Dissolved Solids (mg/l)	REPORT	REPORT	Grab	Quarterly[1]
Nitrate+Nitrite Nitrogen (mg/l)	REPORT	REPORT	Grab	Quarterly[1]
Dissolved Phosphorus (mg/l)	REPORT	REPORT	Grab	Quarterly[1]
Oil & Grease (mg/l)	REPORT	REPORT	Grab	Quarterly[1]
Total Cadmium (ug/l)	REPORT	REPORT	Grab	Quarterly[1]
Total Copper (ug/l)	REPORT	REPORT	Grab	Quarterly[1]
Total Lead (ug/l)	REPORT	REPORT	Grab	Quarterly[1]
Total Zinc (ug/l)	REPORT	REPORT	Grab	Quarterly[1]
Total Silver (ug/l)	REPORT	REPORT	Grab	Quarterly[1]
Hardness (mg/l)	REPORT	REPORT	Grab	Quarterly[1]
E. Coli Bacteria (colonies/100 ml)	REPORT	REPORT	Grab	Quarterly[1]
Enterococcus Fecal (colonies/100 ml)	REPORT	REPORT	Grab	Quarterly[1]
pH (s.u.)	6.0 Minimum	9.0 Maximum	Grab	Quarterly[1]

1 Quarterly Monitoring periods are June 1-August 31, September 1-November 30, December 1-February 28, and March 1-May 31.
2 Calculate Flow: the flow is calculated using the cross sectional area multiplied by the velocity of the water.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): at outfall 001 (monitoring location at University Ave. and I-630).

PART I
PERMIT REQUIREMENTS

SECTION A: PARAMETERS AND MONITORING REQUIREMENTS: OUTFALL 002- stormwater runoff

During the period beginning on the effective date and lasting through date of expiration, the co-permittees shall monitor discharges from outfall serial number 002. Such discharges shall be monitored by the co-permittees as specified below:

Parameters	Limitations		Monitoring Requirement	
	Average	Maximum	Sample Type	Monitoring Frequency
Flow (MGD)	REPORT	REPORT	Calculated[2]	Quarterly[1]
Biochemical Oxygen Demand (mg/l)	REPORT	REPORT	Grab	Quarterly[1]
Total Suspended Solids (mg/l)	REPORT	REPORT	Grab	Quarterly[1]
Total Dissolved Solids (mg/l)	REPORT	REPORT	Grab	Quarterly[1]
Nitrate+Nitrite Nitrogen (mg/l)	REPORT	REPORT	Grab	Quarterly[1]
Dissolved Phosphorus (mg/l)	REPORT	REPORT	Grab	Quarterly[1]
Oil & Grease (mg/l)	REPORT	REPORT	Grab	Quarterly[1]
Total Cadmium (ug/l)	REPORT	REPORT	Grab	Quarterly[1]
Total Copper (ug/l)	REPORT	REPORT	Grab	Quarterly[1]
Total Lead (ug/l)	REPORT	REPORT	Grab	Quarterly[1]
Total Zinc (ug/l)	REPORT	REPORT	Grab	Quarterly[1]
Total Silver (ug/l)	REPORT	REPORT	Grab	Quarterly[1]
Hardness (mg/l)	REPORT	REPORT	Grab	Quarterly[1]
E. Coli Bacteria (colonies/100 ml)	REPORT	REPORT	Grab	Quarterly[1]
Enterococcus Fecal (colonies/100 ml)	REPORT	REPORT	Grab	Quarterly[1]
pH (s.u.)	6.0 Minimum	9.0 Maximum	Grab	Quarterly[1]

1 Quarterly Monitoring periods are June 1-August 31, September 1-November 30, December 1-February 28, and March 1-May 31.
2 Calculate Flow: the flow is calculated using the cross sectional area multiplied by the velocity of the water.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): at outfall 002 (monitoring location at 33rd Street and Whitfield Street).

PART I
PERMIT REQUIREMENTS

SECTION A: PARAMETERS AND MONITORING REQUIREMENTS: OUTFALL 003- stormwater runoff

During the period beginning on the effective date and lasting through date of expiration, the co-permittees shall monitor discharges from outfall serial number 003. Such discharges shall be monitored by the co-permittees as specified below:

Parameters	Limitations		Monitoring Requirement	
	Average	Maximum	Sample Type	Monitoring Frequency
Flow (MGD)	REPORT	REPORT	Calculated[2]	Quarterly[1]
Biochemical Oxygen Demand (mg/l)	REPORT	REPORT	Grab	Quarterly[1]
Total Suspended Solids (mg/l)	REPORT	REPORT	Grab	Quarterly[1]
Total Dissolved Solids (mg/l)	REPORT	REPORT	Grab	Quarterly[1]
Nitrate+Nitrite Nitrogen (mg/l)	REPORT	REPORT	Grab	Quarterly[1]
Dissolved Phosphorus (mg/l)	REPORT	REPORT	Grab	Quarterly[1]
Oil & Grease (mg/l)	REPORT	REPORT	Grab	Quarterly[1]
Total Cadmium (ug/l)	REPORT	REPORT	Grab	Quarterly[1]
Total Copper (ug/l)	REPORT	REPORT	Grab	Quarterly[1]
Total Lead (ug/l)	REPORT	REPORT	Grab	Quarterly[1]
Total Zinc (ug/l)	REPORT	REPORT	Grab	Quarterly[1]
Total Silver (ug/l)	REPORT	REPORT	Grab	Quarterly[1]
Hardness (mg/l)	REPORT	REPORT	Grab	Quarterly[1]
E. Coli Bacteria (colonies/100 ml)	REPORT	REPORT	Grab	Quarterly[1]
Enterococcus Fecal (colonies/100 ml)	REPORT	REPORT	Grab	Quarterly[1]
pH (s.u.)	6.0 Minimum	9.0 Maximum	Grab	Quarterly[1]

1 Quarterly Monitoring periods are June 1-August 31, September 1-November 30, December 1-February 28, and March 1-May 31.
2 Calculate Flow: the flow is calculated using the cross sectional area multiplied by the velocity of the water.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): at the outfall 003 (monitoring location at Chenal Parkway and Oak Meadow Street).

PART I
PERMIT REQUIREMENTS

SECTION A: PARAMETERS AND MONITORING REQUIREMENTS: OUTFALL 005- stormwater runoff

During the period beginning on the effective date and lasting through date of expiration, the co-permittees shall monitor discharges from outfall serial number 005. Such discharges shall be limited and monitored by the co-permittees as specified below:

Parameters	Limitations		Monitoring Requirement	
	Average	Maximum	Sample Type	Monitoring Frequency
Flow (MGD)	REPORT	REPORT	Calculated[2]	Quarterly[1]
Biochemical Oxygen Demand (mg/l)	REPORT	REPORT	Grab	Quarterly[1]
Total Suspended Solids (mg/l)	REPORT	REPORT	Grab	Quarterly[1]
Total Dissolved Solids (mg/l)	REPORT	REPORT	Grab	Quarterly[1]
Nitrate+Nitrite Nitrogen (mg/l)	REPORT	REPORT	Grab	Quarterly[1]
Dissolved Phosphorus (mg/l)	REPORT	REPORT	Grab	Quarterly[1]
Oil & Grease (mg/l)	REPORT	REPORT	Grab	Quarterly[1]
Total Cadmium (ug/l)	REPORT	REPORT	Grab	Quarterly[1]
Total Copper (ug/l)	REPORT	REPORT	Grab	Quarterly[1]
Total Lead (ug/l)	REPORT	REPORT	Grab	Quarterly[1]
Total Zinc (ug/l)	REPORT	REPORT	Grab	Quarterly[1]
Total Silver (ug/l)	REPORT	REPORT	Grab	Quarterly[1]
Hardness (mg/l)	REPORT	REPORT	Grab	Quarterly[1]
E. Coli Bacteria (colonies/100 ml)	REPORT	REPORT	Grab	Quarterly[1]
Enterococcus Fecal (colonies/100 ml)	REPORT	REPORT	Grab	Quarterly[1]
pH (s.u.)	6.0 Minimum	9.0 Maximum	Grab	Quarterly[1]

1 Quarterly Monitoring periods are June 1-August 31, September 1-November 30, December 1-February 28, and March 1-May 31.
2 Calculate Flow: the flow is calculated using the cross sectional area multiplied by the velocity of the water.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): at the outfall 005 (monitoring location at 14th Street and Bond Street).

PART I
PERMIT REQUIREMENTS

SECTION A: PARAMETERS AND MONITORING REQUIREMENTS: OUTFALL 006- stormwater runoff

During the period beginning on the effective date and lasting through date of expiration, the co-permittees shall monitor discharges from outfall serial number 006. Such discharges shall be limited and monitored by the co-permittees as specified below:

Parameters	Limitations		Monitoring Requirement	
	Average	Maximum	Sample Type	Monitoring Frequency
Flow (MGD)	REPORT	REPORT	Calculated[2]	Quarterly[1]
Biochemical Oxygen Demand (mg/l)	REPORT	REPORT	Grab	Quarterly[1]
Total Suspended Solids (mg/l)	REPORT	REPORT	Grab	Quarterly[1]
Total Dissolved Solids (mg/l)	REPORT	REPORT	Grab	Quarterly[1]
Nitrate+Nitrite Nitrogen (mg/l)	REPORT	REPORT	Grab	Quarterly[1]
Dissolved Phosphorus (mg/l)	REPORT	REPORT	Grab	Quarterly[1]
Oil & Grease (mg/l)	REPORT	REPORT	Grab	Quarterly[1]
Total Cadmium (ug/l)	REPORT	REPORT	Grab	Quarterly[1]
Total Copper (ug/l)	REPORT	REPORT	Grab	Quarterly[1]
Total Lead (ug/l)	REPORT	REPORT	Grab	Quarterly[1]
Total Zinc (ug/l)	REPORT	REPORT	Grab	Quarterly[1]
Total Silver (ug/l)	REPORT	REPORT	Grab	Quarterly[1]
Hardness (mg/l)	REPORT	REPORT	Grab	Quarterly[1]
E. Coli Bacteria (colonies/100 ml)	REPORT	REPORT	Grab	Quarterly[1]
Enterococcus Fecal (colonies/100 ml)	REPORT	REPORT	Grab	Quarterly[1]
pH (s.u.)	6.0 Minimum	9.0 Maximum	Grab	Quarterly[1]

1 Quarterly Monitoring periods are June 1-August 31, September 1-November 30, December 1-February 28, and March 1-May 31.
2 Calculate Flow: the flow is calculated using the cross sectional area multiplied by the velocity of the water.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): at the outfall 006 (monitoring location at Gillam Park Road).

Part 2
Schedule of Compliance

The co-permittees shall achieve compliance with permit conditions specified for discharges in accordance with the following schedule:

2.1 The co-permittees shall submit an updated Stormwater Quality Management Program (SWQMP) no later than six (6) months from, the effective date of this permit.

2.2 The co-permittees shall submit an annual report as discussed in Part 6.9.

Part 3
General Conditions

3.1 Duty to Comply

The co-permittees must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the federal Clean Water Act and the Arkansas Water and Air Pollution Control Act and is grounds for enforcement action; for permit termination, revocation and re-issuance, or modification; or for denial of a permit renewal application. **Any values reported in the required Discharge Monitoring Report which are in excess of an effluent limitation specified in Part 1 shall constitute evidence of violation of such effluent limitation and of this permit.**

3.2 Penalties for Violations of Permit Conditions

The Arkansas Water and Air Pollution Control Act provides that any person who violates any provisions of a permit issued under the Act shall be guilty of a misdemeanor and upon conviction thereof shall be subject to imprisonment for not more than one (1) year, or a fine of not more than twenty-five thousand dollars ($25,000) or by both such fine and imprisonment for each day of such violation. Any person who violates any provision of a permit issued under the Act may also be subject to civil penalty in such amount as the court shall find appropriate, not to exceed ten thousand dollars ($10,000) for each day of such violation. The fact that any such violation may constitute a misdemeanor shall not be a bar to the maintenance of such civil action.

3.3 Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause including, but not limited to the following:

3.3.1 Violation of any terms or conditions of this permit; or
3.3.2 Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts; or
3.3.3 A change in any conditions that requires either a temporary or permanent reduction or elimination of the authorized discharge; or
3.3.4 A determination that the permitted activity endangers human health or the environment and can only be regulated to acceptable levels by permit modification or termination.
3.3.5 Failure of the co-permittees to comply with the provisions of APCEC Regulation No. 9 (Permit fees) as required by condition 3.10 herein.

The filing of a request by the co-permittees for a permit modification, revocation and re-issuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

3.4 Toxic Pollutants

Notwithstanding Part 3.3., if any toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under Regulation No. 2, as amended, (regulation establishing water quality standards for surface waters of the State of Arkansas) or Section 307(a) of the Clean Water Act for a toxic pollutant which is present in the discharge and that

standard or prohibition is more stringent than any limitations on the pollutant in this permit, this permit shall be modified or revoked and reissued to conform to the toxic effluent standards or prohibition and the co-permittees so notified.

The co-permittees shall comply with effluent standards, narrative criteria, or prohibitions established under Regulation No. 2 (Arkansas Water Quality Standards), as amended, or Section 307 (a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

3.5 Civil and Criminal Liability

Nothing in this permit shall be construed to relieve the co-permittees from civil or criminal penalties for noncompliance. Any false or materially misleading representation or concealment of information required to be reported by the provisions of this permit or applicable state and federal statues or regulations which defeats the regulatory purposes of the permit may subject the co-permittees to criminal enforcement pursuant to the Arkansas Water and Air Pollution Control Act (Act 472 of 1949, as amended).

3.6 Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the co-permittees from any responsibilities, liabilities, or penalties to which the co-permittees are or may be subject under Section 311 of the Clean Water Act.

3.7 State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the co-permittees from any responsibilities, liabilities or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the Clean Water Act.

3.8 Property Rights

The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

3.9 Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provisions of this permit to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

3.10 Permit Fees

The co-permittees shall comply with all applicable permit fee requirements for stormwater discharge permits as described in APCEC Regulation No. 9 (Regulation for the Fee System for Environmental Permits). Failure to promptly remit all required fees shall be grounds for the Director to initiate action to terminate this permit under the provisions of 40 CFR 122.64 and 124.5 (d), as adopted in APCEC Regulation No. 6 and the provisions of APCEC Regulation No. 8.

3.11 Removed Substances

Solids or other pollutants removed by stormwater controls shall be disposed of in a manner such as to prevent any pollutant from such materials from entering the waters of the state. Disposal must be in accordance with the stormwater quality management program.

3.12 Applicable Federal, State & Local Requirements

Permittees are responsible for compliance with all applicable terms and conditions of this permit. Receipt of this permit does not relieve any operator of the responsibility to comply with any other applicable federal such as endangered species, state or local statute, ordinance or regulation.

3.13 Reopen Permit

Pursuant to 40 C.F.R. §§ 122.62, 122.64, and 124.5, this permit may be reopened for modification or revocation and/or reissuance.

Part 4
Monitoring and Records

4.1 Representative Sampling

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge during the entire monitoring period. All samples shall be taken at the monitoring points specified in this permit and, unless otherwise specified, before the effluent joins or is diluted by any other waste stream, body of water, or substance. Monitoring points shall not be changed without notification to and the approval of the Director. Intermittent discharges shall be monitored.

4.2 Calculated Flow Measurement

Appropriate flow measurement devices and/or methods consistent with accepted scientific practices shall be selected and used to insure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be calibrated and maintained to insure the accuracy of the measurements are consistent with the accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of less than +/- 10% from true discharge rates throughout the range of expected discharge volumes and shall be installed at the monitoring point of the discharge. The devices and/or methods used to measure the flow must be included in detail in the permittee's Management Plan.

4.3 Monitoring Procedures

Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit. The co-permittees shall calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at intervals frequent enough to insure accuracy of measurements and shall insure that both calibration and maintenance activities will be conducted. An adequate analytical quality control program, including the analysis of sufficient standards, spikes, and duplicate samples to insure the accuracy of all required analytical results shall be maintained by the co-permittees or designated commercial laboratory. At a minimum, spikes and duplicate samples are to be analyzed on 10% of the samples.

4.4 Penalties for Tampering

The Arkansas Water and Air Pollution Control Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under the Act shall be guilty of a misdemeanor and upon conviction thereof shall be subject to imprisonment for not more than one (1) year or a fine of not more than ten thousand dollars ($10,000) or by both such fine and imprisonment.

4.5 Reporting of Monitoring Results

Monitoring results must be reported on a Discharge Monitoring Report (DMR) form. Co-permittees are required to use preprinted DMR forms provided by ADEQ, unless specific written authorization to use other reporting forms is obtained from ADEQ. Monitoring results obtained during the previous calendar month shall be summarized and reported on a DMR form postmarked no later than the 25th day of the month, following the completed reporting period to begin on the effective date of the permit. Duplicate copies of DMR's signed and certified as required by Part 5.8 and all other reports required by Part 5 (Reporting Requirements), shall be submitted to the Director at the following address:

Enforcement Branch
Water Division
Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, AR 72118-5317

If co-permittees use outside laboratory facilities for sampling and/or analysis, the name and address of the contract laboratory shall be included on the DMR.

4.6 Additional Monitoring by the Co-permittees

If the co-permittees monitor any pollutant more frequently than required by this permit, using test procedures approved under 40 CFR 136 or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR. Such increased frequency shall also be indicated on the DMR.

4.7 Retention of Records

The co-permittees shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit for a period of at least 3 years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time.

4.8 Record Contents

Records and monitoring information shall include:

4.8.1 The date, exact place, time and methods of sampling or measurements, and preservatives used, if any;
4.8.2 The individuals(s) who performed the sampling or measurements;
4.8.3 The date(s) analyses were formed;
4.8.4 The individual(s) who performed the analyses;

4.8.5 The analytical techniques or methods used; and
4.8.6 The measurements and results of such analyses.

4.9 **Inspection and Entry**

The co-permittees shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

4.9.1. Enter upon the co-permittees' premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
4.9.2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
4.9.3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit, and
4.9.4. Sample, inspect or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location.

Part 5
Reporting Requirements

5.1 Anticipated Noncompliance

The co-permittees shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

5.2 Transfers

The permit is nontransferable to any person except after notice to the Director. The Director may require modification or revocation and re-issuance of the permit to change the name of the co-permittees and incorporate such other requirements as may be necessary under the Act.

5.3 Monitoring Reports

Monitoring results shall be reported at the intervals and in the form specified in Part 4.5 (Reporting). **Discharge Monitoring Reports must be submitted even when no discharge occurs during the reporting period.**

5.4 Twenty-four Hour Report

5.4.1 The co-permittees shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the co-permittees becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the co-permittees becomes aware of the circumstances. The written submission shall contain the following information:

5.4.1.1 a description of the noncompliance and its cause;
5.4.1.2 the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and
5.4.1.3 steps taken or planned to reduce, eliminate and prevent reoccurrence of the noncompliance.

5.4.2 The following shall be included as information which must be reported within 24 hours: Violation of a maximum daily discharge limitation for any of the pollutants listed by the Director in Part I of the permit to be reported within 24 hours.

5.4.3 The Director may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

5.5 Other Noncompliance

The co-permittees shall report all instances of noncompliance not reported under Part 5.3 and 5.4 at the time monitoring reports are submitted. The reports shall contain the information listed at Part 5.4.

5.6 Duty to Provide Information

The co-permittees shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The co-permittees shall also furnish to the Director, upon request, copies of records required to be kept by this permit. Information shall be submitted in the form, manner and time frame requested by the Director.

5.7 Duty to reapply

If the co-permittees wish to continue an activity regulated by this permit after the expiration date of this permit, the co-permittees must apply for and obtain a new permit. The complete application shall be submitted at least 180 days before the expiration date of this permit. The Director may grant permission to submit an application less than 180 days in advance but no later than the permit expiration date. Continuation of expiring permits shall be governed by regulations promulgated in APCEC Regulation No. 6.

5.8 Signatory Requirements

All applications, reports or information submitted to the Director shall be signed and certified.

5.8.1 All permit applications shall be signed as follows:
For a municipality, State, Federal, or other public agency; by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:

5.8.1.1 The chief executive officer of the agency, or
5.8.1.2 A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.

5.8.2 All reports required by the permit and other information requested by the Director shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

5.8.2.1 The authorization is made in writing by a person described above.
5.8.2.2 The authorization specified either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and
5.8.2.3 The written authorization is submitted to the Director.

5.8.3 Certification. Any person signing a document under this section shall make the following certification:

"I certify under penalty of law 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 gather and evaluate 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. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

5.9 Availability of Reports

Except for data determined to be confidential under 40 CFR Part 2 and Regulation 6, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department of Environmental Quality. As required by the Regulations, the name and address of any permit applicant or co-permittee, permit applications, permits and effluent data shall not be considered confidential.

5.10 Penalties for Falsification of Reports

The Arkansas Air and Water Pollution Control Act provides that any person who knowingly makes any false statement, representation, or certification in any application, record, report, plan or other document filed or required to be maintained under this permit shall be subject to civil penalties specified in Part 3.2 and/or criminal penalties under the authority of the Arkansas Water and Air Pollution Control Act (Act 472 of 1949, as amended).

Part 6
Other Conditions

6.1 Pollution Prevention Requirements - The co-permittees shall develop, implement, and maintain a Stormwater Quality Management Program (SWQMP) and incorporate the following pollution prevention measures (PPMs):

6.1.1 The co-permittees shall ensure the establishment or availability of a program to collect used motor vehicle fluids for recycle or proper disposal. The program will identify locations where used vehicle fluids may be taken for recycling or disposal in accordance with state requirements. The City of Little Rock will publicize materials which can be recycled or disposed, times available to the public for using the facilities, and locations. The annual report shall include the amount of materials collected (weight or volume), the amount of money used for advertising, the method of advertising used to inform the public, and the overall cost of the program.

6.1.2 The City of Little Rock shall ensure the establishment or availability of a program to collect household hazardous waste materials for recycle, reuse, or proper disposal. The amount of materials collected (weight or volume), the amount of money used for advertising, the method of advertising used to inform the public, and the overall cost of the program will be included in the annual report.

6.1.3 Each co-permittee shall ensure the establishment of a program, including structural controls where determined by the co-permittees to be necessary, to reduce the discharge of floatables to the maximum extent practicable (MEP). The City of Little Rock will publicize on public television or local cable government access channel an announcement describing the need to improve stormwater runoff quality, how citizens can reduce the floatables and other pollutants discharged to the municipal storm sewer.

6.2 SWQMP System-Wide Requirements. The co-permittees shall operate a SWQMP in accordance with Section 402 (p)(3)(B) of the Clean Water Act, the Stormwater Regulations (40 CFR Part 122.26) and the approved SWQMPs submitted by the co-permittees. Controls and activities identified in the SWQMPs shall clearly identify areas of applicability on a system, jurisdiction, or specific area basis. The SWQMP shall include controls necessary to reduce the discharge of pollutants from the MS4 to the Maximum Extent Practicable (MEP) and protect water quality. Controls may consist of a combination of best management practices, control techniques, system design and engineering methods, and such other provisions as the co-permittees or the State determines appropriate. The SWQMP shall be updated as necessary to ensure conformance with this statutory requirement of Clean Water Act 402 (p)(3)(B). The SWQMP, and all approved updates, are hereby incorporated by reference and shall be implemented in a manner consistent with the following requirements:

6.2.1 Structural Controls: Each co-permittee shall operate and maintain any stormwater structural controls over which it has jurisdiction, in a manner so as to reduce the discharge of pollutants to the MEP. The co-permittees shall inspect the drainage system by the following schedule:

6.2.1.1 Arkansas State Highway and Transportation Department will inspect the drainage system for which it is responsible at least once/month. The inspections should include a schedule of maintenance for correcting deficiencies in the system.

6.2.1.2 The City of Little Rock will inspect 20 percent of the drainage system each year. The drainage system consists of curb and guttering, piping, and open ditches in the City of Little Rock right-of-way and public easements. Areas with recurring drainage problems shall be inspected more frequently. The City of Little Rock will also maintain and clean the ponds along Coleman Creek and within War Memorial Park. These ponds should be inspected twice per year.

6.2.2 Areas of New Development: Each co-permittee shall utilize a comprehensive master planning process to develop, implement, and enforce controls which will reduce, to the MEP, the discharge of pollutants from areas of new development and significant redevelopment after construction is completed. The City of Little Rock will require permanent controls, as required by the Little Rock Code of Ordinances, to be implemented at newly developed areas to control the increased volume of water that will be discharged.

The City of Little Rock shall notify construction sites disturbing (clearing, grading, or other construction activities) 1 or more acres within their MS4 boundary of the requirement to contact the Arkansas Department of Environmental Quality (ADEQ), Water Division, about the stormwater regulations and as how to obtain coverage under NPDES Construction Stormwater General Permit (ARR150000) and to develop a Stormwater Pollution Prevention Plan (SWPPP) and to install and maintain erosion and sediment control for the site prior to the start of construction. The City of Little Rock shall also notify sites that are over 5 acres or more within their MS4 boundary of the requirements that they must submit a Notice of Intent (NOI), permit fee and SWPPP to the Arkansas Department of Environmental Quality to obtain coverage under NPDES Construction Stormwater General Permit prior to the start of construction

6.2.3 Roadways: Each co-permittee shall operate and maintain public streets, roads, and highways for which they are responsible in a manner so as to reduce, to the Maximum Extent Practicable (MEP), the discharge of pollutants. The Arkansas State Highway and Transportation Department will sweep all State Highway routes within the City of Little Rock on which curbs and barrier walls are provided once per month. The City of Little Rock will sweep the Central Business District three times a week, one hundred fifty (150) miles of arterial street on which curbs and barrier walls are provided once per week, and the balance of the arterial streets on a monthly basis. Each co-permittee will keep records which will include the number of sweeper units used, amount of debris collected (weight or volume), and problem areas which contribute the highest volume of debris. The annual report shall contain the above information.

6.2.4 Flood Control Projects: Each co-permittee shall ensure any flood control project it undertakes assesses, and minimizes to the MEP, the impacts on water quality of receiving waters. All flood control projects will be reviewed by the City of Little Rock. The annual report shall contain a summary of any flood control projects that were reviewed during the reporting period.

6.2.5 Pesticide, Herbicide, and Fertilizer Application: The co-permittees shall implement BMPs to reduce to the maximum extent practicable pollutants in discharges from the co-permittees'

respective municipal separate storm sewers associated with the application, storage and disposal of pesticides, herbicides and fertilizer. Such BMPs shall include, at a minimum: (1) educational activities, permits, certifications and other measures for municipal applicators and distributors; (2) integrated pest management measures that rely on non-chemical solutions; (3) the use of native vegetation; (4) schedules for irrigation and chemical application; and (5) the collection and proper disposal of unused pesticides, herbicides, and fertilizers. All commercial applicators of pesticides, herbicides, and fertilizers under contract with each co-permittee within the City of Little Rock must be licensed by the Arkansas State Plant Board. The proper utilization of pesticides, herbicides and fertilizers is addressed in the City of Little Rock Vegetative Management Plan. The annual report shall contain a summary of any activities associated with pesticide, herbicide and fertilizer application.

6.2.6 Illicit Discharges and Improper Disposal: The City of Little Rock shall implement an ongoing program to detect and remove illicit discharges and improper disposal into the storm sewer. The City of Little Rock will continue to monitor for dry weather flows. The type of monitoring and findings shall be included in the annual report submitted to the Department.

6.2.6.1 The following categories of non-stormwater discharges are not prohibited unless the City of Little Rock or the Department identifies the discharge category as a significant source of pollutants to Waters of the State. For such a discharge category, the City of Little Rock shall either prohibit the discharge category or develop and implement appropriate control measures to reduce the discharge of pollutants to the Maximum Extent Practicable (MEP) and report to the Department.

a. water line flushing;
b. landscape irrigation;
c. diverted stream flows;
d. rising ground waters;
e. uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20)) to separate storm sewers;
f. uncontaminated pumped ground water;
g. discharges from potable water sources;
h. foundation drains;
i. air conditioning condensate;
j. irrigation water;
k. springs;
l. water from crawl space pumps;
m. footing drains;
n. lawn watering;
o. individual residential car washing;
p. flows from riparian habitats and wetlands;
q. dechlorinated swimming pool discharges; and
r. street wash waters.

Emergency fire-fighting flows (i.e., flows necessary for the protection of life or property) do not require BMPs. Each co-permittee shall address discharges or flows from fire-fighting only where such discharges or flows are identified as significant sources of

pollutants to waters of the United States.

6.2.6.2 The co-permittees shall effectively prohibit illicit discharges not otherwise allowed pursuant to **Section 6.2.6.1** (non-stormwater).

a. The City of Little Rock shall require the operator of the sanitary sewer system to eliminate unpermitted discharges of dry and wet weather overflows from sanitary sewers into the MS4.
b. The City of Little Rock shall require the operator of the sanitary sewer system to limit the infiltration from sanitary sewers into the MS4.
c. The City of Little Rock shall prohibit the discharge of all used motor vehicle fluids and household hazardous waste into separate storm sewers.

6.2.6.3 The annual report shall include a list of illicit discharges that were found during the reporting period. This list shall include the following information at a minimum:

a. the number of discharges;
b. the nature of the discharge; and
c. the outcome

6.2.7 Spill Prevention and Response: Each co-permittee shall implement a program to prevent, contain, and respond to spills that may discharge into the MS4. The co-permittees will have supervisory personnel trained for methods of containing spills. The Arkansas Department of Environmental Quality is to be notified immediately after a spill occurs. The criteria for containing and controlling a spill shall be addressed in the Stormwater Quality Management Program. The annual report shall include a summary of any spills and their appropriate responses that occurred within the reporting period.

6.2.8 Construction Site Runoff: Each co-permittee shall implement a program to reduce, to the MEP, the discharge of pollutants from construction sites, including:

6.2.8.1 Requirements for the use and maintenance of appropriate structural and nonstructural best management practices to reduce pollutant discharges to the MS4 during the time construction is underway;

6.2.8.2 procedures for site planning which incorporate considerations for potential short and long term water quality impacts and minimizes, to the MEP, these impacts;

6.2.8.3 inspection of construction sites and enforcement of control measures. The City of Little Rock will develop an inspection program which will include the inspection of at least two construction sites every two weeks. If the construction site is out of compliance with the conditions of the grading permit, a report describing the violation(s) and deadlines to correct the violation(s) shall be provided to the construction site permittee;

6.2.8.4 notification to building permit applicants of the NPDES permitting program for construction site runoff;

6.2.8.5 All new development meeting the threshold requirements of Chapter 29 of the Little Rock Code of Ordinances will obtain a grading permit from the City of Little Rock. Grading

permit applicants shall demonstrate that best management practices and controls will be implemented at proposed development sites to limit potential soil loss to no more than 5 tons per acre per year.

6.2.8.6 The annual report will include the number of permits issued, the total permitted acres of disturbed soil, and management practices which were used to achieve compliance with the 5 tons/ per acre per year soil loss tolerance. In addition, AHTD will continue to develop and make available standard details, specifications, and/or manuals identifying acceptable Best Management Practices that must be used on AHTD projects at construction sites which have more than one acre of disturbed soil, and the City of Little Rock will continue to develop and make available standard details, specifications, and/or manuals identifying acceptable Best Management Practices that must be used at construction sites in accordance with the requirements of Chapter 29 of the Little Rock Code of Ordinance.

6.3 Roles and Responsibilities. The SWQMP shall clearly identify the following roles and responsibilities of each co-permittee:

6.3.1 Operational jurisdiction over portions of the MS4;
6.3.2 Legal jurisdiction over areas contributing stormwater flows to the MS4;
6.3.3 Each co-permittee's responsibilities for ensuring implementation of SWQMP components.

6.4 Monitoring and Reporting Requirements

6.4.1 Representative Monitoring: Monitoring shall be conducted on representative outfalls, internal sampling stations, and/or in-stream monitoring locations to characterize the quality of stormwater discharges from the Municipal Separate Storm Sewer System.

6.4.1.1 Monitoring Requirements and Locations are described on Part 1 of the permit.

6.4.1.2 Alternate representative monitoring locations may be substituted for just cause during the term of the permit. Requests for approval of alternate monitoring locations shall be made to the Director in writing and include the rationale for the requested monitoring station relocation. Unless disapproved by the Director, use of the alternate monitoring location may commence 30 days from the date of the request.

6.4.2 Storm Event Data: Quantitative data shall be collected to estimate pollutant loadings and event mean concentrations for each parameter sampled. Records shall be maintained of all analytical results, the date and duration of the storm event sampled: rainfall measurements or estimates of the storm event which generated the sampled runoff; the duration between storm events sampled and the end of the previous measurable storm event; and an estimate of the total volume of the discharge sampled.

6.4.3 Sample Type, Collection, and Analysis

6.4.3.1 Grab Samples: Grab Samples shall be taken during the first two hours of discharge.

6.4.3.2 Representative Storm Events: Samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable storm event.

6.4.4 Seasonal Loadings and Event Mean Concentrations: Data shall be maintained to provide estimates for each major outfall of seasonal pollutant loadings and event mean concentrations for a representative storm event for the parameters which the co-permittees must monitor. This information may be estimated from the monitoring results and shall take into consideration land uses and drainage areas for the outfall.

6.5 SWQMP Review and Modification

6.5.1 Program Review: The co-permittees shall participate in an annual review of the current SQWMP in conjunction with preparation of the annual report required under 6.9. This annual review shall include:

6.5.1.1 A review of the status of program implementation and compliance (or non-compliance) with all schedules of compliance contained in this permit;

6.5.1.2 An assessment of the effectiveness of controls established by the SWQMP;

6.5.1.3 A review of monitoring data and any trends in estimated cumulative annual pollutant loadings; and

6.5.1.4 An assessment of any SWQMP modifications needed to comply with the CWA 402 (p)(3)(B)(iii) requirement to reduce the discharge of pollutant to the Maximum Extent Practicable (MEP).

6.6 Implementation Process. As part of the SWQMP, each co-permittee shall implement a process to verify compliance with SWQMP requirements. The process shall include identification of the roles and responsibilities of various municipal departments in implementing the SWQMP requirements, as well as any other measures necessary for the implementation of SWQMP requirements.

6.7 Program Modification: The approved SWQMP shall not be modified by the co-permittees without the prior approval of the Director, unless in accordance with the items below:

6.7.1 Portions of the SWQMP not specifically required by 6.2 may be modified upon written notification to the permitting authority.

6.7.2 Modifications adding (but not subtracting or replacing) components, controls, or requirements to the approved SWQMP may be made by the co-permittees at any time upon written notification to the permitting authority.

6.7.3 Modifications made under this paragraph shall not become enforceable permit conditions until such time as the modifications are formally approved.

6.7.4 Modification requests and notifications shall be signed and shall include a certification that the co-permittees were given an opportunity to comment on proposed changes.

6.8 Modifications Required by the Permitting Authority:

6.8.1 The co-permittees must review and revise the City of Little Rock and Arkansas State Highway and Transportation Department SWQMP to ensure compliance with the requirement to reduce the discharge of pollutants to the Maximum Extent Practicable (MEP) as contained in Section 402(p)(3)(B)(iii) of the Clean Water Act. Specifically, the co-permittees must review and revise

the SWQMP sections regarding construction site runoff and public education. The co-permittees shall conduct a review of the current SWQMP and shall revise the SWQMP to include additional BMPs regarding public education and construction site runoff particularly, these revisions will include notification of ADEQ's NPDES permitting program to construction sites, institute an employee education program, increase public education, increase the frequency of construction site inspections, and notify ADEQ Enforcement Section of construction sites that do not have erosion controls installed. The co-permittees shall submit to ADEQ their suggested revisions to the SWQMP within eleven (11) months following the effective date of the permit.

6.8.2 The permitting authority may require the co-permittees to modify the SWQMP as needed to:

6.8.2.1 Address contributions by the MS4 discharges to impacts on receiving water quality;
6.8.2.2 Include more stringent requirements necessary to comply with new State or Federal statutory or regulatory requirements; or
6.8.2.3 Include such other conditions deemed necessary by the Director to comply with the goals and requirements of the Clean Water Act.

6.8.3 Modifications requested by the Director shall be made in writing, set forth the time schedule for the co-permittees to develop the modification(s), and offer the co-permittees the opportunity to propose alternative program modifications to meet the objective of the requested modification.

6.9 Annual Report - Each co-permittee shall contribute to the preparation of an annual system-wide report to be submitted by April 1 of each year between the effective date of the permit and the date of expiration. The report shall be in the form as outlined in the SWQMP and shall include the following separate sections, with an overview for the entire MS4 and subsections for the co-permittees where applicable.

6.9.1 Proposed changes to the stormwater quality management programs that are established as permit conditions, including an update on areas added to the MS4 due to annexation or other legal means;
6.9.2 Revisions, if necessary, to the assessments of controls and the fiscal analysis reported in the permit application under 40 CFR 122.26 (d)(2)(v) and 40 CFR 122.26 (d)(2)(vi);
6.9.3 A summary of the data, including monitoring data, that is accumulated throughout the reporting year;
6.9.4 Estimated annual expenditures and projected budget for the year following each annual report.
6.9.5 A summary describing the number and nature of enforcement actions, inspections, and public education programs; and
6.9.6 Identification of water quality improvements or degradation.

Preparation and submittal of a system-wide annual report shall be conducted by the co-permittees. The report shall indicate if the co-permittees have failed to provide required information on the portions of the MS4 for which they are responsible. The co-permittees shall be responsible for timely submittal of the system-wide report. Each co-permittee shall be responsible for content of the report relating to the portions of the MS4 for which it is responsible, and for failure to provide information for the system-wide annual report. Each co-permittee shall sign and certify their portion of the annual report.

6.9.7 The annual information required by 6.1.1 and 6.1.2.

6.9.8 Information for Structural Controls as required by 6.2.1.
6.9.9 Information for Areas of New Development as required by 6.2.2.
6.9.10 Information for Roadways as required by 6.2.3.
6.9.11 Information for Flood Control Projects as required by 6.2.4
6.9.12 Information for Spill Prevention and Response as required by 6.2.7.
6.9.13 Information for Construction Site Runoff as required by 6.2.8.
6.9.14 An update on Roles and Responsibility if applicable.
6.9.15 Monitoring and Reporting Requirements as required by 6.4.
6.9.16 An update on Legal Authority if applicable.
6.9.17 An update on SWQMP Resources if applicable.
6.9.18 An update on SWQMP Review per 6. for 6.7 and 6.8.

6.10 Limitations on Coverage. The following discharges are not authorized by this permit:

6.10.1 Non-stormwater: stormwater discharges that are mixed with non-stormwater or stormwater associated with industrial activity except where such discharges are:
6.10.1.1 in compliance with a separate NPDES permit;
6.10.1.2 or identified by and in compliance with 6.2.6 of this permit.

6.10.2 Stormwater discharges whose direct, indirect, interrelated, interconnected, or interdependent impacts would adversely impact, but not jeopardize, a listed or proposed endangered or threatened species may be authorized under this permit provided the co-permittees are in compliance with an incidental take permit issued by the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service pursuant to Section 10(a) of the Endangered Species Act.

6.10.3 Stormwater discharges, or the construction or implementation of stormwater management controls, which adversely affect properties listed or eligible for listing in the National Register of Historic Places, unless the co-permittees are in compliance with requirements of the National Historic Preservation Act and has coordinated any necessary activities to avoid or minimize impacts with the Arkansas State Historic Preservation Program.

Part 7
Definitions

All definitions contained in Section 502 of the Clean Water Act shall apply to this permit and are incorporated herein by reference. Additional definitions of words or phrases used in this permit are as follows:

7.1 **"Act"** means the Clean Water Act, Public Law 95-217 (33.U.S.C. 1251 et seq.) as amended.

7.2 **"Administrator"** means the Administrator of the U.S. Environmental Protection Agency.

7.3 **"Applicable effluent standards and limitations"** means all State and Federal effluent standards and limitations to which a discharge is subject under the Act, including, but not limited to, effluent limitations, standards of performance, toxic effluent standards and prohibitions, and pretreatment standards.

7.4 **"Applicable water quality standards"** means all water quality standards to which a discharge is subject under the federal Clean Water Act and which has been (a) approved or permitted to remain in effect by the Administrator following submission to the Administrator pursuant to Section 303 (a) of the Act, or (b) promulgated by the Director pursuant to Section 303(b) or 303(c) of the Act, and standards promulgated under regulation No. 2, as amended, (regulation establishing water quality standards for surface waters of the State of Arkansas.)

7.5 **"Appropriateness"** means how appropriate the Best Management Practices (BMPs) were in addressing the pollutants in the stormwater discharges.

7.6 **"ADEQ"** means the Arkansas Department of Environmental Quality.

7.7 **"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 United States. BMP's also include treatment requirements, operating procedures, and practices to control facility site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

7.8 **"Co-permittee"** is defined as a permittee to a NPDES permit that is only responsible for permit conditions relating to the discharge for which it is operator.

7.9 **"Department"** means the Arkansas Department of Environmental Quality (**ADEQ**).

7.10 **"Director"** means the Administrator of the U.S. Environmental Protection Agency and/or the Director of the Arkansas Department of Environmental Quality.

7.11 **"Discharge"** refers to discharges from the Municipal Separate Storm Sewer System (MS4) located within the boundaries of the city of Little Rock, Arkansas.

7.12 **"Flow-weighted composite sample"** means a composite sample consisting of a mixture of aliquots collected at a constant time interval, where the volume of each aliquot is proportional to the flow rate of the discharge.

7.13 **"Grab sample"** means an individual sample collected in less than 15 minutes in conjunction with an instantaneous flow measurement.

7.14 **"Illicit connection**" means any man-made conveyance connecting an illicit discharge directly to a municipal separate storm sewer.

7.15 **"Illicit discharge"** is defined as any discharge to a municipal separate storm sewer that is not composed entirely of stormwater except discharges pursuant to a NPDES permit and discharges resulting from fire fighting activities.

7.16 **"Large or medium municipal separate storm sewer system"** is defined at 40 CFR 122.26(b)(4)&(7).

7.17 **"Maximum Extent Practicable" or "MEP"** is the technology-based discharge standard for Municipal Separate Storm Sewer Systems established by CWA 402(p).

7.18 **"Monitoring and Reporting"** When a permit becomes effective, monitoring requirements are of the immediate period of the permit effective date. Where the monitoring requirement for an effluent characteristic is Monthly or more frequently, the Discharge Monitoring Report shall be submitted by the 25th of the month following the sampling. Where the monitoring requirement for an effluent characteristic is Quarterly, Semi-Annual, Annual, or Yearly, the Discharge Monitoring report shall be submitted by the 25th of the month following the monitoring period end date.

7.19 **"MONTHLY"** is defined as a calendar month or any portion of a calendar month for monitoring requirement frequency of once/month or more frequently.

7.20 **"MS4"** is an acronym for "Municipal Separate Storm Sewer System" and is used to refer to the Storm Sewer System located within the boundaries of the city of Little Rock, Arkansas.

7.21 **"Municipal"** means of or pertaining to areas, activities and facilities owned or operated by a municipality

7.22 **"Municipality"** means a city, town, borough, county, parish, district, association, or other public body created by or under State law and having jurisdiction over an MS4.

7.23 **"National Pollutant Discharge Elimination System"** means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under sections 307, 402, 318 and 405 of the Clean Water Act.

7.24 **"Point Source"** means any discernable, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged.

7.25 **"Proper disposal"** disposal of wastes in a manner which does not violate a federal, state, or local requirement.

7.26 **"Quarter"** means a three month calendar period (January-March, April-June, July-September, October-December).

7.27 **"QUARTERLY"** (1) is defined as a fixed calendar quarter or any part of the fixed calendar quarter for a non-seasonal effluent characteristic with a measurement frequency of once/quarter. Fixed calendar quarters are: January through March, April through June, July through September, and October through December; or (2) is defined as a fixed three month period (or any part of the fixed three month period) of or dependent upon the seasons specified in the permit for a seasonal effluent characteristic with a monitoring requirement frequency of once/quarter that does not does not coincide with the fixed calendar quarter. Seasonal calendar quarters May through July, August through October, November through January, and February through April.

7.28 **"SEMI-ANNUAL"** is defined as the fixed time periods January through June, and July through December (or any portion thereof) for an effluent characteristic with a measurement frequency of once/6 months or twice/year.

7.29 **"Significant contributor of pollutants"** means any discharge that causes or could cause or contribute to a violation of surface water quality standards.

7.30 **"Storm Sewer"** refers to a municipal separate storm sewer.

7.31 **"Stormwater"** means stormwater runoff, snow melt runoff, and surface runoff and drainage.

7.32 **"Stormwater Quality Management Program" or "Program"** refers to a comprehensive program to manage the quality of stormwater discharged from the municipal separate storm sewer system.

7.33 **"The term "MGD"** shall mean million gallons per day.

7.34 **"The term "mg/l "**shall mean milligrams per liter or parts million (ppm).

7.35 **"The term "µg/l"** shall mean micrograms per liter or parts per billion (ppb).

7.36 **"The term "cfs"** shall mean cubic feet per second.

7.37 **"The term "ppm"** shall mean part per million.

7.38 **"The term "s.u."** shall mean standard units.

7.39 **"Yearly or Annual"** is defined as a fixed calendar year or any portion of the fixed calendar year for an effluent characteristic or parameter with a measurement frequency of once/year. A calendar year is January through December, or any portion thereof.

Appendix B

1997 NPDES Report

NPDES PERMIT ARS000001
1997 ANNUAL REPORT

INTRODUCTION

This annual report is submitted in accordance with NPDES Permit ARS00001, and includes an annual review of the Storm Water Quality Management Program (SWQMP). This report and the SWQMP address pollution prevention requirements and system-wide requirements identified at Permit Part III, and the status of implementing components of the Program. This is the initial annual report required under the Permit, which became effective on January 1, 1997. The SWQMP, modified in accordance with Permit Part III.G.2 to reflect the appeal resolution of 1996, is attached.

POLLUTION PREVENTION MEASURES

III.A.1: Used Motor Vehicle Fluids Collection

An information brochure on Solid Waste Service was produced, published and distributed to every utility customer during 1996. The total cost of this effort was about $12,000. The City also has two brochures addressing recycling services and household hazardous waste which were developed prior to 1996, and which are disseminated at community events. These brochures are produced in-house, and no associated cost is identified.

During 1997, Little Rock produced a Public Service Announcement (video) for use by local cable access and television stations which addresses illegal disposal. This video will be available and will be aired periodically during 1997. It is too early to include the costs of this effort in the initial annual report.

III.A.2: Household Hazardous Waste Collection

Little Rock participated along with the Pulaski County Regional Solid Waste Management District in a household hazardous waste roundup during 1996. There were an estimated 550 people who used the location at War Memorial Stadium to dispose of household hazardous materials, including:

- 33,695 pounds of paint and related materials;
- 1,226 pounds of poisons and chemicals;
- 6,994 pounds of insecticides, herbicides and fertilizers;
- 958 pounds of batteries; and,
- 400 tires.

Advertising was facilitated by radio, newspaper, utility bills, television news and the cable access channel for a advertising cost of $5,816.11. The total cost of the collection event was $47,817.50.

A household hazardous waste roundup has not been scheduled for 1997. Little Rock is coordinating with the Solid Waste District on a 1997 collection activity.

III.A.3: Floatables Reduction

Little Rock produced two Public Service Announcements addressing recycling and proper disposal in late 1996 and early 1997, in addition to the illegal disposal PSA previously identified. These PSA's have appeared or will appear shortly on local television and cable access channels, and will be reported in the next annual report.

SYSTEM-WIDE MEASURES

III.B.1: Operation and Maintenance of Structural Controls

Minor repairs to catch basins, pipes and culverts is an ongoing O&M activity for both co-permittees. Little Rock repaired 163 catch basin covers and repaired 612 linear feet of storm sewer during 1996 for a total cost of $51,926. The City maintained 40,433 feet of driveway and road culvert for a total cost of $ 86637. The Highway Department spent $41,739 for minor cleaning, maintenance and repairs within the municipal limits.

Ditch maintenance pulling, shoulder repair and hand-cleaning accounted for 295,195 linear feet of ditch and cost Little Rock $340,406 during 1996. The Highway Department reports ditch cleaning and re-shaping accounted for $29,337 in costs on State routes within the city during this reporting period.

In addition, the City in 1996 performed major ditch cleaning, including back-hoe and vac-all ditching, on a total of 198,126 feet of ditch for a cost of $168,640. Capital Drainage Improvements accounted for $162,710 in costs.

The Coleman Creek Restoration Project has not yet been initiated by the City, as evident by inspection during February of 1997. The restoration of the water quality ponds is planned during the later months of the year, when weather conditions are optimum.

III.B.2: New Development Controls

Stormwater Management, Development Control and Drainage Management programs accounted for $324,353 in City funds during 1996. Among other activities, the Public Works Department reviewed 7 NPDES facility permits, approved 36 plans for construction

of new subdivisions or boundary street widening, performed 170 building permit reviews, 303 Planning Commission and Board of Adjustment reviews, approved 85 preliminary and final plats, issued 35 development permits for floodplains, made 247 floodplain determinations, issued 60 excavation permits and reviewed a total of 594 plans for excavation and floodplain regulations.

III.B.3: Roadways

Sweeping records through November of 1996 indicate the City swept 24,251 curb miles of roadways on which curbs and barrier walls are provided. This generated 8,282 cubic yards of debris, which was disposed of at the landfill. The cost of sweeping and disposal to the City during 1996 was $341,747. The Highway Department removed 4,912 cubic yards of debris from State routes within the City for a cost of $104,518.

Little Rock's "Adopt-A-Street" Program during 1996 accounted for 69.1 miles of streets being adopted and cleaned by citizens and citizen groups. No estimate of the debris removed by voluntary workers was made, and no cost was identified for this program element. The Highway Department removed 832 cubic yards of litter with their own staff, and contracted for litter pickup that is estimated to have removed another 841 cubic yards of litter from roadways. The Highway Department spent $116,186 on their anti-letter effort.

III.B.4: Flood Control Projects

No flood control projects requiring water quality certification were reviewed during 1996.

III.B.5: Pesticides, Herbicides and Fertilizers

During 1996, the Highway Department reported 18 State Plant Board-certified applicators of pesticides, herbicides and fertilizers. Little Rock Public Works has two foremen who are Board-certified.

Little Rock amended its Standard Contract and Documents to reflect that all commercial applicators of pesticides, herbicides or fertilizers must be licensed by the State Plant Board.

III.B.6: Illicit Discharges and Improper Disposal

Little Rock spent $11,996 on illegal dump clean-up during 1996. Services requests, citizen complaints and emergency cleaning activities were performed at 2,348 locations for a total cost of $76,920.

Dry-weather screening will not commence until dry weather, and thus will be reported in the next annual report. Public Works has added an engineering specialist to existing staff to facilitate both reporting and investigations of illicit discharges and improper disposal.

III.B.7: Spill Prevention, Containment and Response

No incident reports were received by Public Works during the effective permit period. The Highway Department reports no incidents during this reporting period.

III.B.8: Industrial and High-Risk Runoff

Little Rock has identified approximately 350 facilities which might be required to obtain NPDES permit coverage within the City, and developed a database of these facilities.

III.B.9: Construction Site Runoff

Little Rock issued 60 excavation permits during 1996. Public Works began to require soil loss calculations in August, which identified a potential soil loss reduction of 2,277 tons from construction sites occupying 67.1 acres. The City estimates that this is equivalent to a maximum of 6764 cubic yards of sediment which was prevented from entering the municipal storm sewer system as a result of these controls.

III.B.10: Public Education Programs

No independent public education activities were undertaken in 1996, other than those previously identified under motor vehicle fluids, hazardous materials and floatables reduction programs.

Efforts in 1997 include coordinating with the ADPC&E Water Education Program to investigate a "Stream Teams" program for greater Little Rock. This will be reported further in the next annual report.

REPRESENTATIVE MONITORING

Little Rock contracted for sample collection, analysis and reporting in January of 1997, and obtained first-quarter samples. Discharge Monitoring Reports were completed and submitted to the Department on March 24, 1997.

The Contract laboratory reported one discrepancy between the NPDES Permit and the pre-printed Discharge Monitoring Reports, which is now being reconciled by the ADPC&E. Little Rock noted that event information required in the Permit was also not included on the DMR, and reported this to the contract provider. This is also being reconciled with the ADPC&E.

Appendix C

Annexations

Annexations into the city of Little Rock can only be approved by a resolution by the board of directors. Newly annexed territories come under the jurisdiction of the City of Little Rock and respectivive water quality ordinances then apply. Land owners who desire to annex land into the City of Little Rock must obtain approval of the Public Works by land alteration permits and review of development proposals. Annexations will increase the size of the MS4 and maintenance responsibility; however, these areas are usually newly developed and have had City staff review of drainage plans. These areas could be reasonably regarded as low-risk to impairment of the MS4 and local water quality.

Annexations for 2018 are given below:

Annexations

Number of Territories	Total Acres
2	284

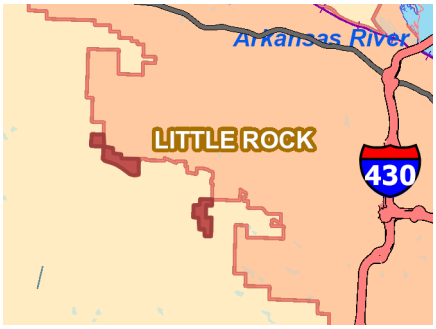

Figure 1: annexations

Appendix D

Educational and Outreach material

Some examples of the educational material disseminated during the report year are shown below:

***Don't Trash Our Home* children's activity book**

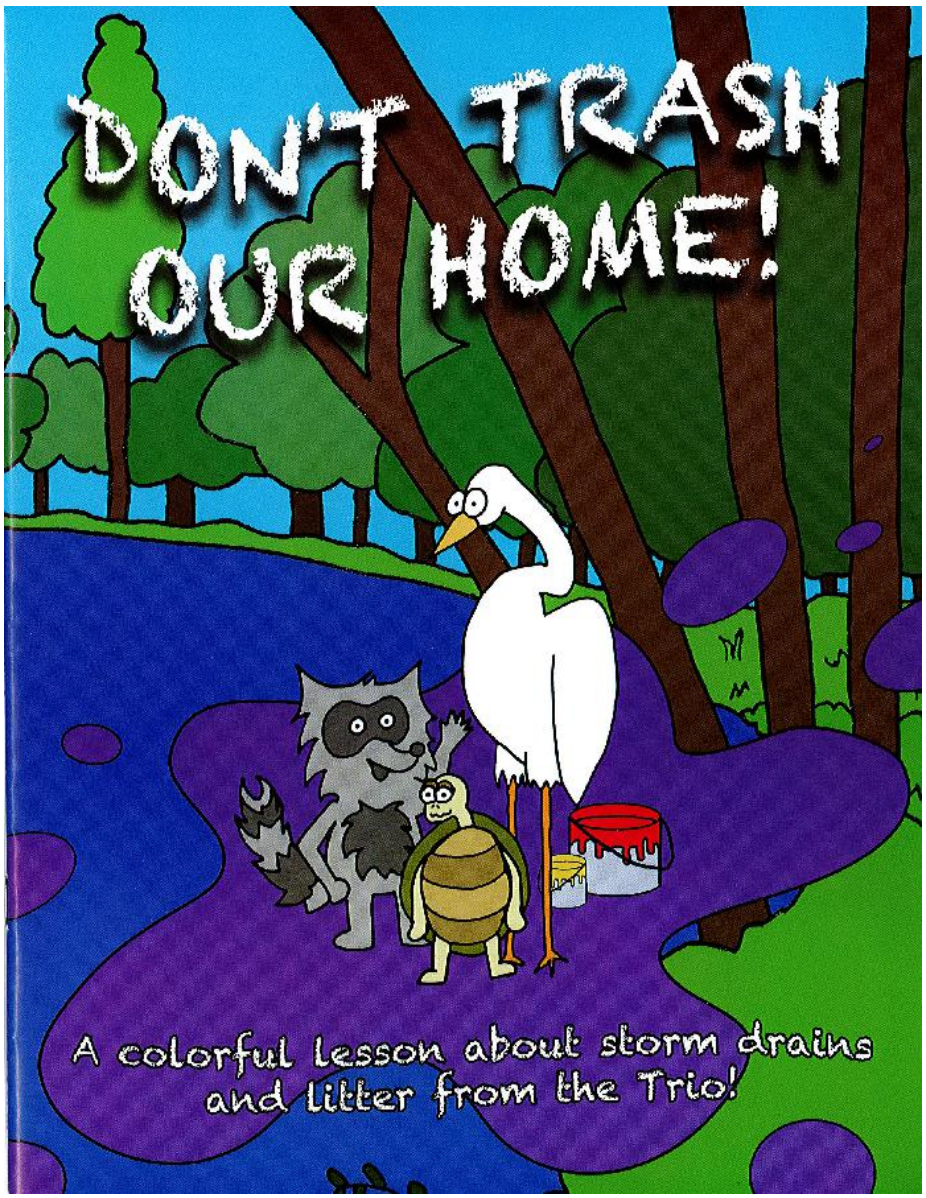

Figure 1: Activity book produced by Audubon Arkansas with a grant from the City of Little Rock Public Works

Drainsmart Mural

Figure 2: Example of one of the many murals in the Little Rock area meant to educate the public about water quality in a way that beautifies the area and engages local artists (mostly students). Drainsmart is managed by Audubon Arkansas and the City of Little Rock is a sponsor.

Forests to Faucets Festival

Figure 3: City of Little Rock staff demonstrates a storm drain model to show local 5th graders how littering can affect water quality in their neighborhoods.

Stormwater Management Guide

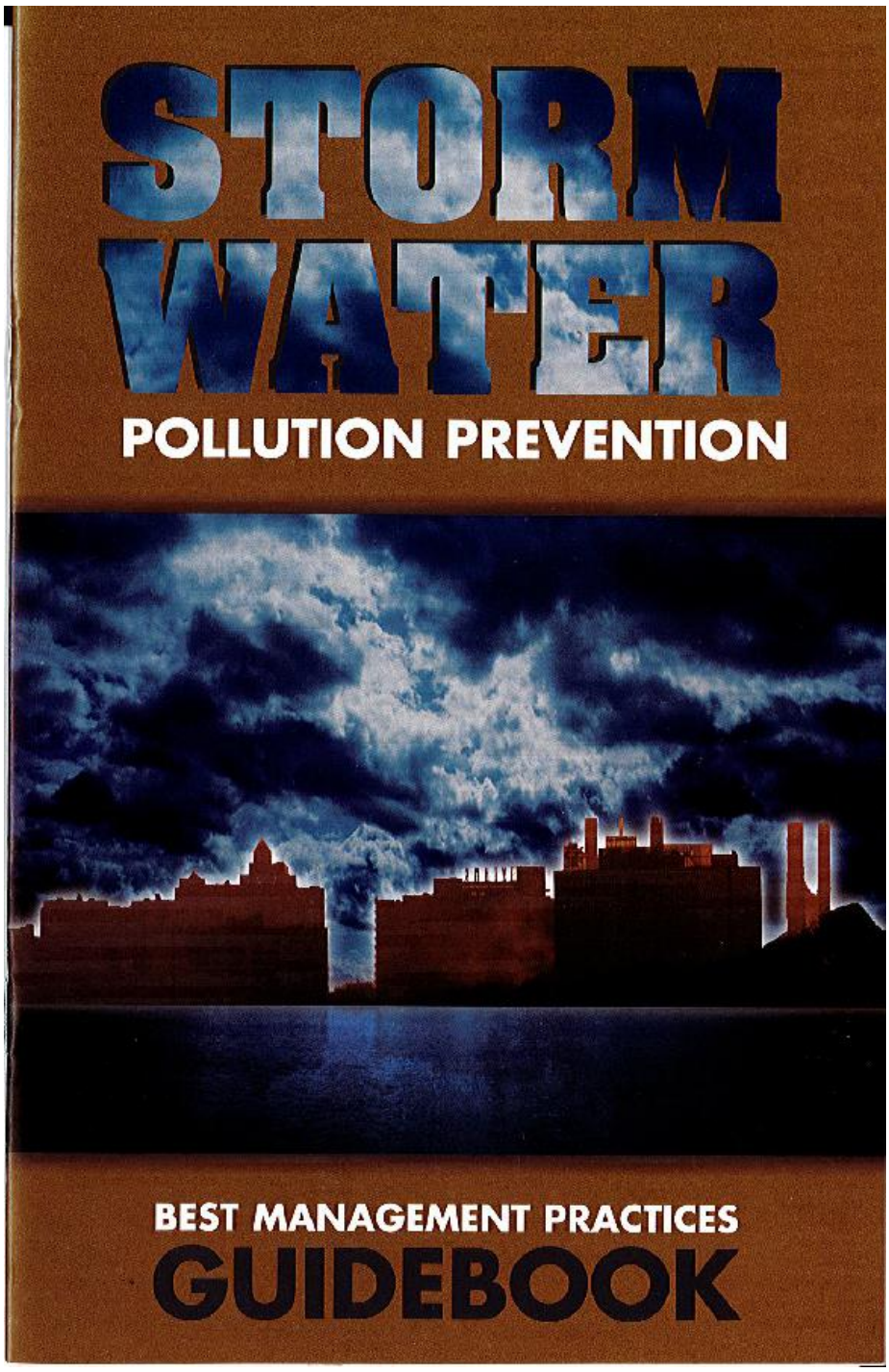

Figure 4: The City of Little Rock Public Works makes available educational

pamphlets with information about best practices in managing runoff from construction sites. Some soil loss reduction techniques are shown in the Public Works standard details and are required for new construction.

Super Sammy and Wayne

Figure 5: University of Arkansas Agricultural Extension has made an educational video about water quality and municipal storm sewer systems. This video is shown on LRTV to help promote public awareness about water quality in Little Rock.

Storm Water Billboard I

Figure 6: Billboard shown at regular intervals on LRTV

Storm Water Billboard II

Figure 7: Billboard shown at regular intervals on LRTV

Storm Water Billboard III

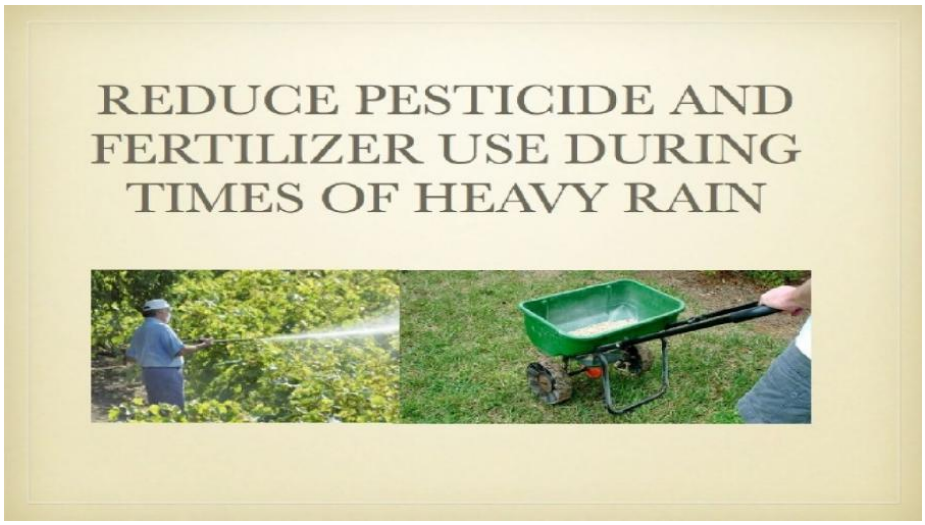

Figure 8: Billboard shown at regular intervals on LRTV

Storm Water Billboard IV

Figure 9: Billboard shown at regular intervals on LRTV

Appendix E

Monitoring Summary

Succinctly describing a high-level summary of water quality parameters within the MS4 is a challenging problem for several reasons.

- "High" measurements are dependent upon water hardness, so measures of parameters are not meaningful without context and calculation.
- Parameters do not share the same units of measure.
- Many different parameters are measured, and simple visualizations cannot effectively capture all the required information.
- Measurements are taken from five different locations, each with different characteristics. The problem of a meaningful representation of the mean of these data across the locations does not have a clear solution outside of obvious over-simplification.

In order to deal with these constraints and to avoid distributing the information across a large number of graphs (and losing explanatory power), data for each parameter has been normalized to a scale where 1.0 represents "recommended" limits. Note that the term "limit" is not meant to imply some threshold beyond which environmental hazard is a certainty, but rather the formal guidance for "normal" water quality conditions. All limits (ie 1.0) were determined using formulas given by *Regulation No. 2: Regulation Establishing Water Quality Standards for Surface Waters of the State of Arkansas.* EPA Ecoregional guidance was used where standards are not defined, and where Regulation No. 2 and EPA Ecoregional guidelines are absent, the 95th percentile of all measures was used. The source code for determining these limits is shown below.

```
def gen_limits(self, hardness):
    """ Acceptable limits of metals are hardness specific. Create a dictionary of
    upper limits based on AR WQS guidance
    """
    limits = {}
    # Overwrite with hard values where applicable
    limits["pH"] = 9  # Min is 6. Not an obvious way to make this happen
    limits["N"] = 0.69  # EPA Ecoregional
    limits["P"] = 0.05  # EPA Ecoregional
    limits["Cr"] = np.e ** (0.819 * np.log(hardness) + 3.688) * 0.316
    limits["Cu"] = np.e ** (0.9422 * np.log(hardness) - 1.464) * 0.960
    limits["Pb"] = np.e ** (1.273 * np.log(hardness) - 1.460) * (
        1.46203 - np.log(hardness) * 0.145712
    )
    limits["Hg"] = 2.4 * 0.85
    limits["Ni"] = np.e ** (0.8460 * np.log(hardness) + 3.3612) * 0.998
    limits["Se"] = 20
```

```
limits["Ag"] = np.e ** (1.72 * np.log(hardness) - 6.52) * 0.85
limits["Zn"] = np.e ** (0.8473 * np.log(hardness) + 0.8604) * 0.978
limits["Cd"] = np.e ** (1.28 * np.log(hardness) - 3.828) * (
    1.36672 - np.log(hardness) * 0.041838
)
limits["E.Coli"] = 410
limits["Streptococci"] = 400
limits["Cyanide"] = 22.36
limits["TDS"] = 103  # This is reference only. Little Fource: 179mg/L
limits["Oil"] = 15
return limits
```

Normalizing these parameters which use a variety of different scales allows us to quickly visualize which parameters are "high" or "low" relative to regional norms. The large number of parameters and multiple locations lends itself to either a very 'busy' bar graphs or splitting the visualization over multiple graphs. Desiring a 'snapshot' of MS4 water quality, a radar chart with normalized data was selected as the most expressive visualization for this multifaceted problem. Charts for the previous five years are given below.

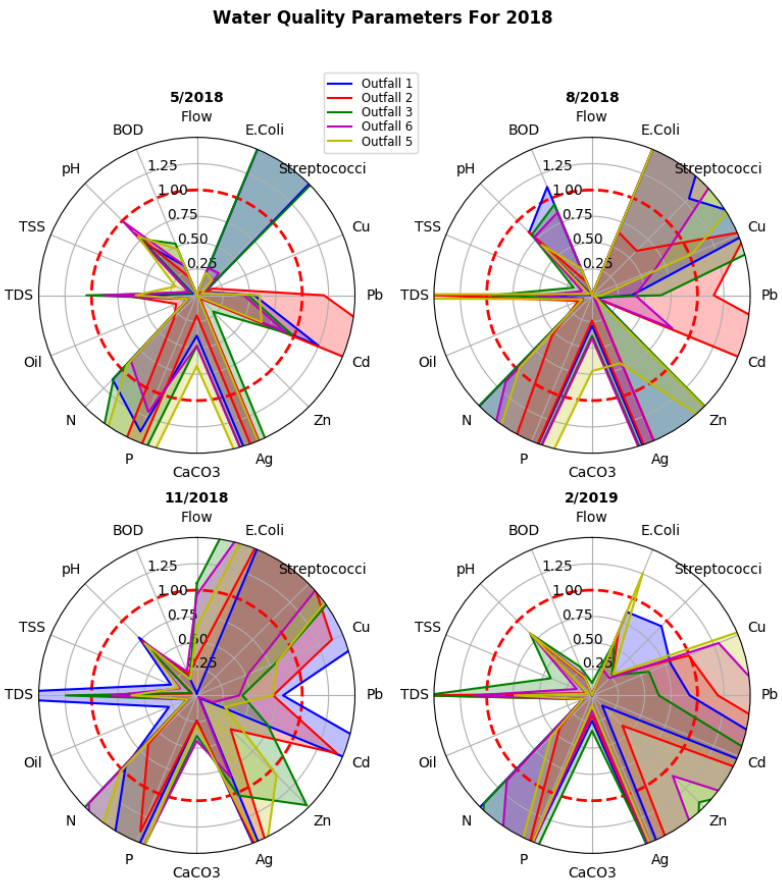

Figure 1: radar_2018.png

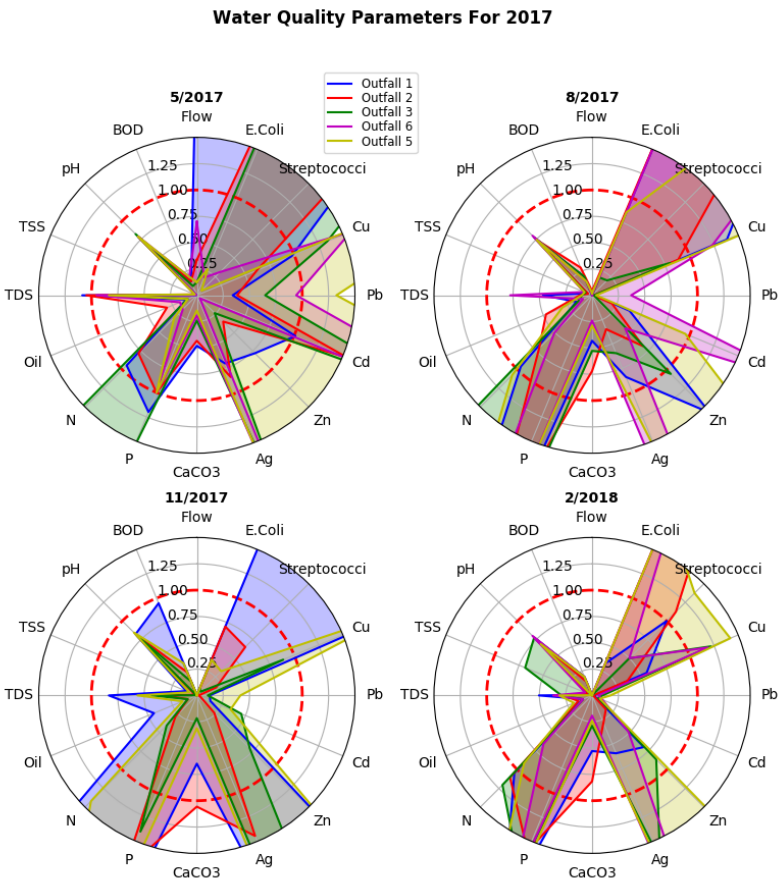

Figure 2: radar_2017.png

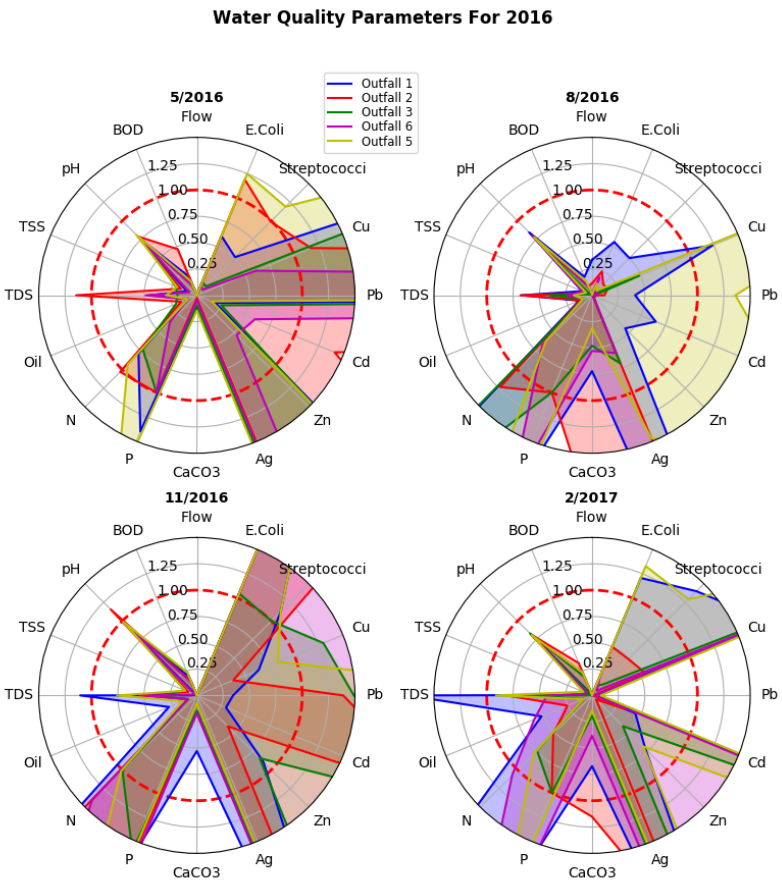

Figure 3: radar_2016.png

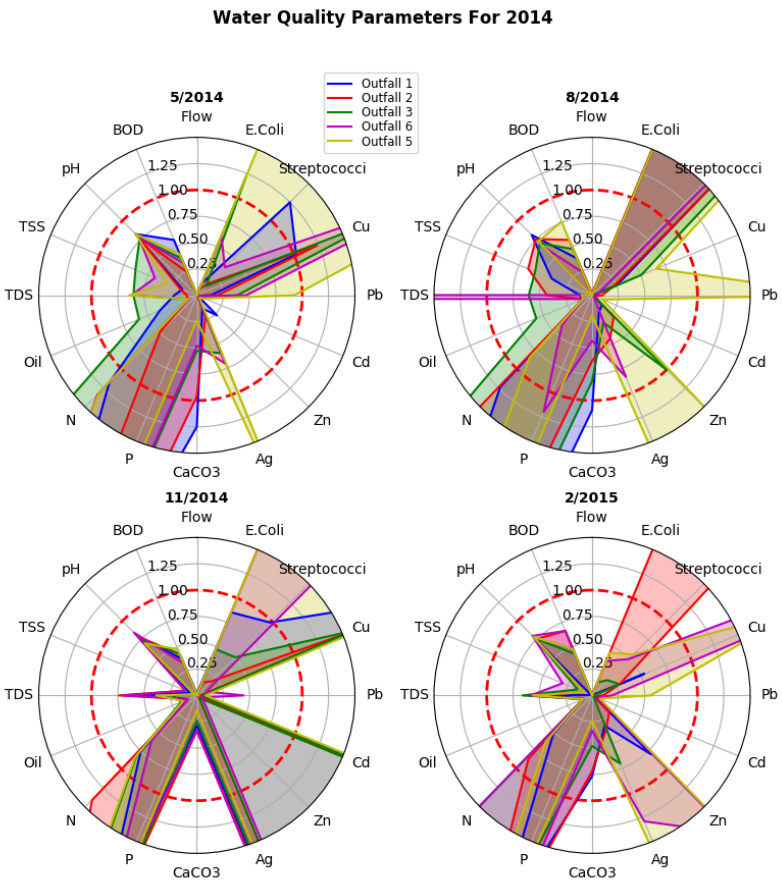

Figure 4: radar_2014.png

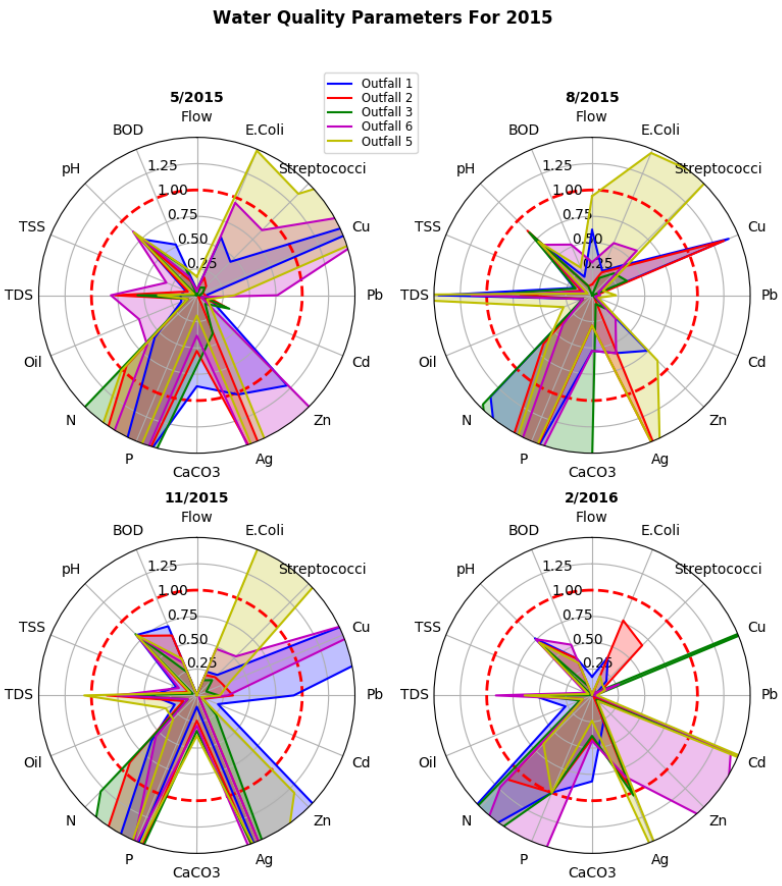

Figure 5: radar_2015.png

Appendix F

Water Quality Trend Analysis

This section contains scatter plots for each measured parameter for the entire life of the monitoring program (1997 to the present). Each point is color-coded based on location to help visualize regional dissimilarities in measurements. The distribution of measurements for water quality parameters within the City of Little Rock MS4 tends to be heavily skewed with maximums definied by fliers one or more orders of magnitude above the mean, in most cases. Because the measurements tend to appear erratic when plotted, a 'median' line is given to assist with visualizing a general trend. Wide variability makes direct plotting of the median difficult to reason about, so a noise-filtering algorithm (savoy-golay filtering) is used to smooth the graph into something intelligible.

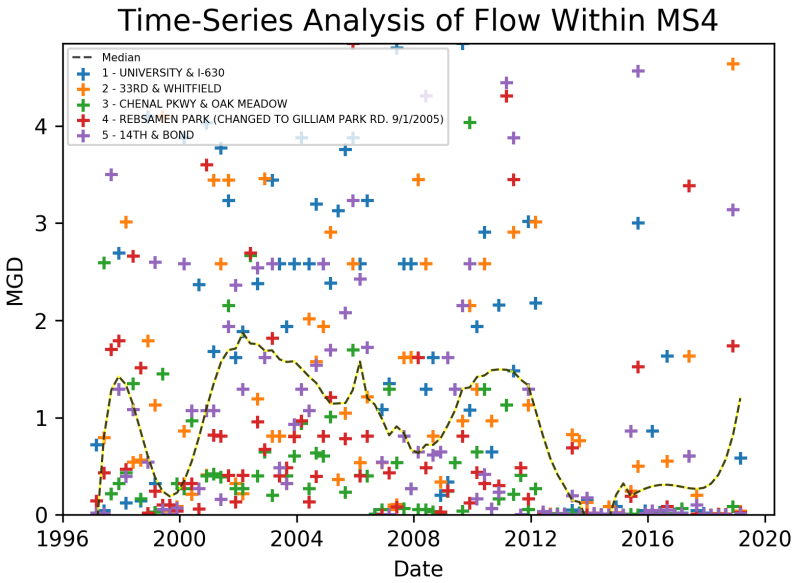

Figure 1: time-series-Flow.png

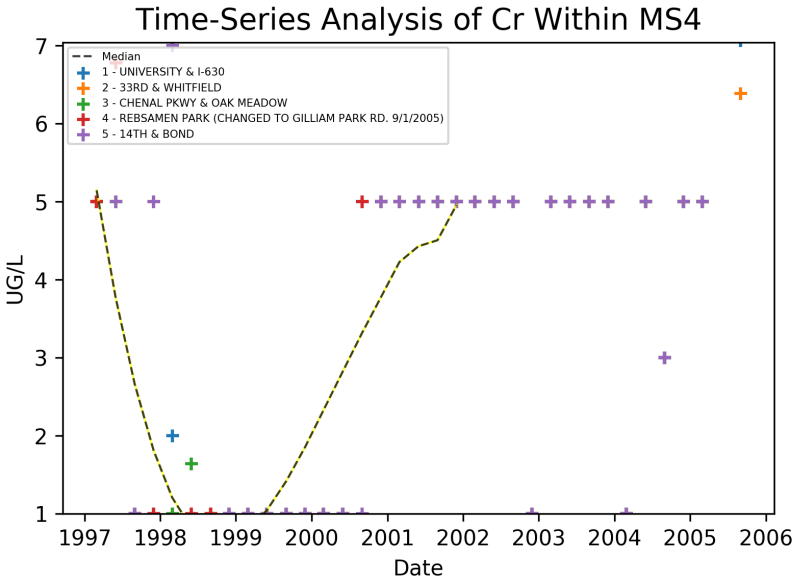

Figure 2: time-series-Cr.png

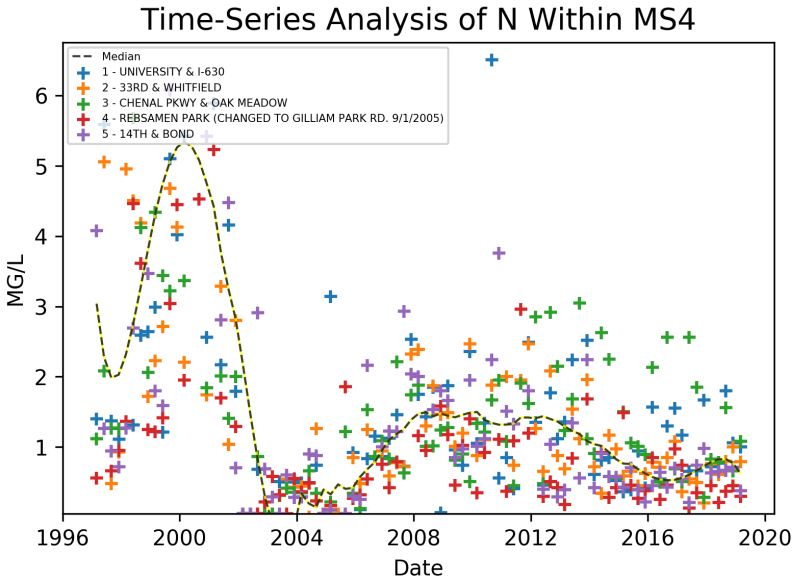

Figure 3: time-series-N.png

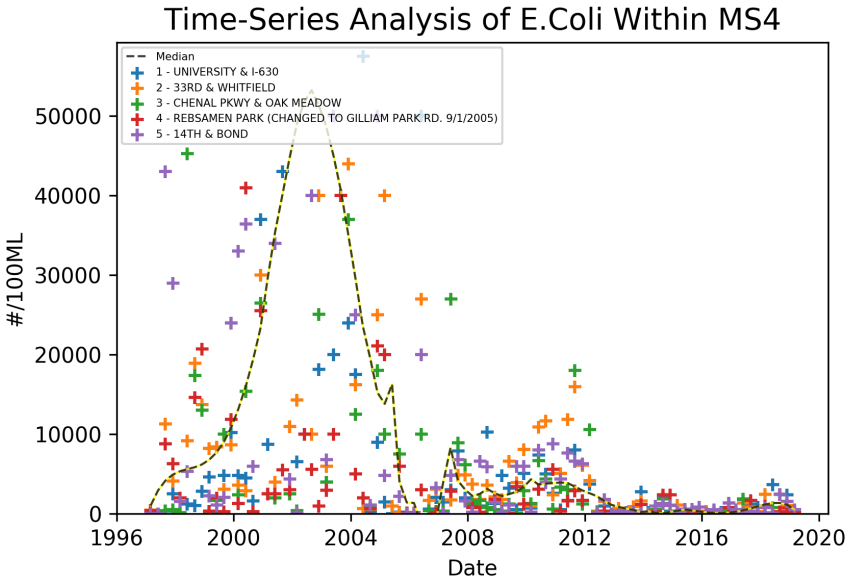

Figure 4: time-series-E.Coli.png

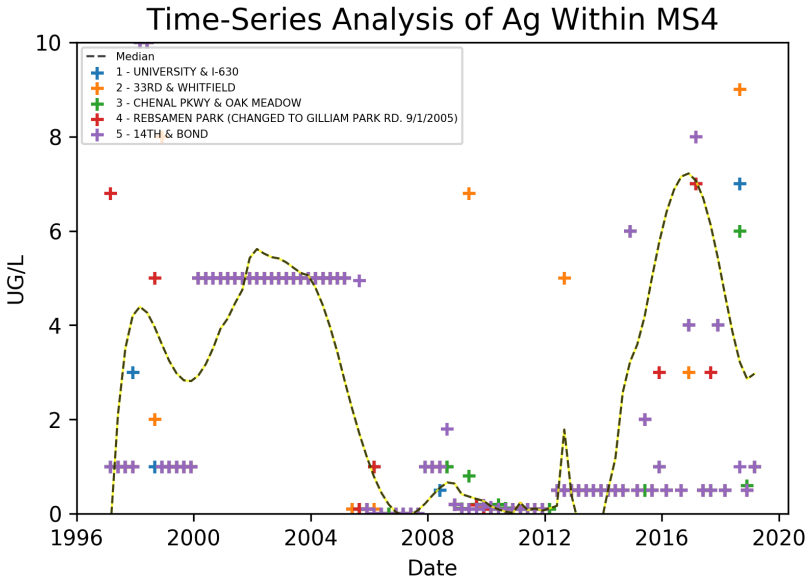

Figure 5: time-series-Ag.png

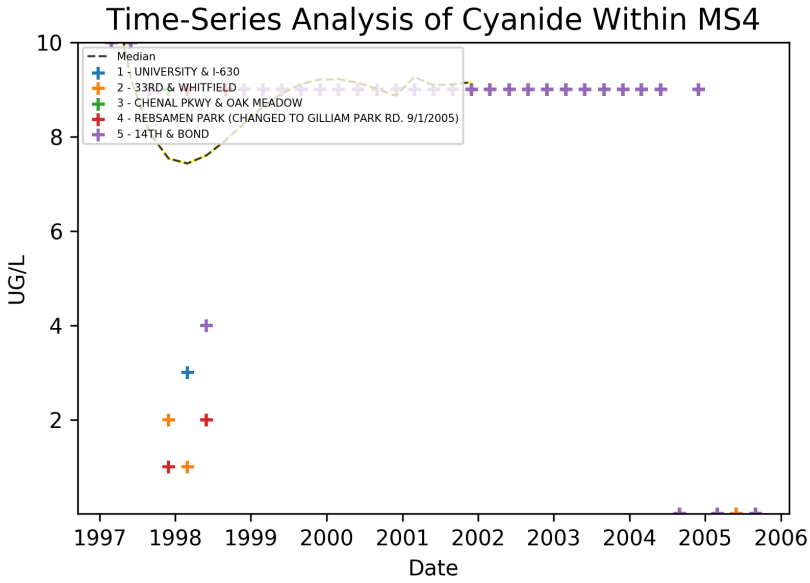

Figure 6: time-series-Cyanide.png

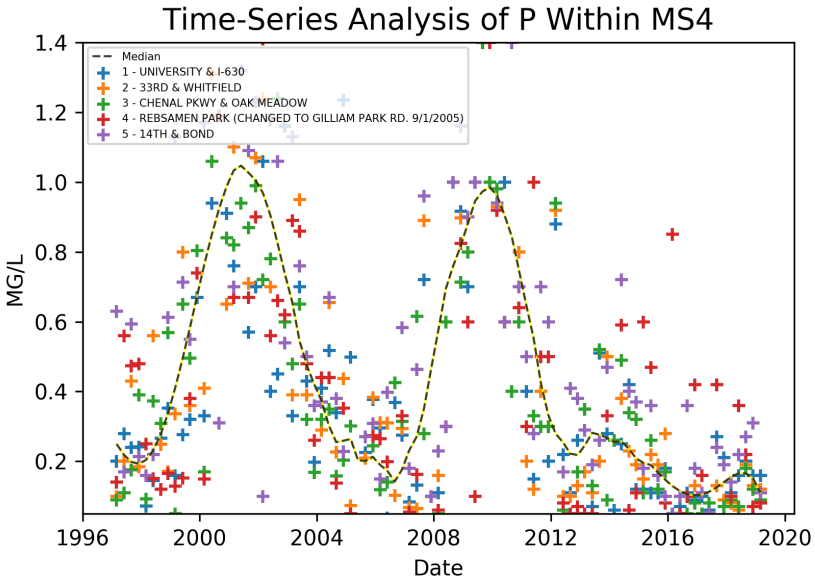

Figure 7: time-series-P.png

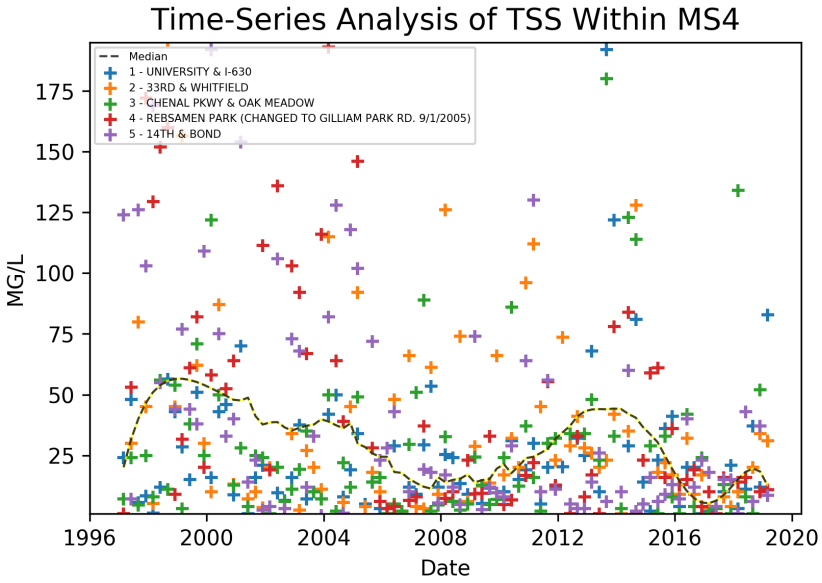

Figure 8: time-series-TSS.png

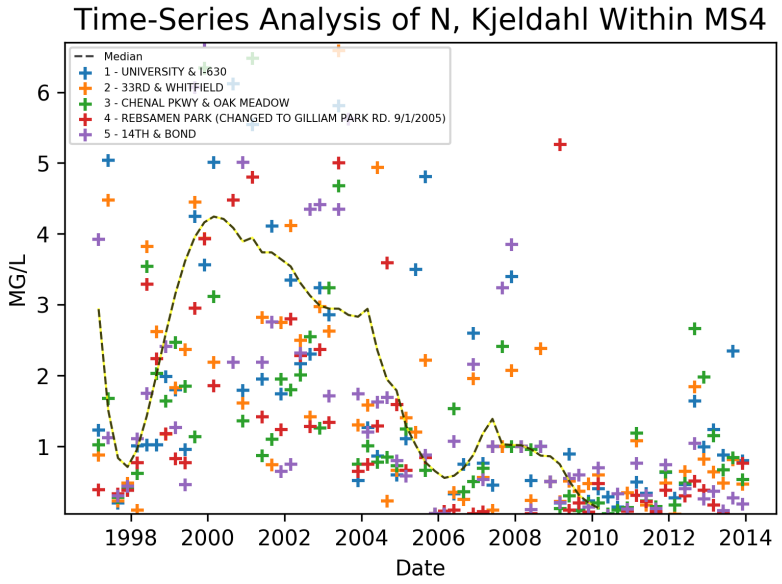

Figure 9: time-series-N, Kjeldahl.png

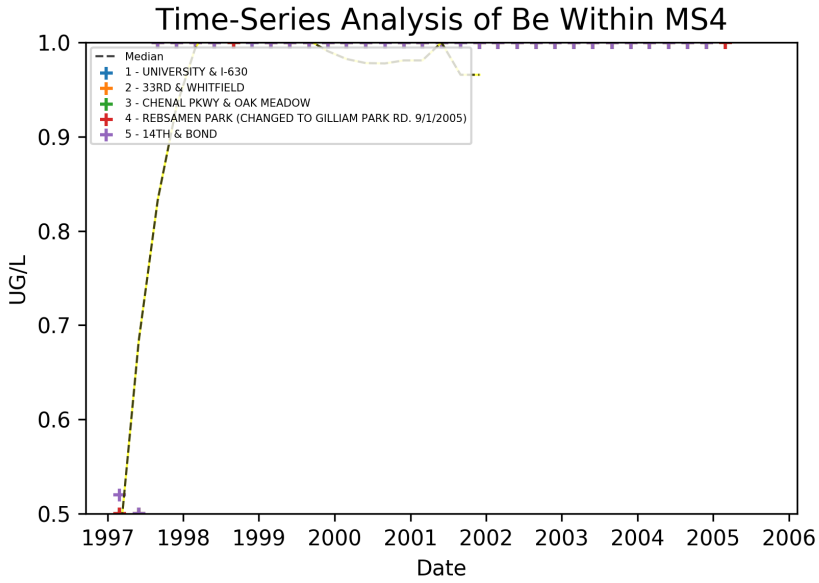

Figure 10: time-series-Be.png

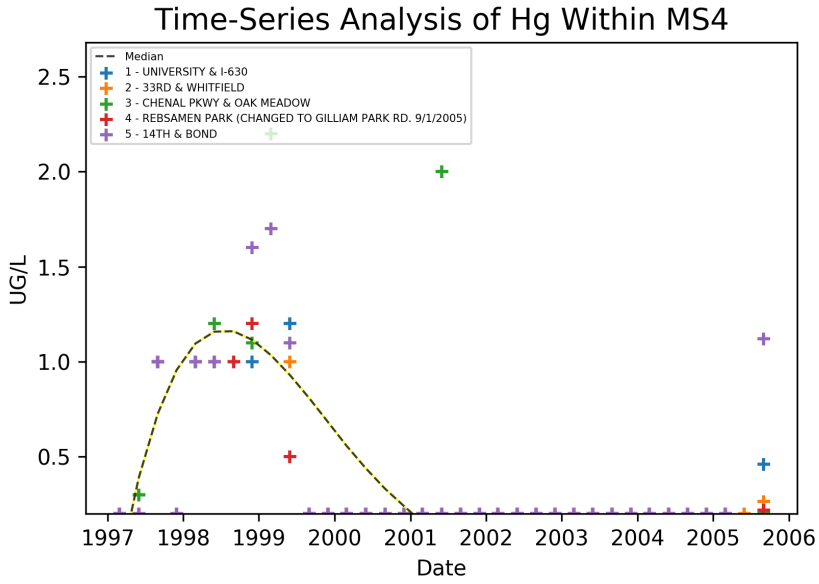

Figure 11: time-series-Hg.png

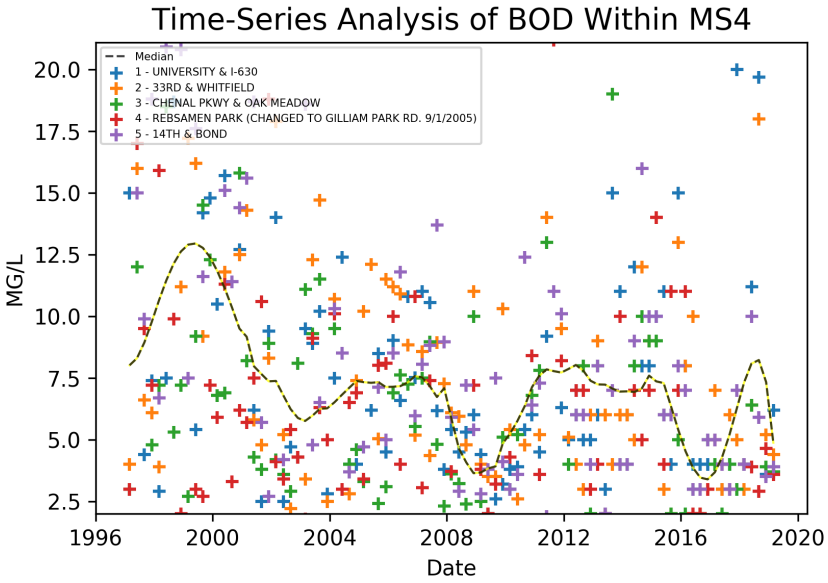

Figure 12: time-series-BOD.png

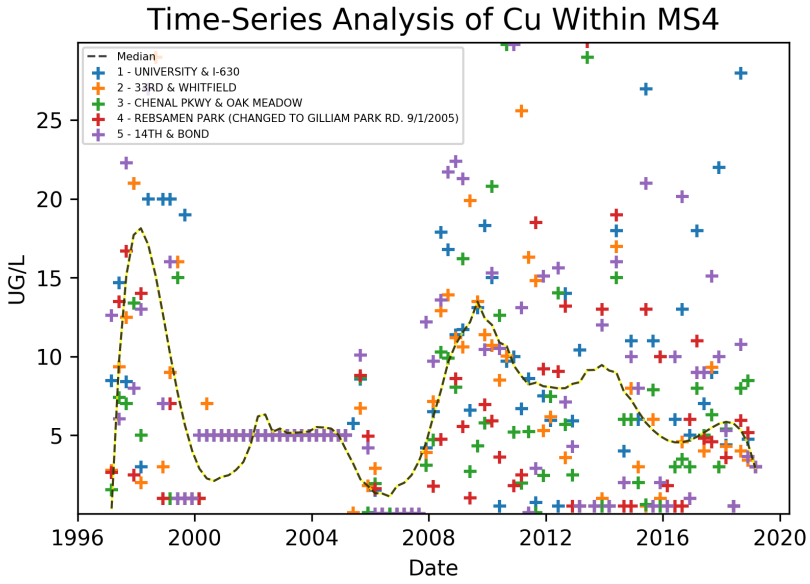

Figure 13: time-series-Cu.png

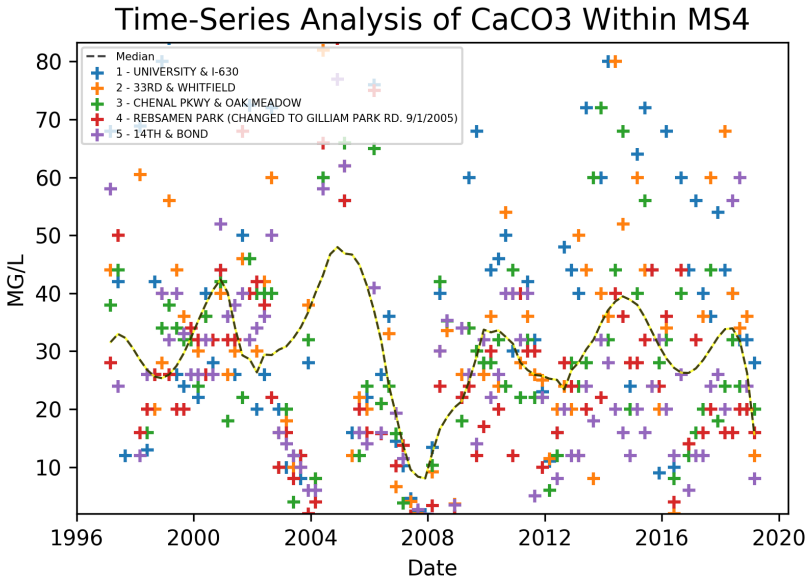

Figure 14: time-series-CaCO3.png

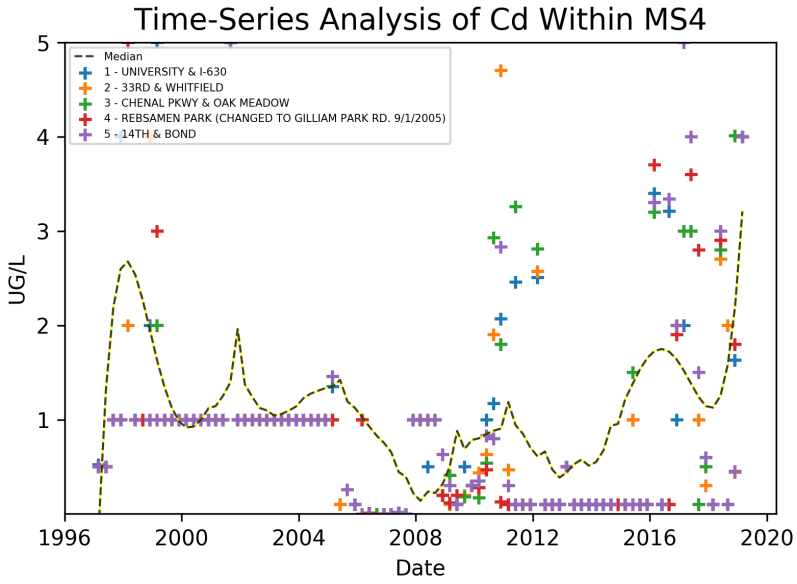

Figure 15: time-series-Cd.png

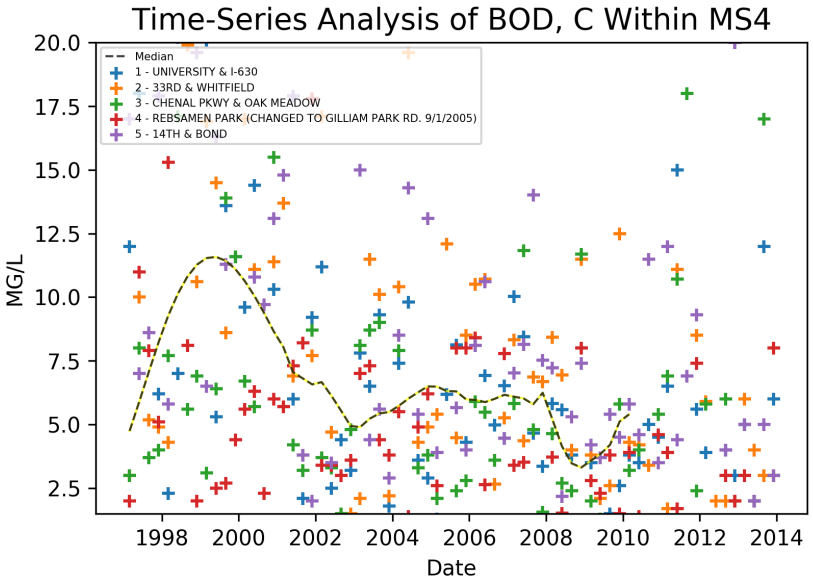

Figure 16: time-series-BOD, C.png

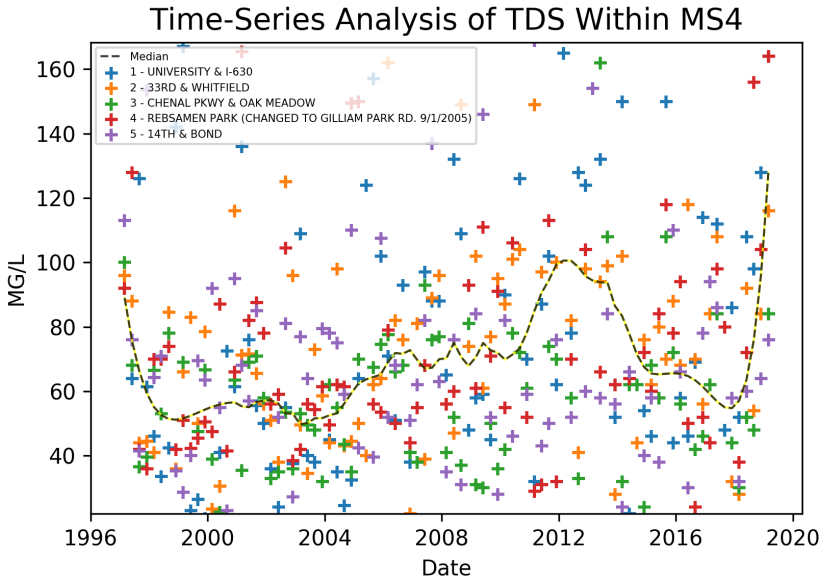

Figure 17: time-series-TDS.png

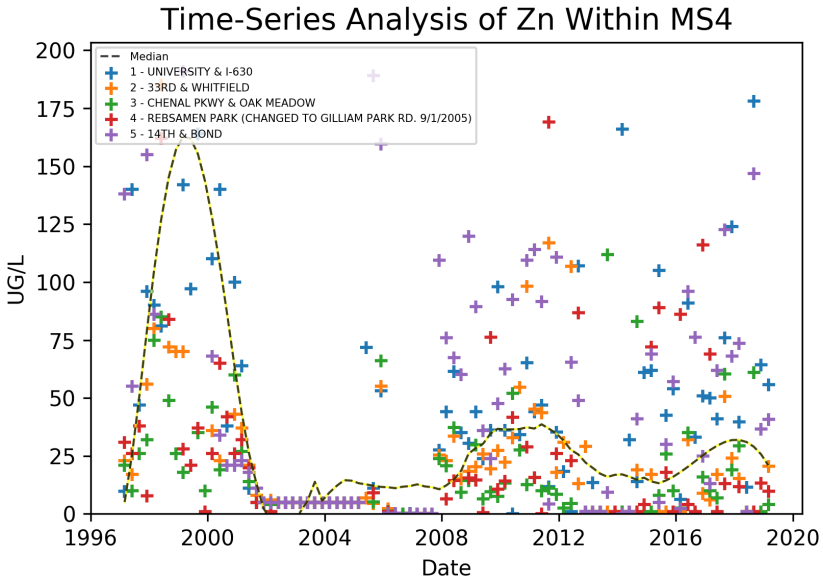

Figure 18: time-series-Zn.png

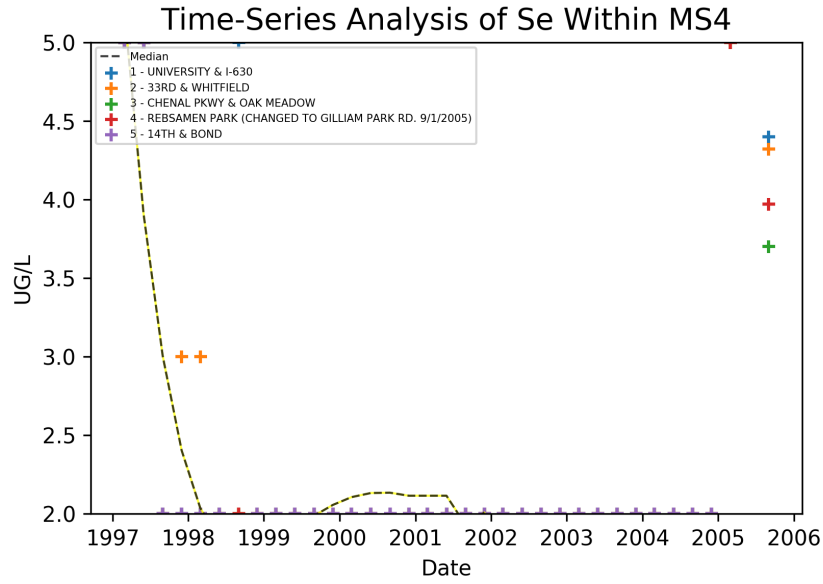

Figure 19: time-series-Se.png

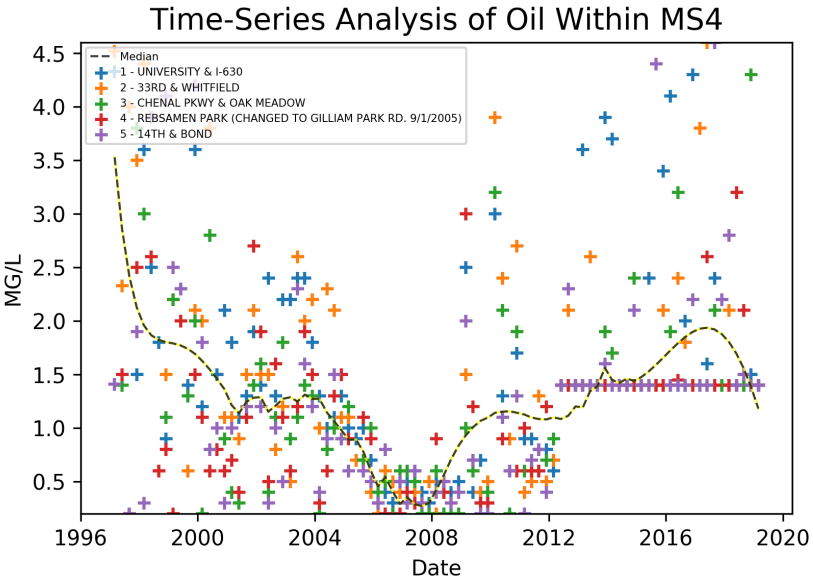

Figure 20: time-series-Oil.png

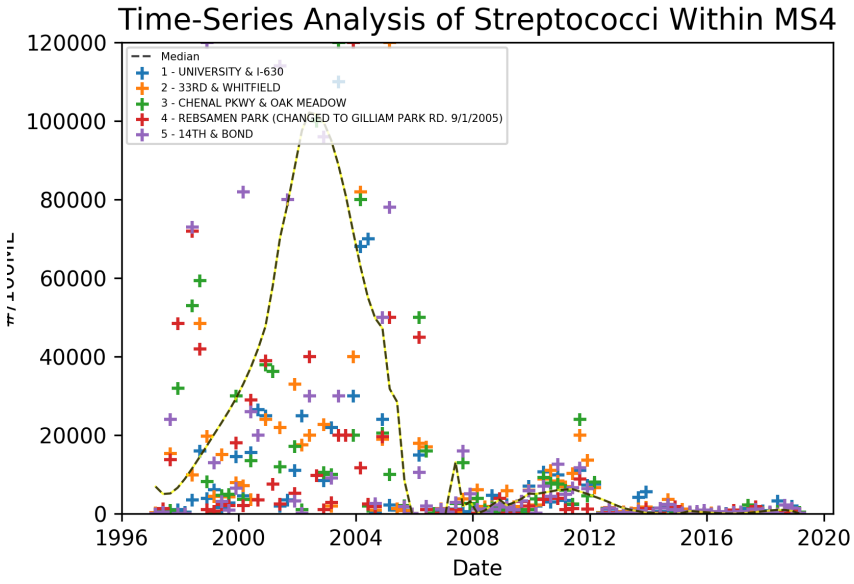

Figure 21: time-series-Streptococci.png

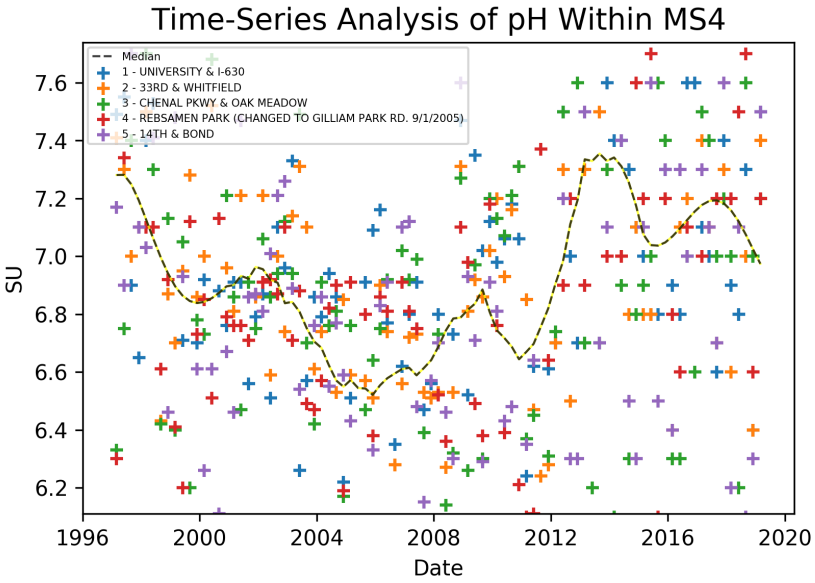

Figure 22: time-series-pH.png

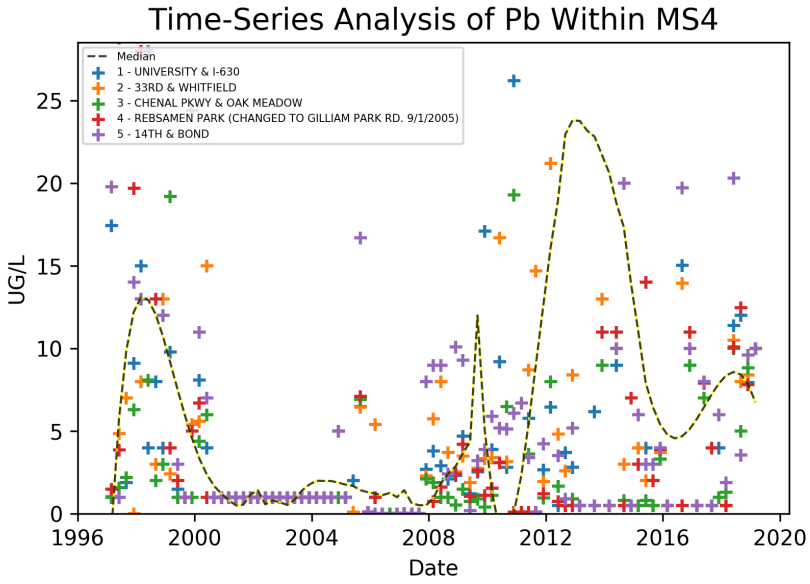

Figure 23: time-series-Pb.png

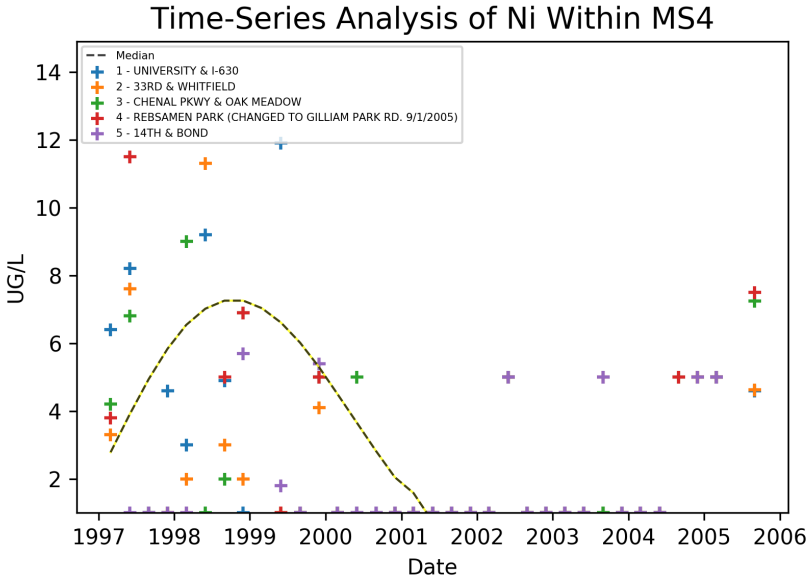

Figure 24: time-series-Ni.png

Appendix G

Seasonal Analysis

The following graphs show the distribution grouped by season of all measurements (1997 to the present) for the entitled parameter.

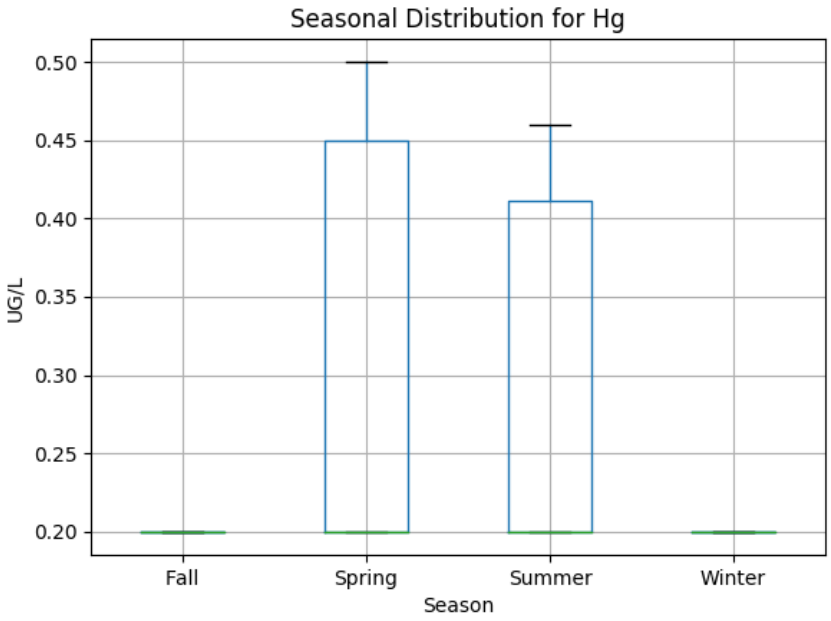

Figure 1: seasonal-Hg.png

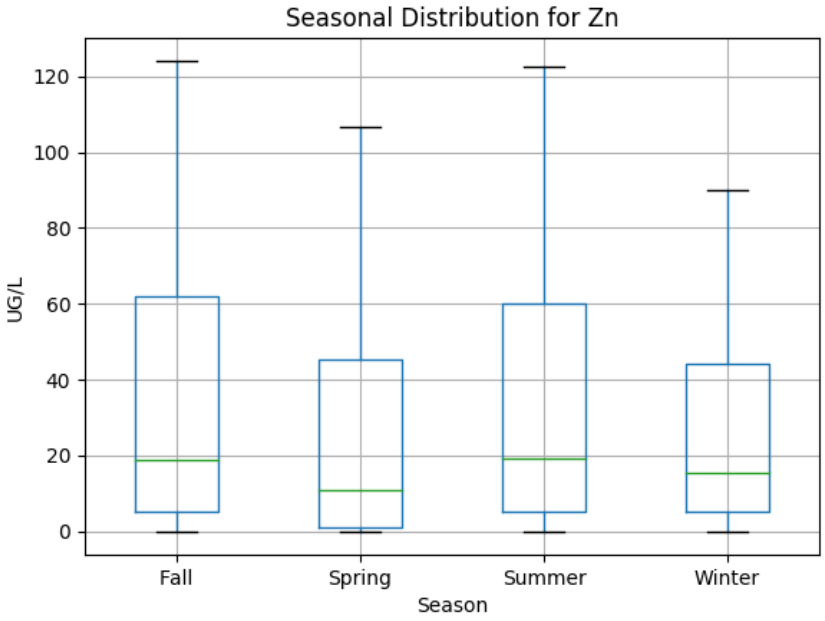

Figure 2: seasonal-Zn.png

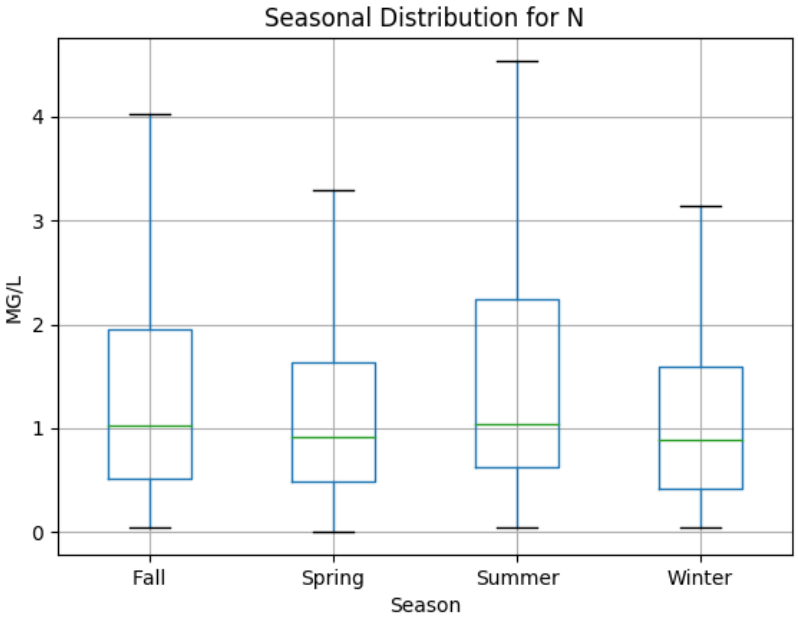

Figure 3: seasonal-N.png

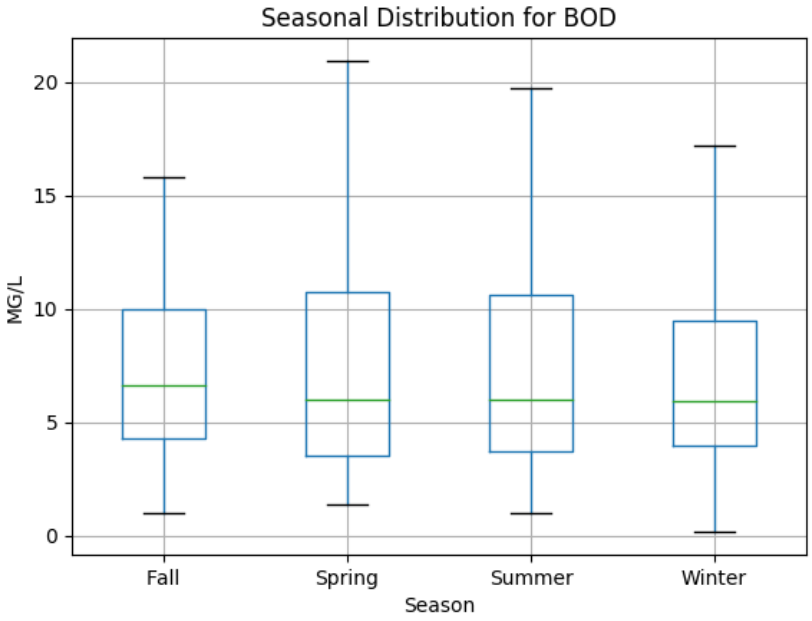

Figure 4: seasonal-BOD.png

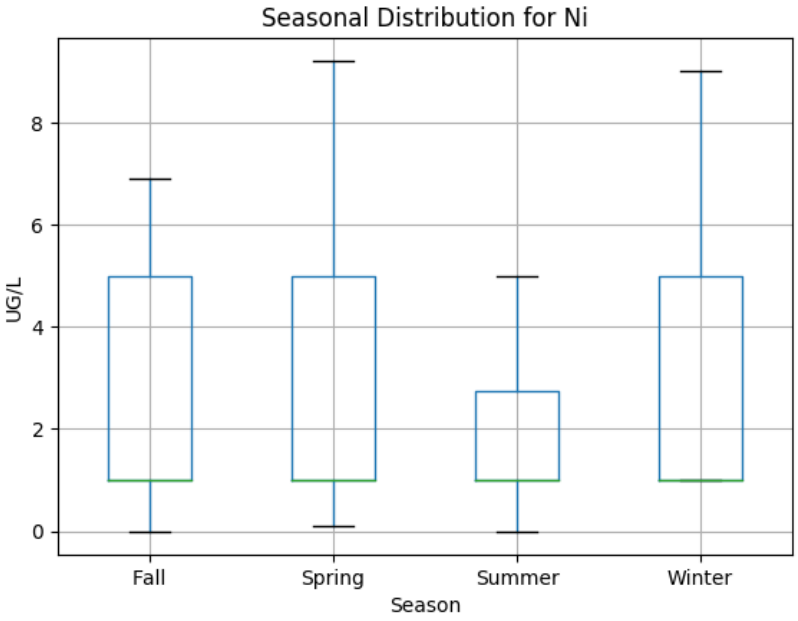

Figure 5: seasonal-Ni.png

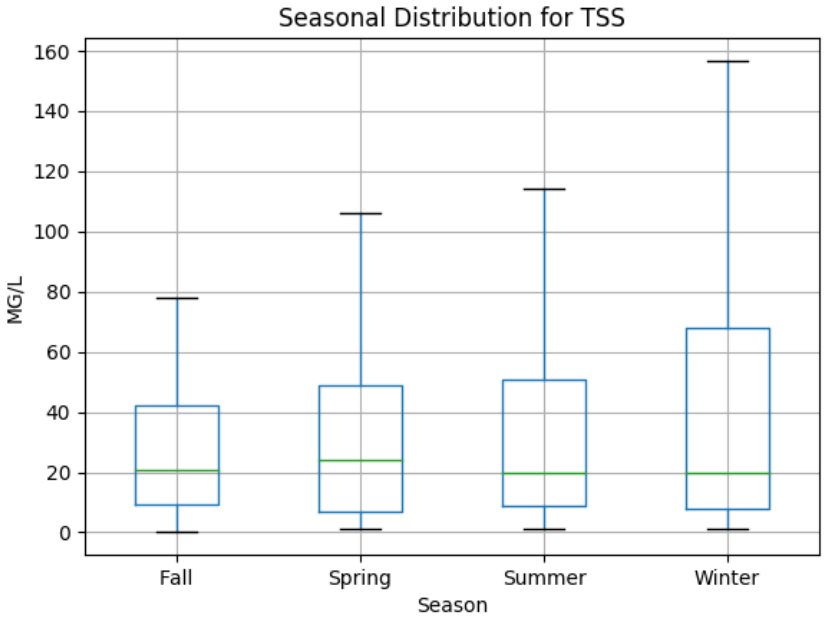

Figure 6: seasonal-TSS.png

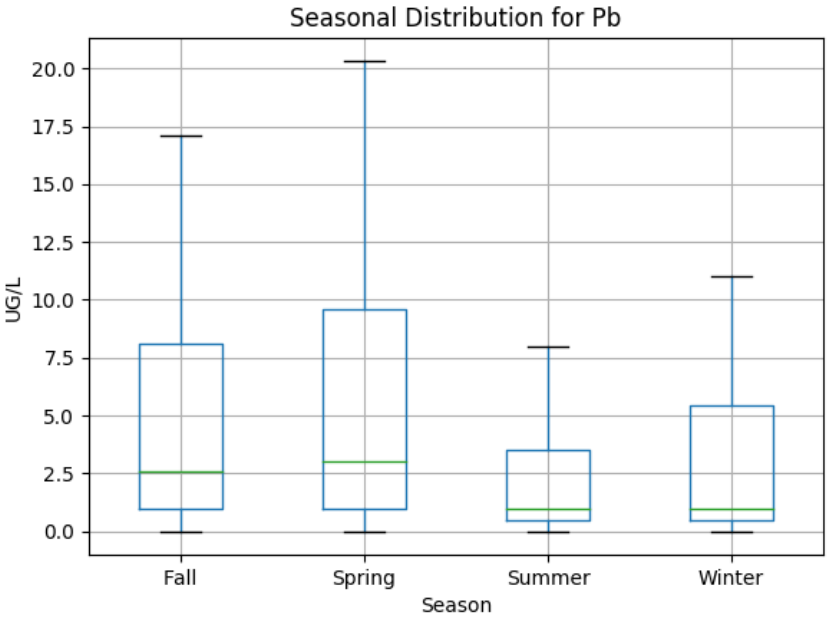

Figure 7: seasonal-Pb.png

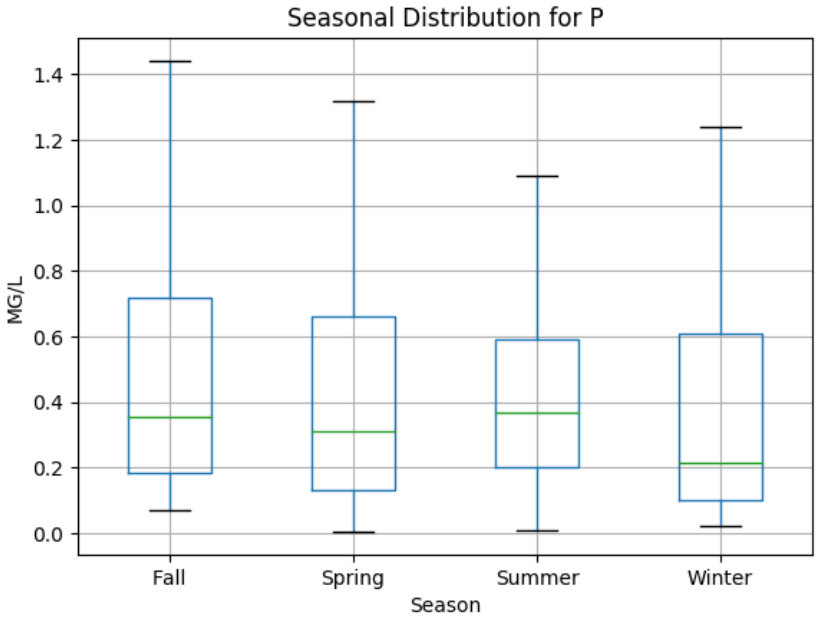

Figure 8: seasonal-P.png

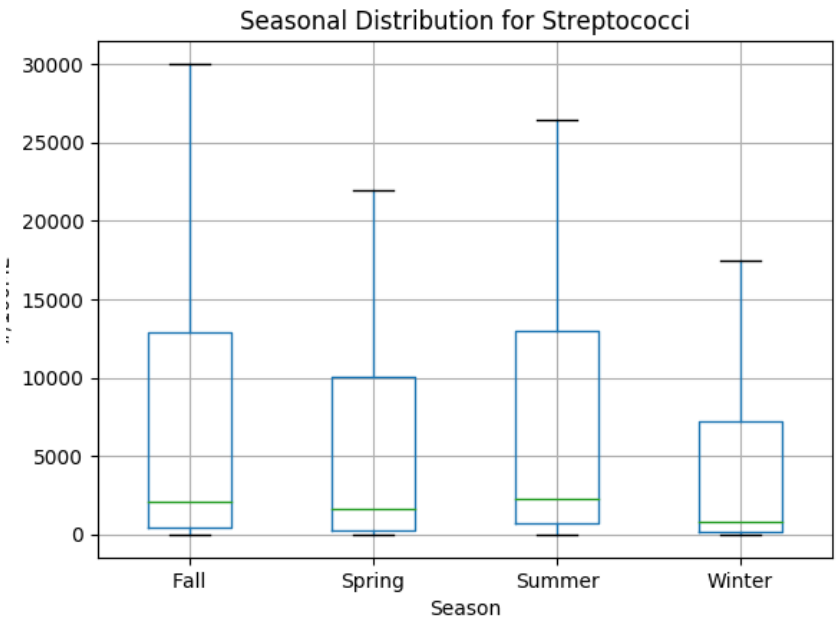

Figure 9: seasonal-Streptococci.png

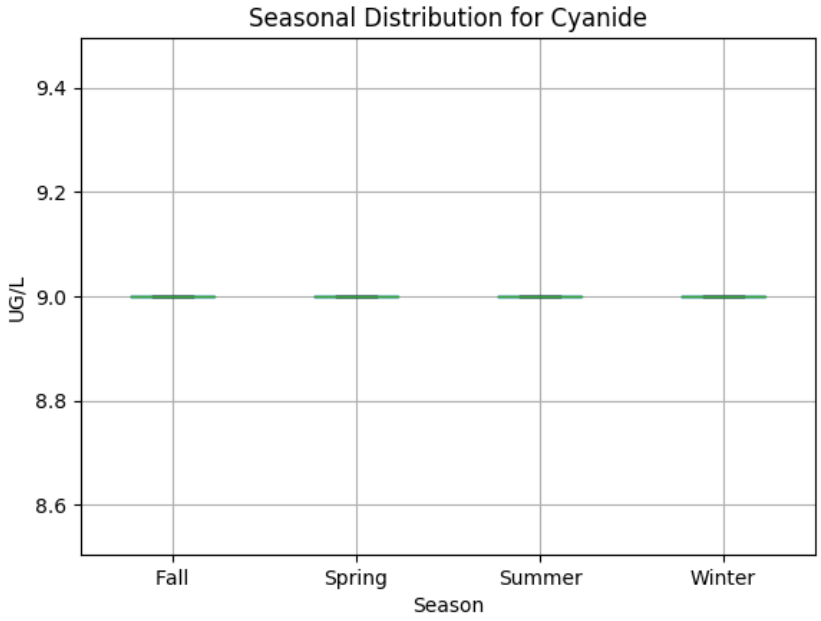

Figure 10: seasonal-Cyanide.png

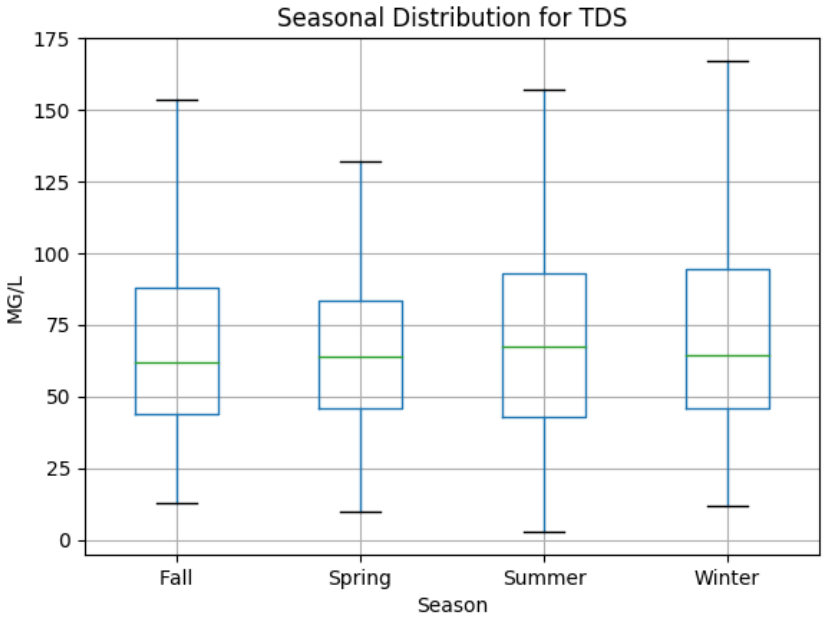

Figure 11: seasonal-TDS.png

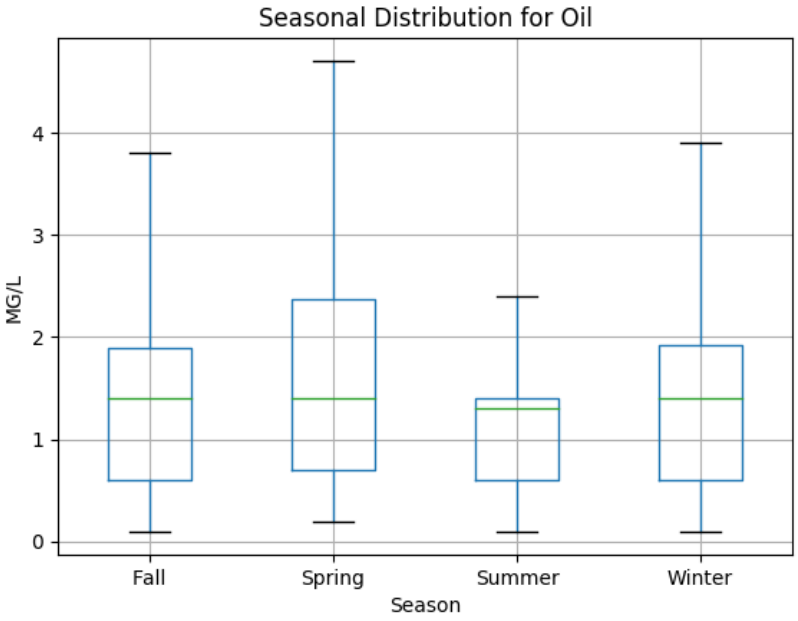

Figure 12: seasonal-Oil.png

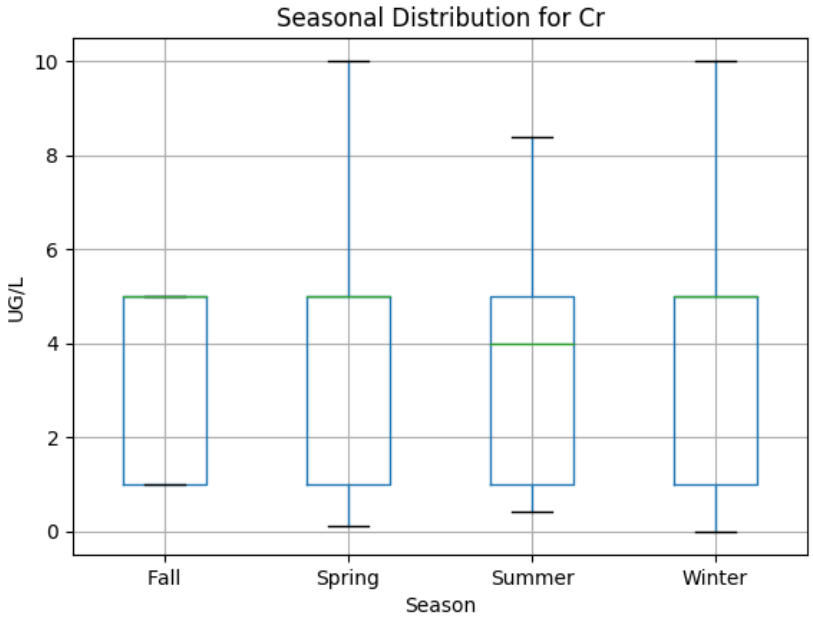

Figure 13: seasonal-Cr.png

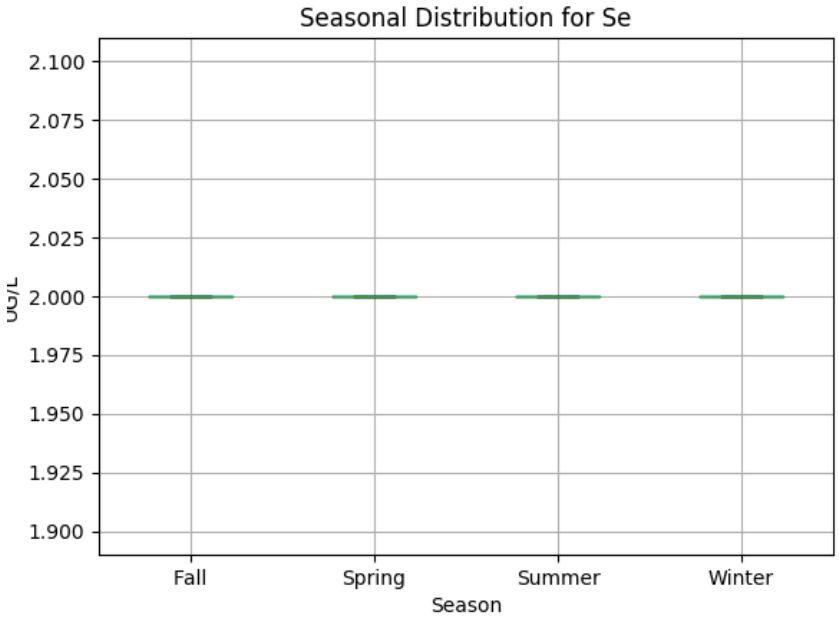

Figure 14: seasonal-Se.png

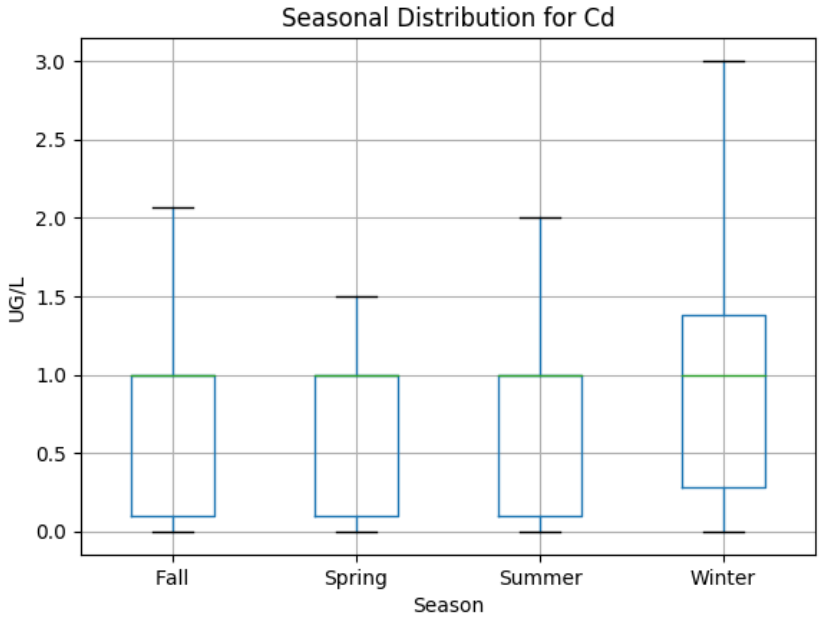

Figure 15: seasonal-Cd.png

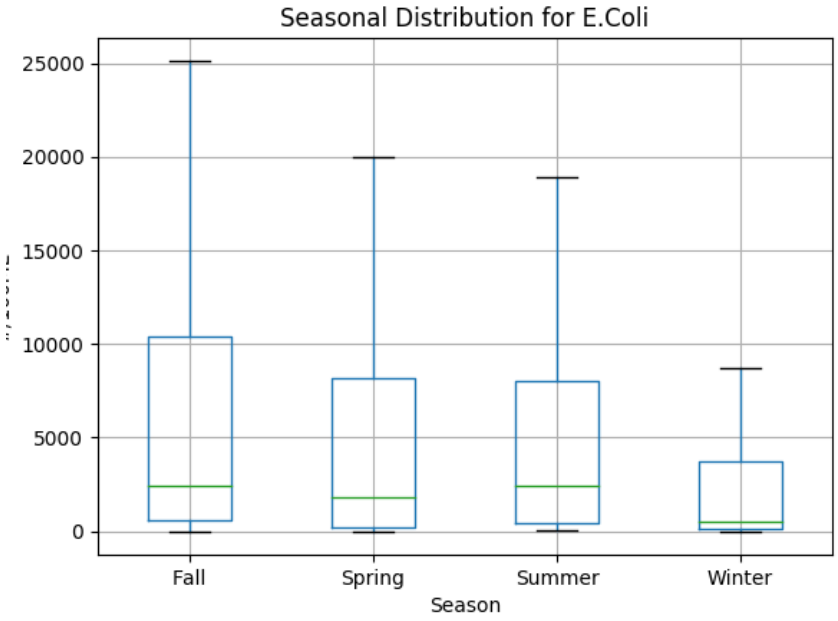

Figure 16: seasonal-E.Coli.png

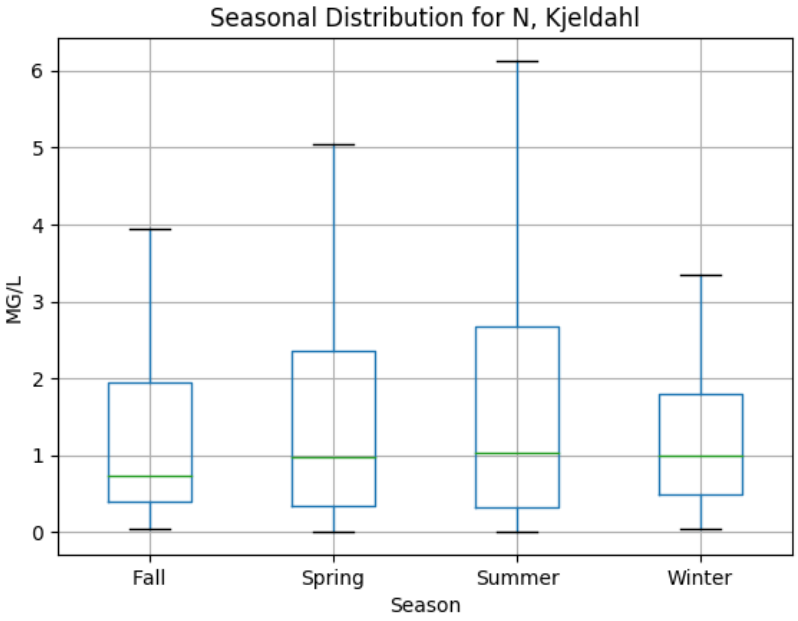

Figure 17: seasonal-N, Kjeldahl.png

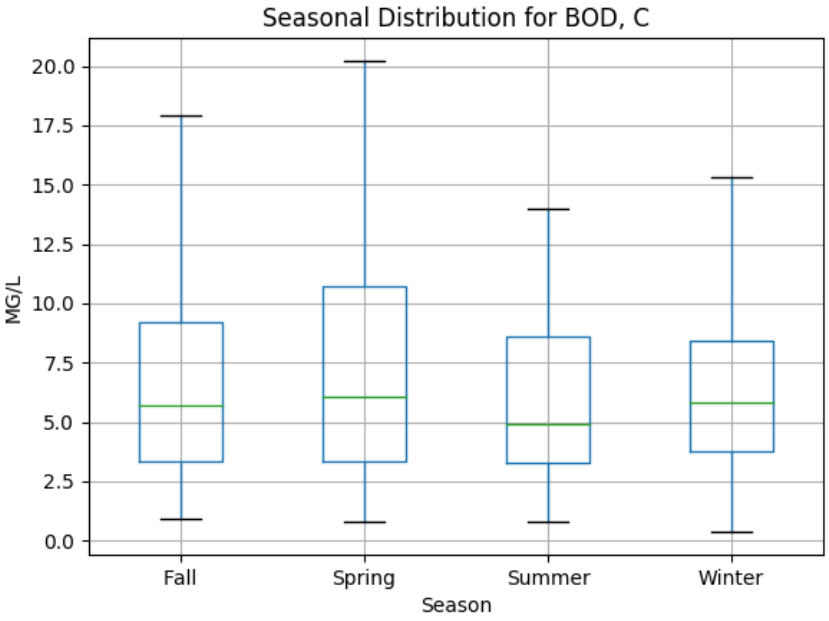

Figure 18: seasonal-BOD, C.png

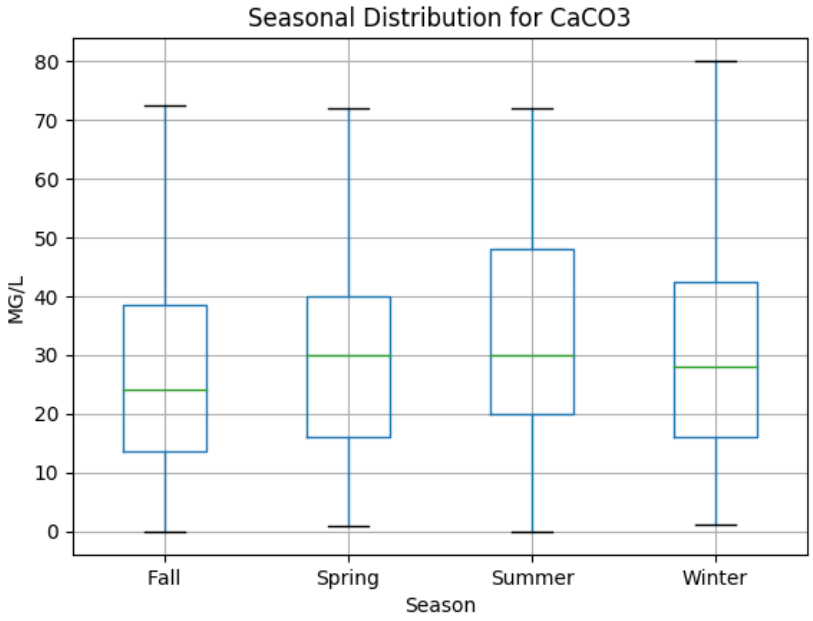

Figure 19: seasonal-CaCO3.png

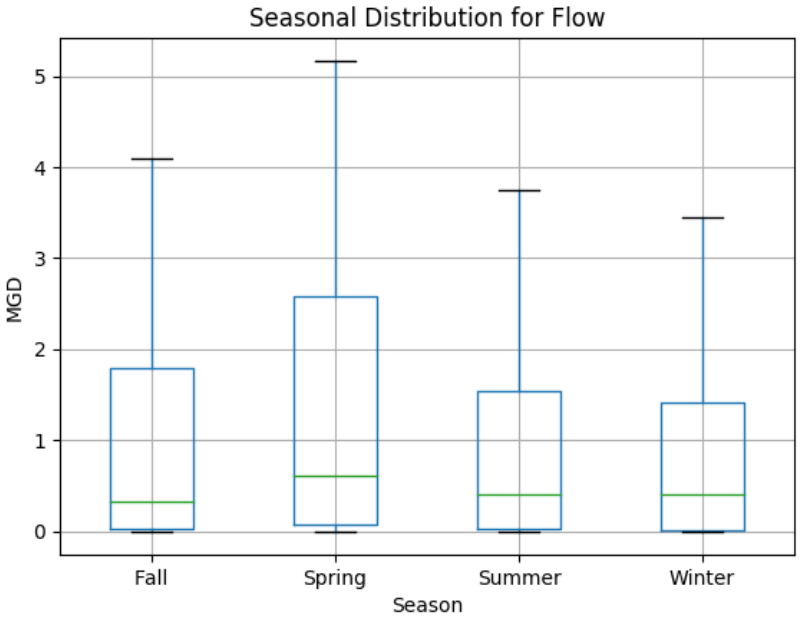

Figure 20: seasonal-Flow.png

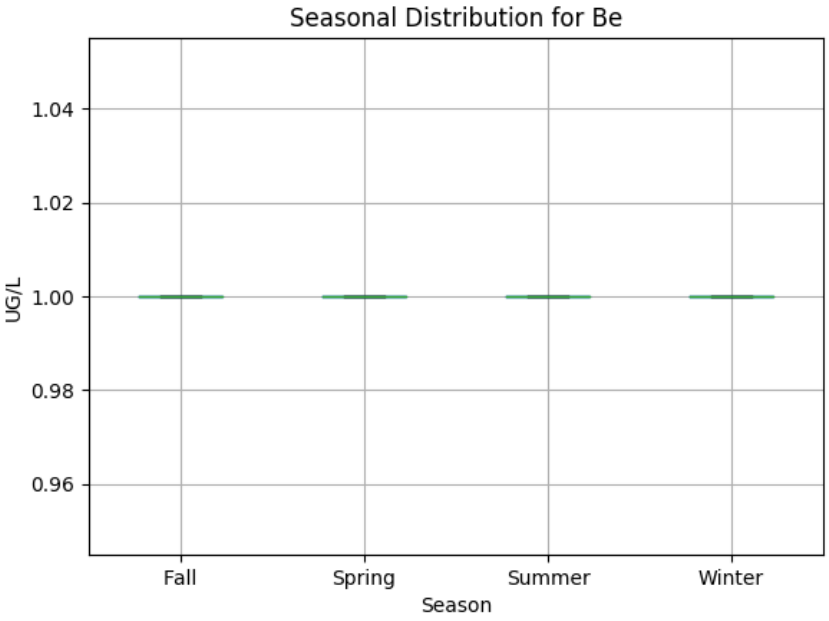

Figure 21: seasonal-Be.png

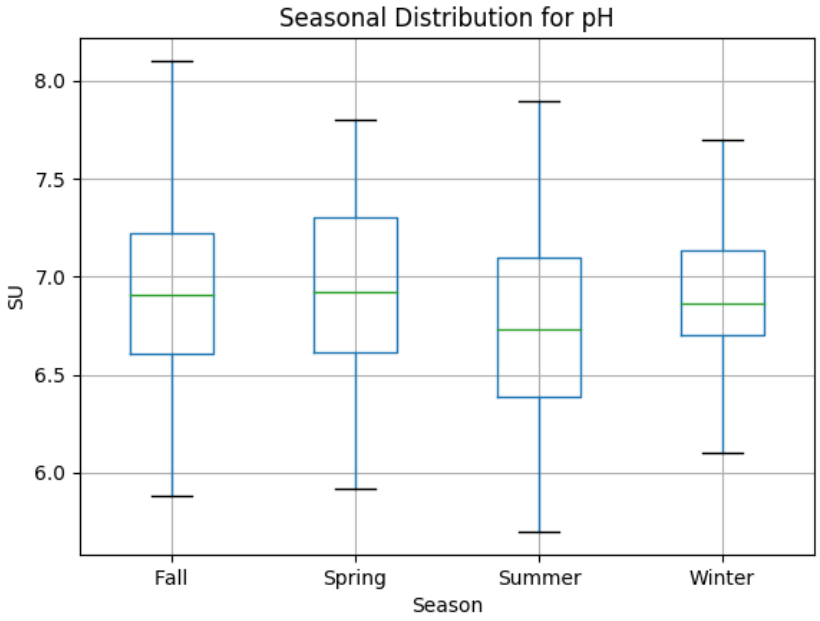

Figure 22: seasonal-pH.png

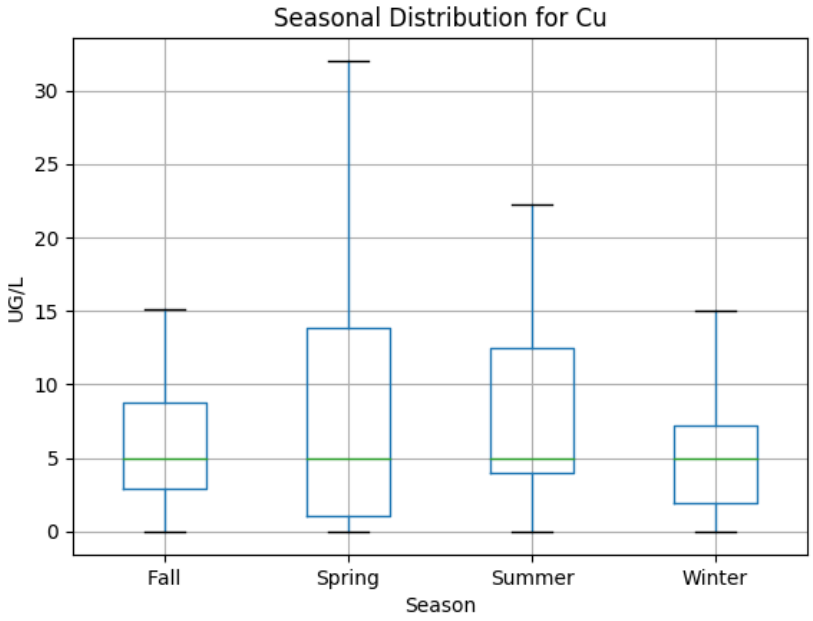

Figure 23: seasonal-Cu.png

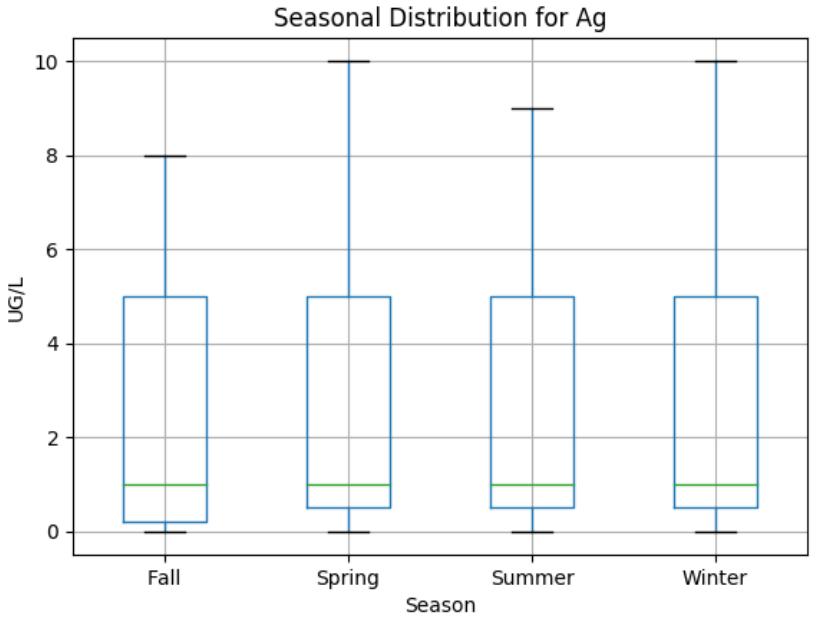

Figure 24: seasonal-Ag.png

Appendix H

Regional Analysis

The following graphs show the distribution grouped by location of all measurements (1997 to the present) for the entitled parameter.

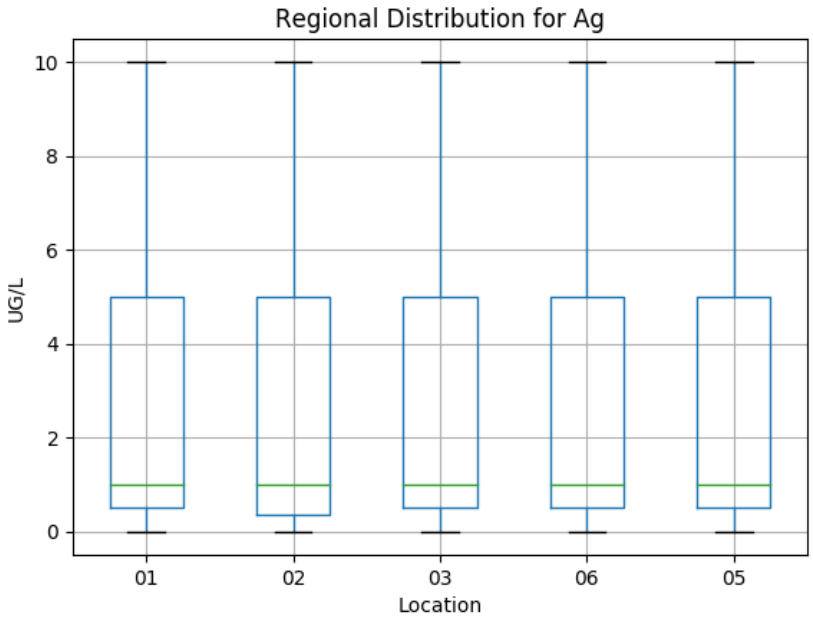

Figure 1: regional-Ag.png

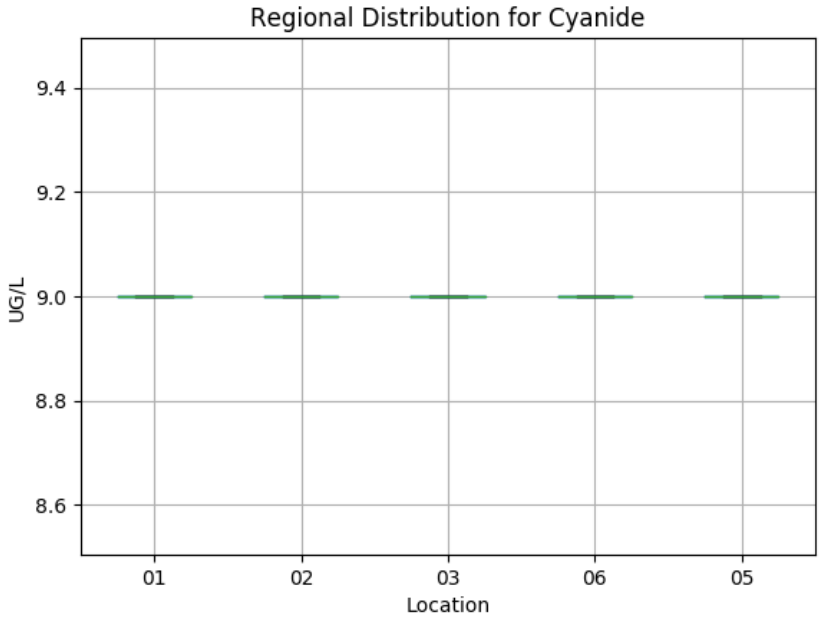

Figure 2: regional-Cyanide.png

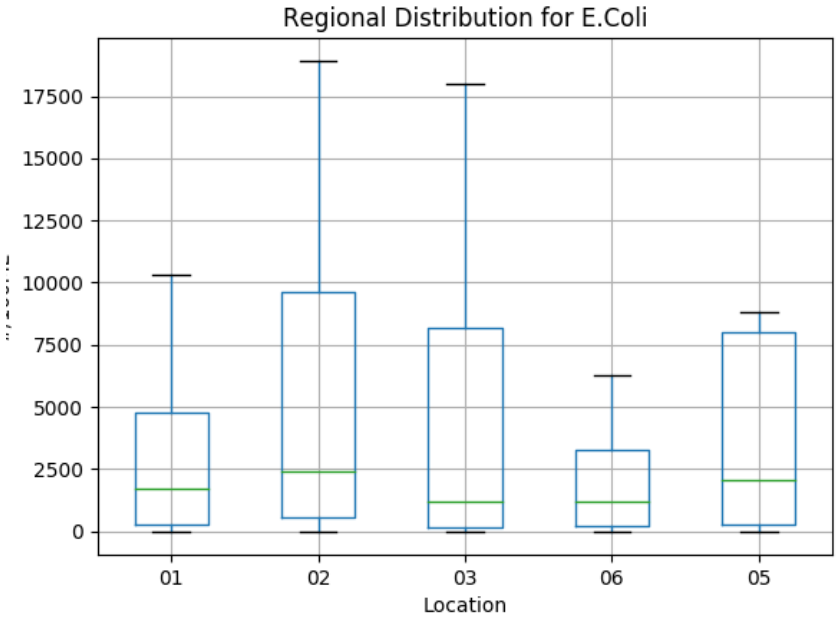

Figure 3: regional-E.Coli.png

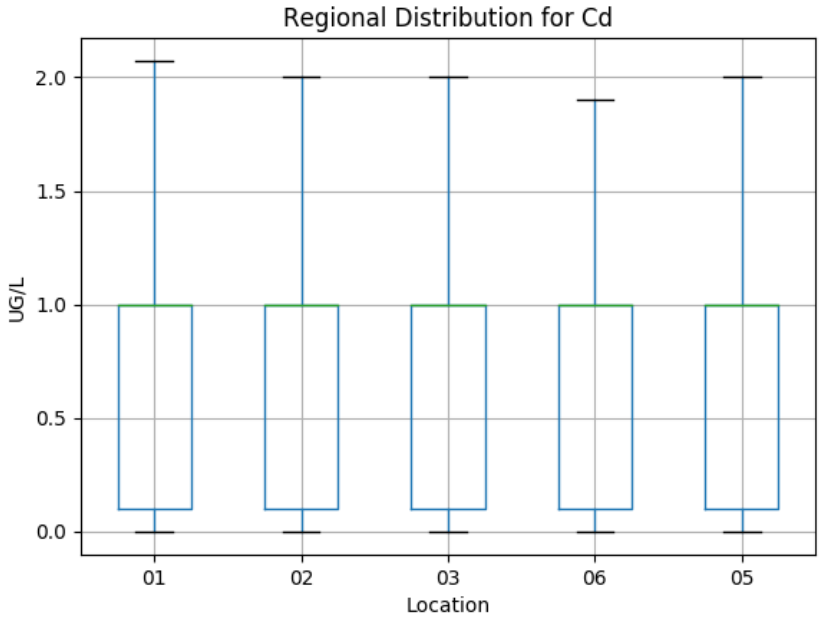

Figure 4: regional-Cd.png

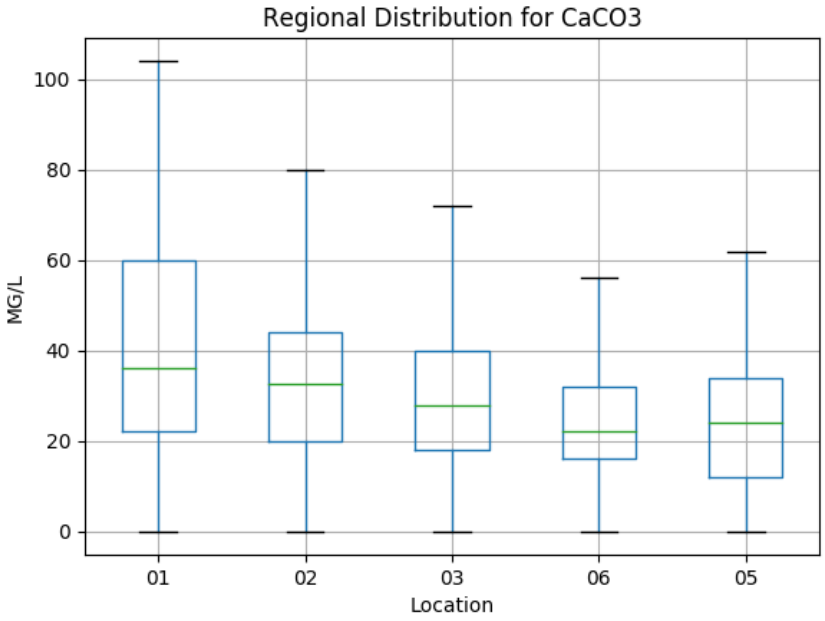

Figure 5: regional-CaCO3.png

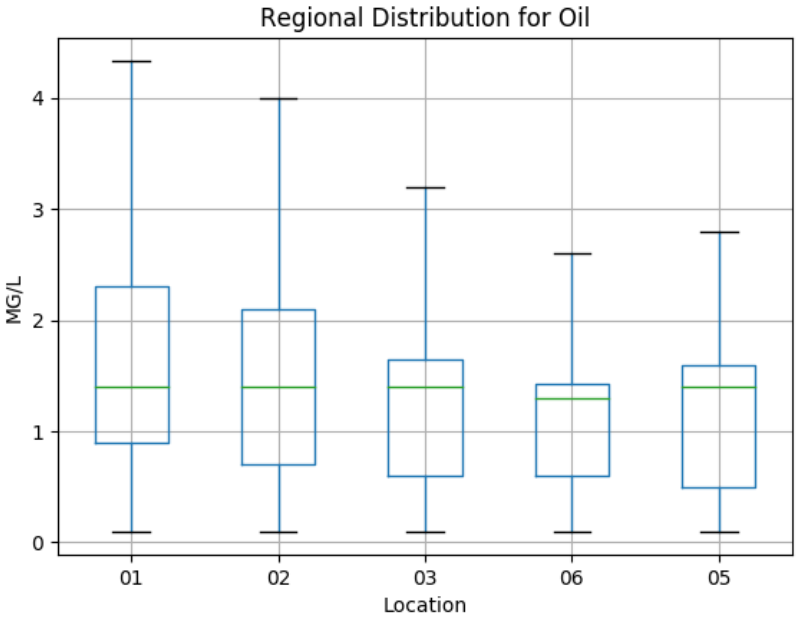

Figure 6: regional-Oil.png

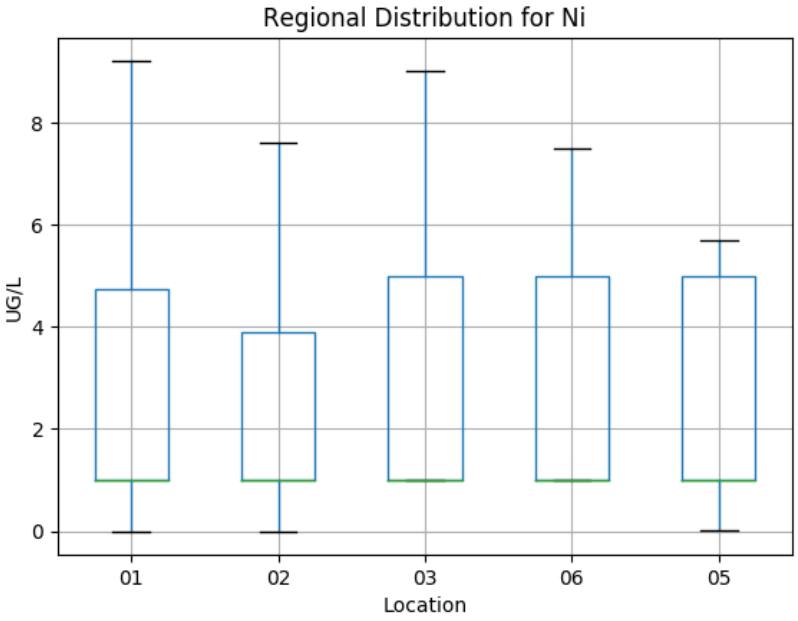

Figure 7: regional-Ni.png

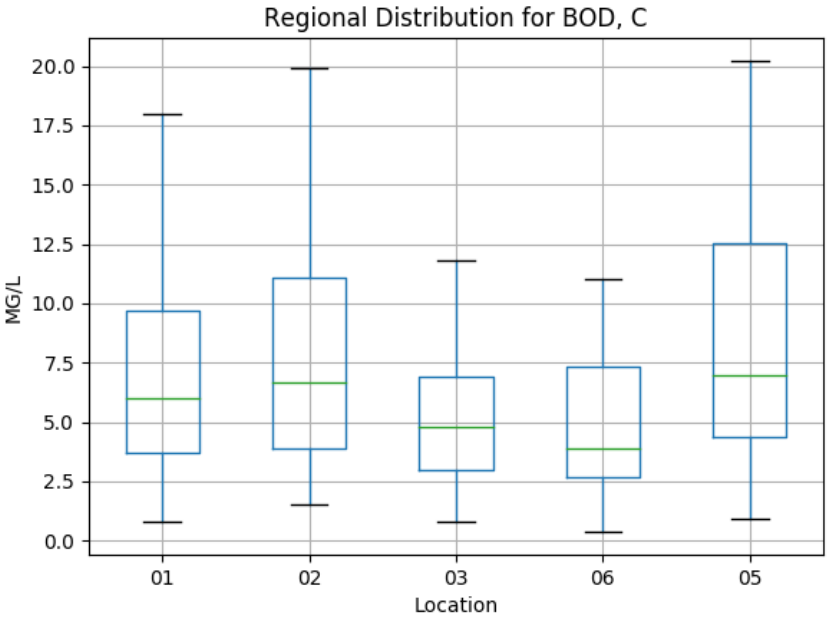

Figure 8: regional-BOD, C.png

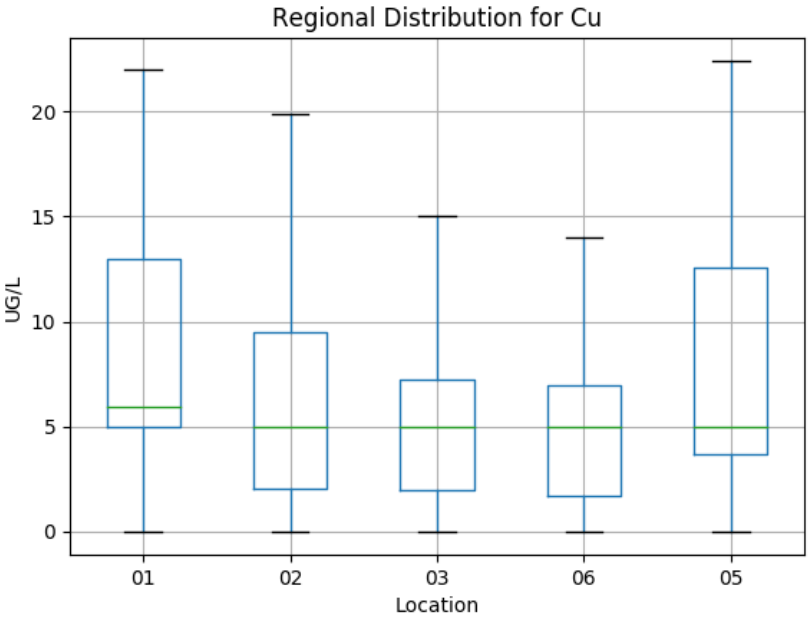

Figure 9: regional-Cu.png

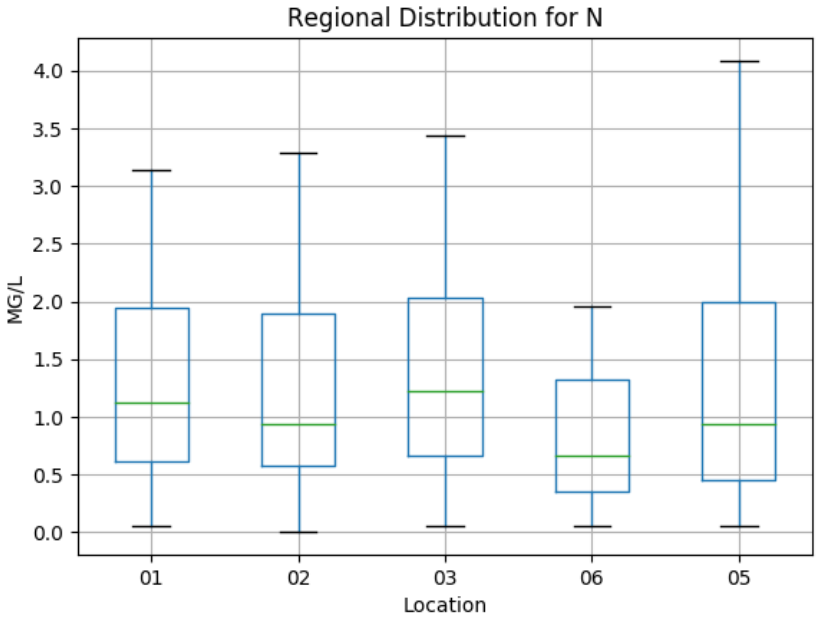

Figure 10: regional-N.png

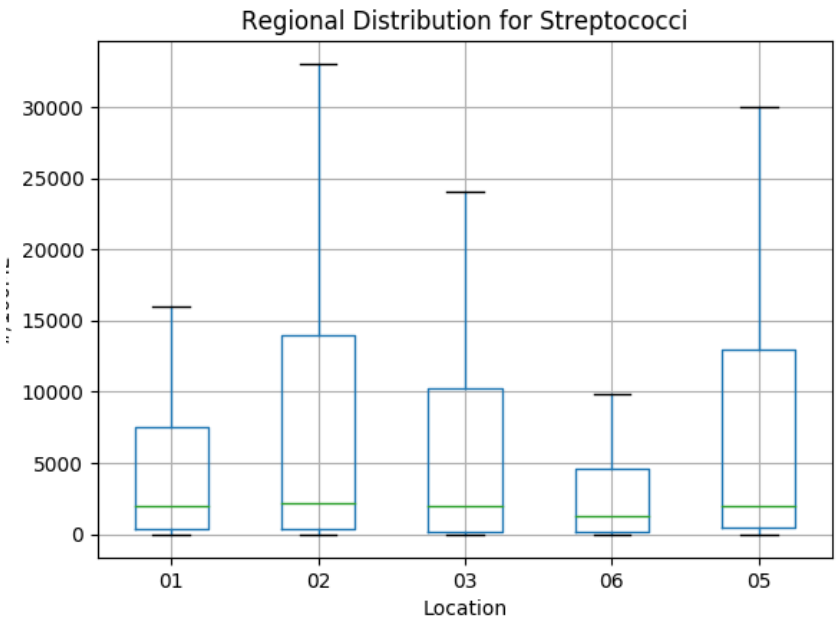

Figure 11: regional-Streptococci.png

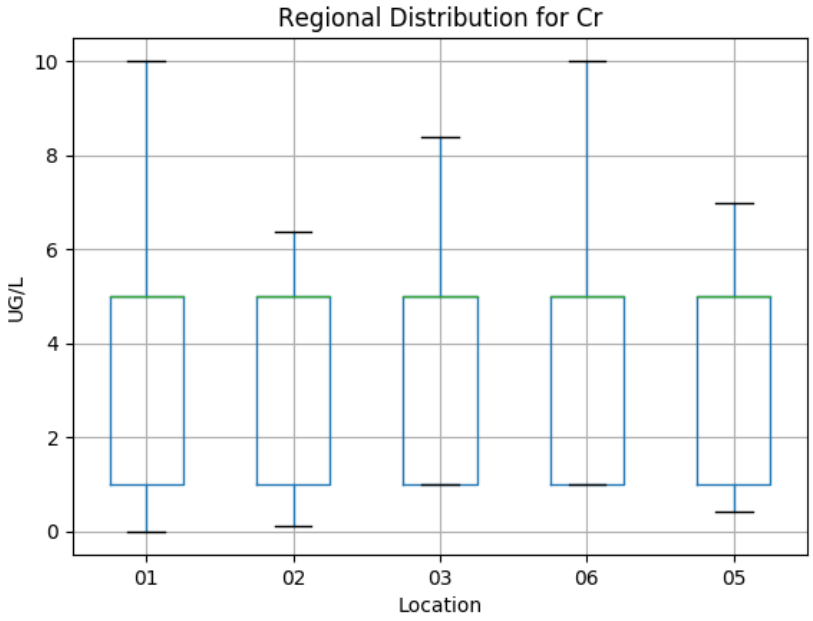

Figure 12: regional-Cr.png

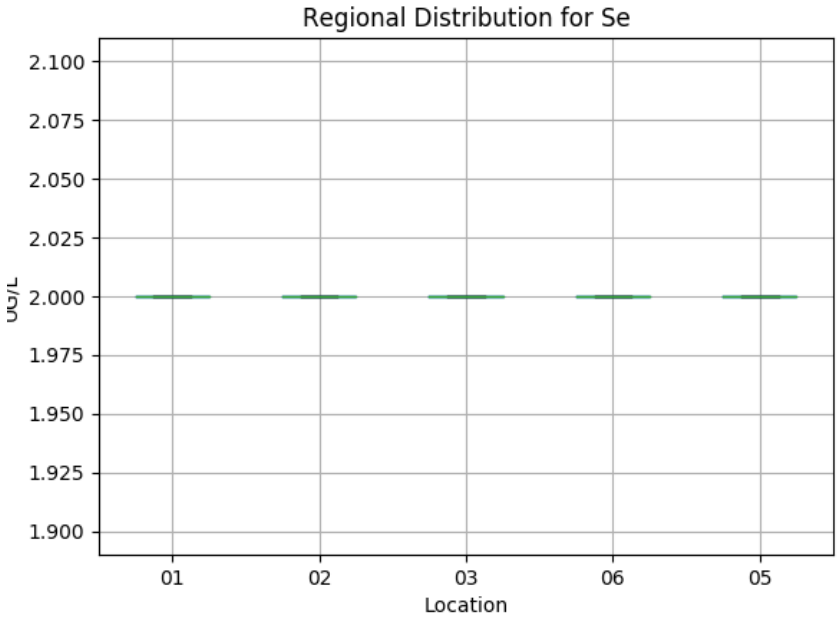

Figure 13: regional-Se.png

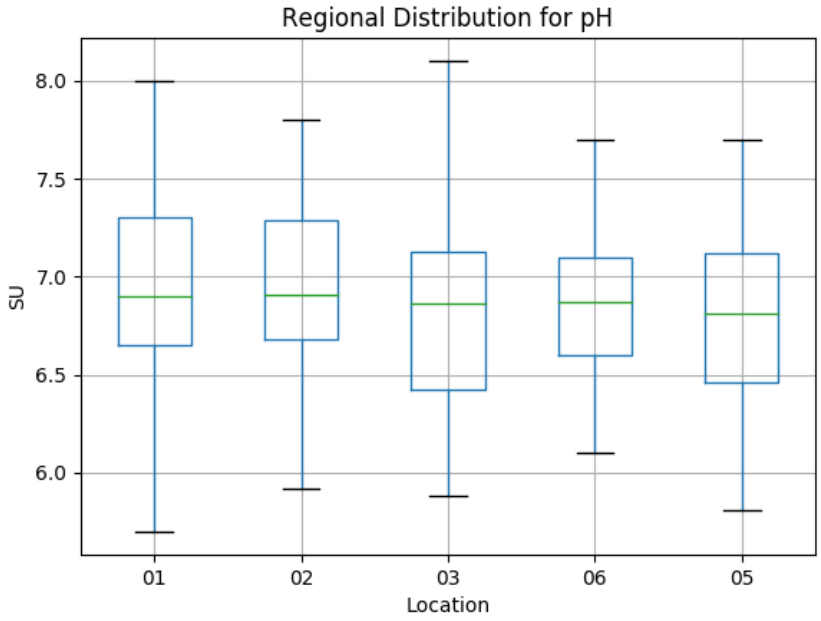

Figure 14: regional-pH.png

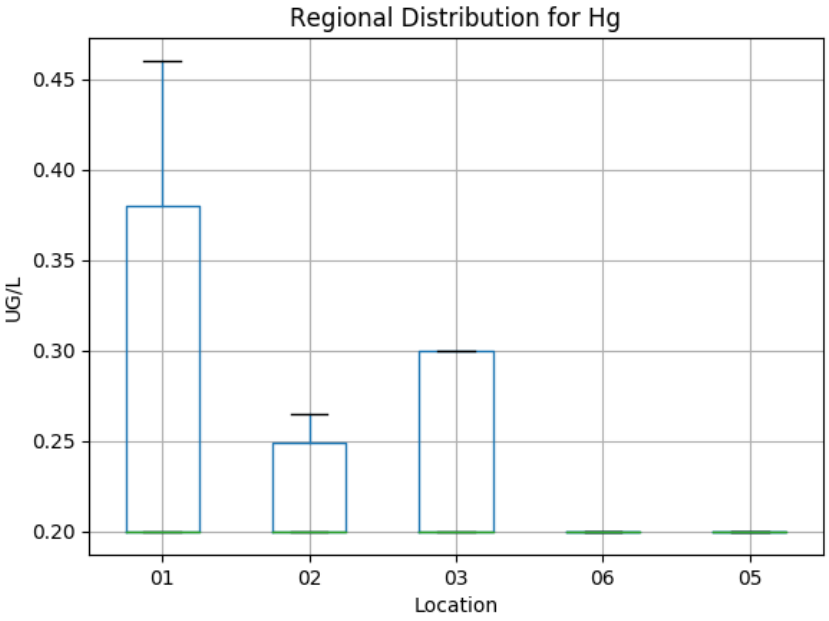

Figure 15: regional-Hg.png

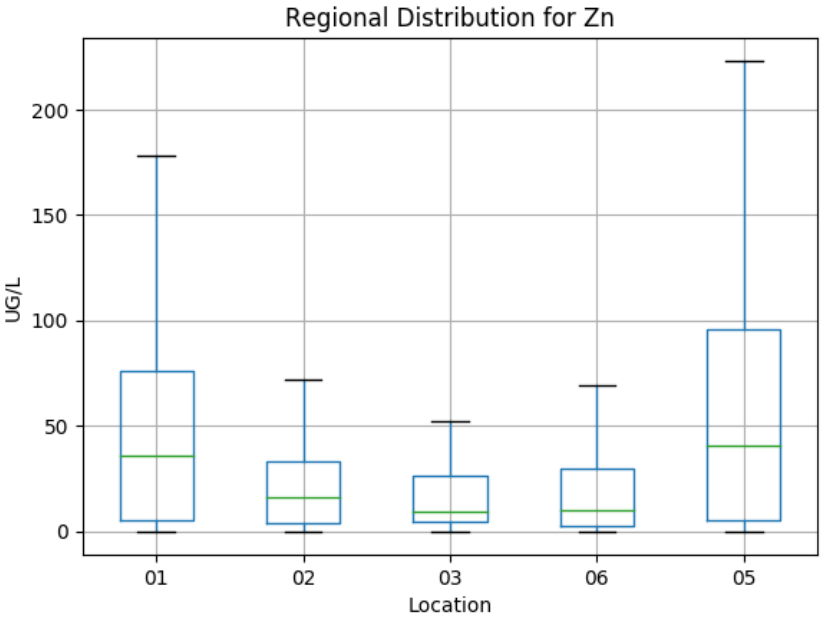

Figure 16: regional-Zn.png

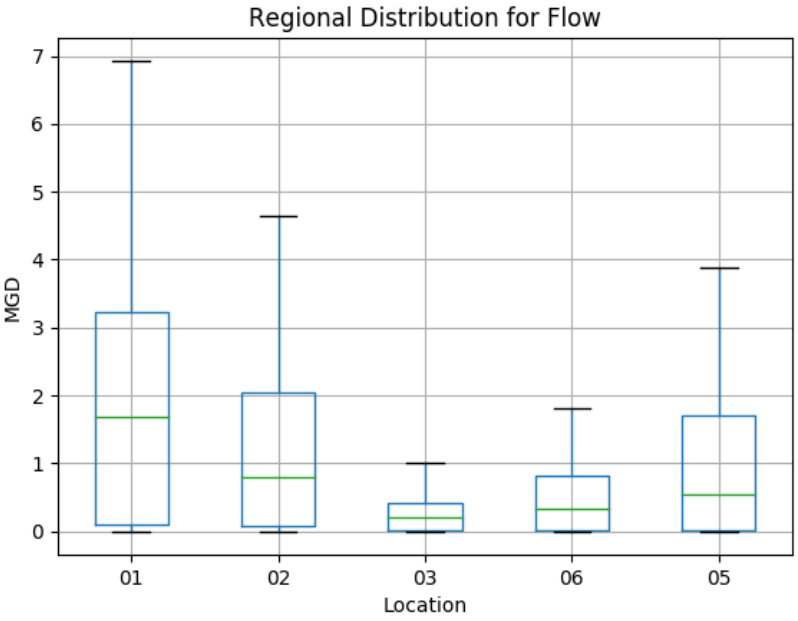

Figure 17: regional-Flow.png

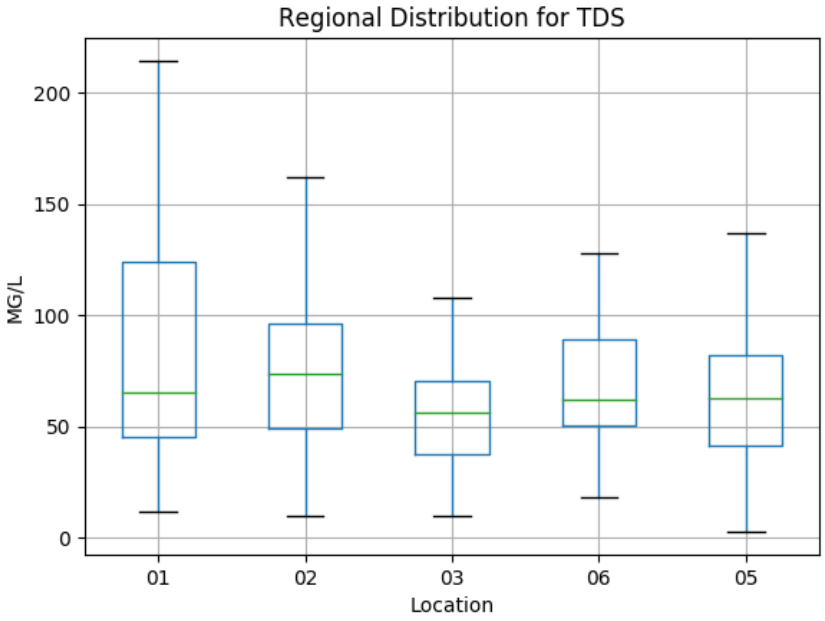

Figure 18: regional-TDS.png

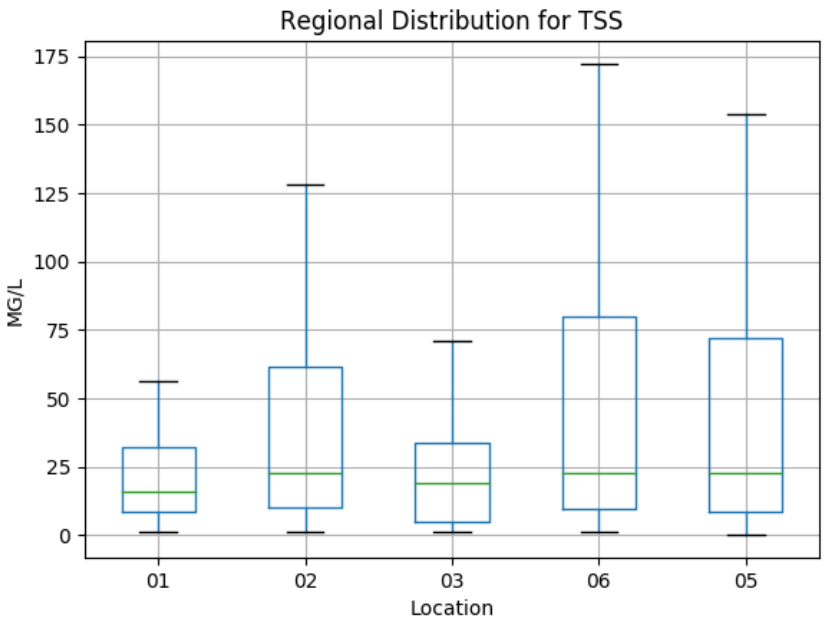

Figure 19: regional-TSS.png

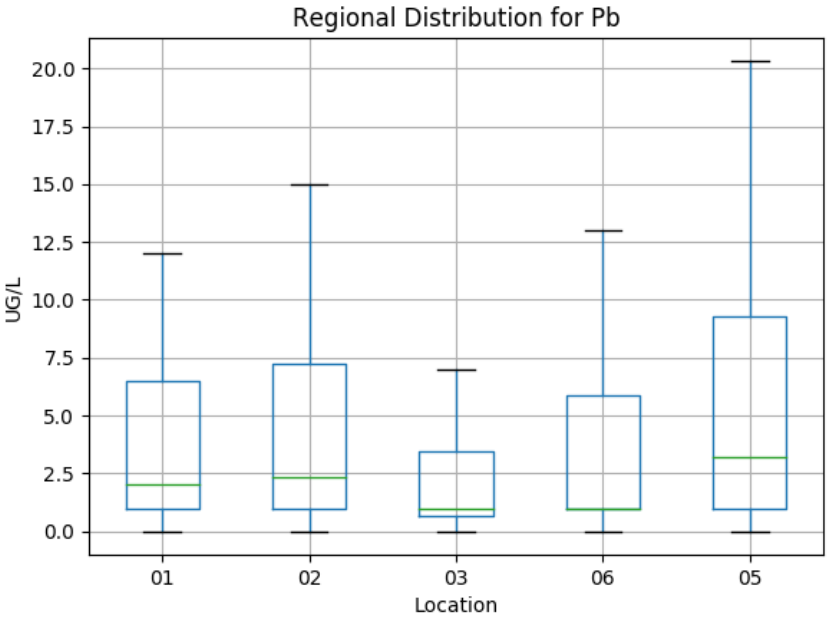

Figure 20: regional-Pb.png

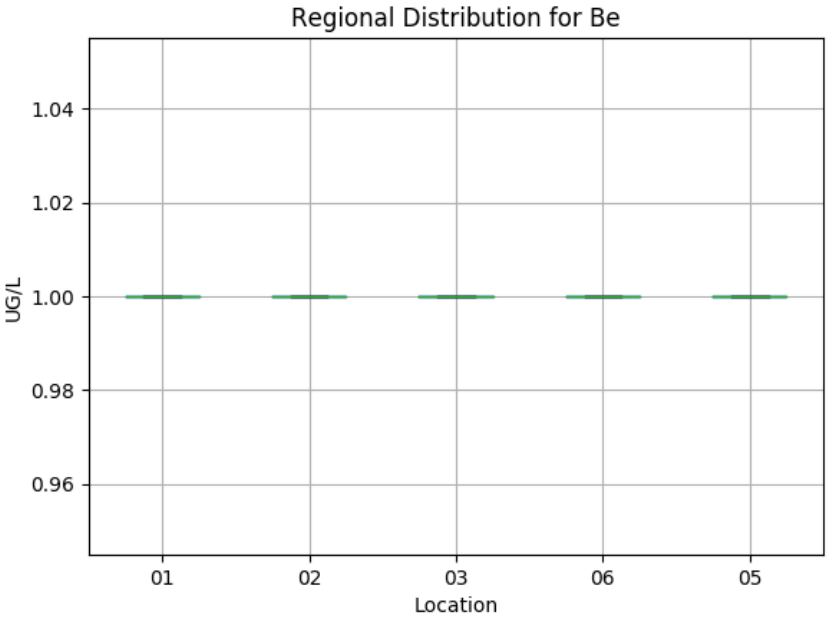

Figure 21: regional-Be.png

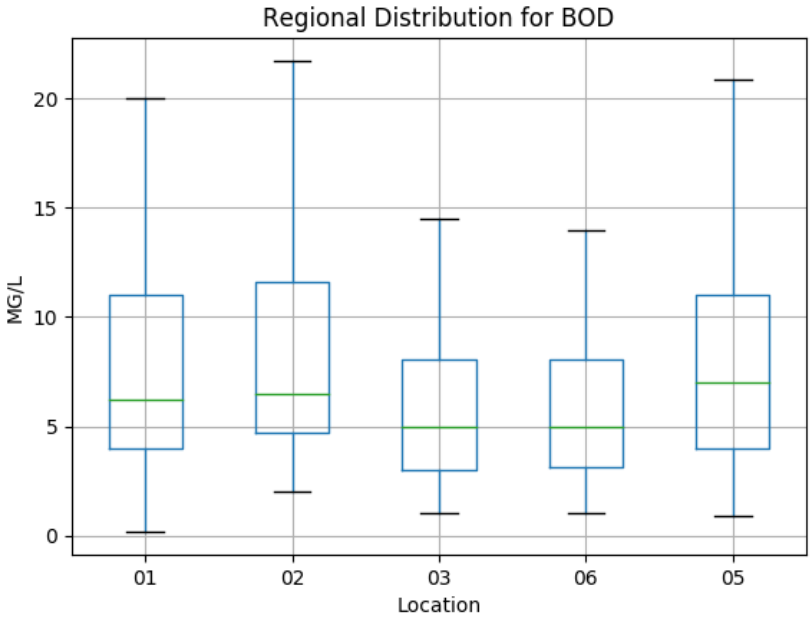

Figure 22: regional-BOD.png

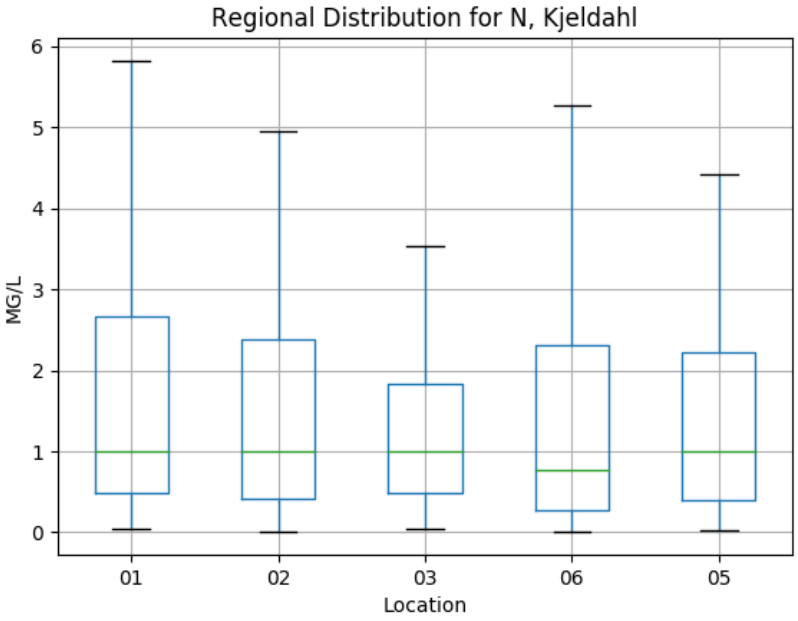

Figure 23: regional-N, Kjeldahl.png

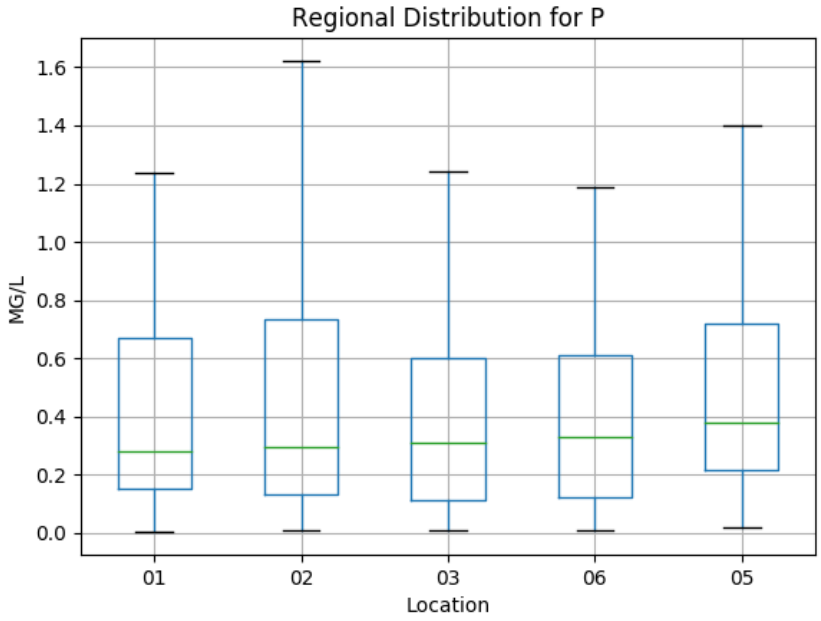

Figure 24: regional-P.png