

2016 ANNUAL REPORT

STORM WATER QUALITY MANAGEMENT

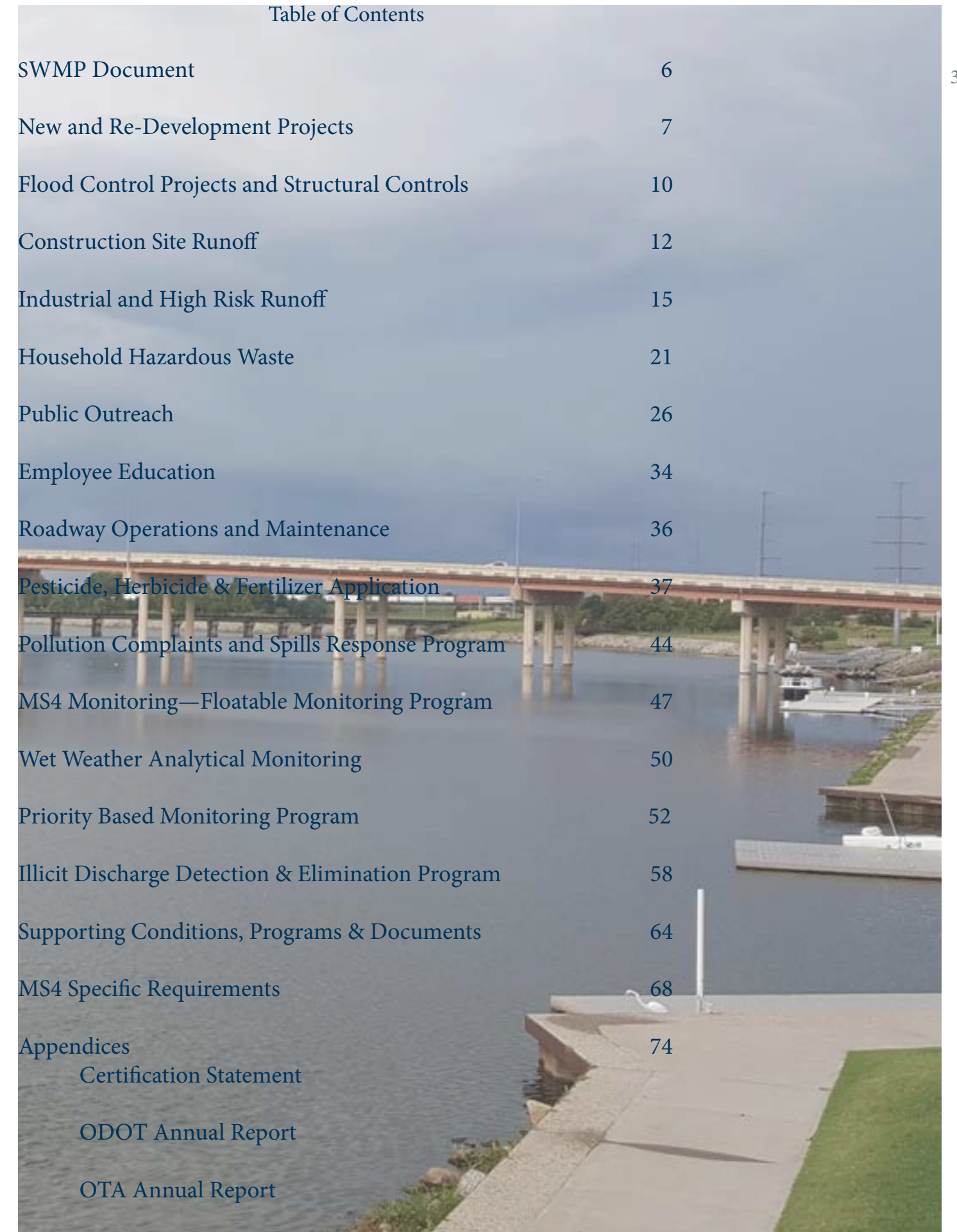


The City of
OKLAHOMA CITY

Storm Water Quality Management

The purpose of the Storm Water Quality (SWQ) Division is to provide inspections, enforcement, water quality assessments, public outreach and household hazardous waste services to citizens, businesses and government agencies so they can comply with the Clean Water Act and enjoy a safe and clean environment.

Oklahoma City Permit Number OKS000101



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The Storm Water Quality Permit became effective on March 15, 2013 and will expire March 14, 2018

Storm Water Quality Permit

In compliance with the Oklahoma Pollutant Discharge Elimination System Act and the rules of the Oklahoma Department of Environmental Quality (ODEQ), the City of Oklahoma City, the Oklahoma Turnpike Authority (OTA) and the Oklahoma Department of Transportation (ODOT) were granted authorization to discharge storm water from the Municipal Separate Storm Sewer System (MS4).

The permit became effective on March 15, 2013 and will expire March 14, 2018.

Accomplishments

- Increased construction and industrial inspector training (attended IECA and MS4 conference)
- Completed industrial “Quarterly Visual Monitoring” training video
- Hosted four industrial training workshops
- Hosted the EPA Region 6 MS4 Storm Water Conference in Oklahoma City
- Submitted the Lake Thunderbird TMDL compliance and monitoring plans to ODEQ
- Replaced copier at HHW Facility
- Refurbished paint can crusher
- Installed new notification driveway alarm at HHW
- Replaced HHW advertising van wrap
- Increased Adopt-A-Street participation by 8.6%
- Initiated Oklahoma River clean-up pilot project

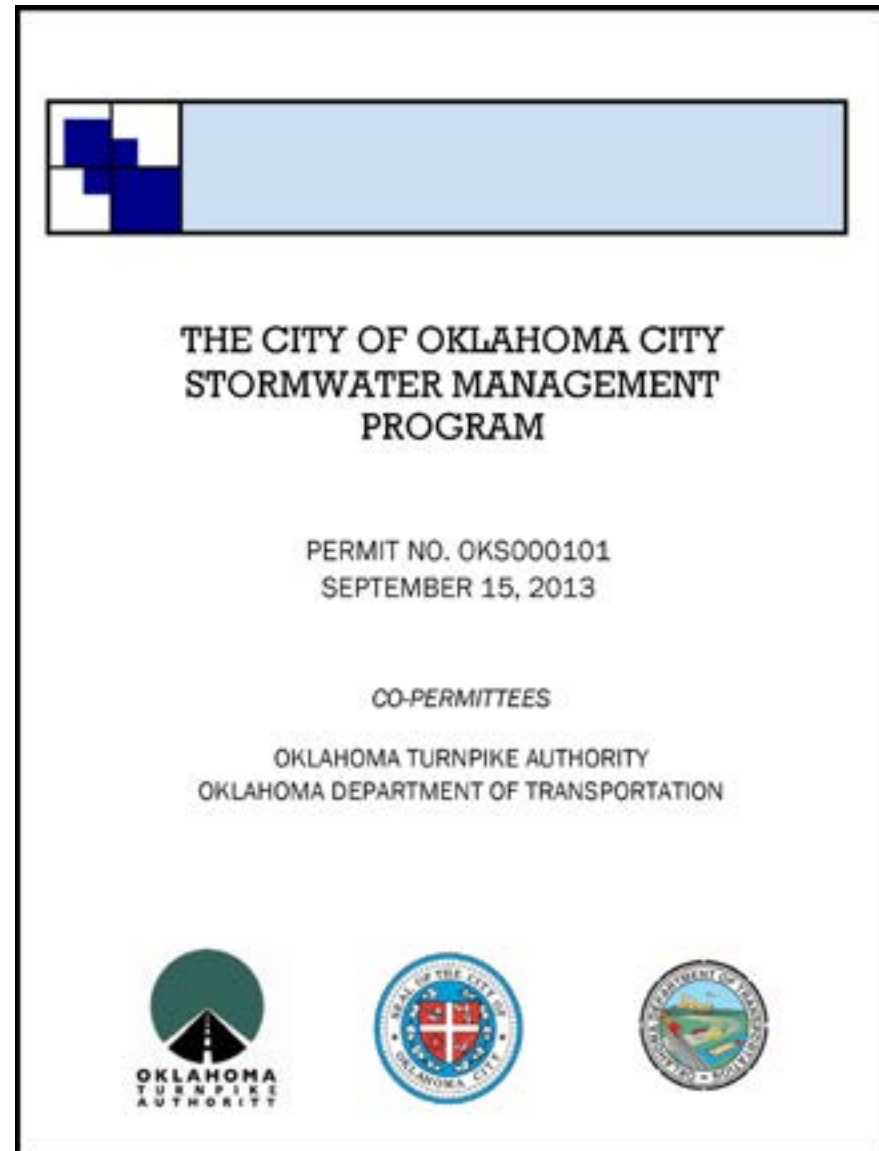
Goals

- Continue working with other stakeholders on the Lake Thunderbird TMDL
- Continue reviewing proposed changes to Industrial OKR05 permit with stakeholder committee
- Continue reviewing proposed changes to the Construction OKR10 permit with stakeholder committee
- Create training video and/or Power Point presentation for State Fair food vendors
- Complete Swimming Pool Discharge brochure
- Replace two Oklahoma River Debris Barriers
- Install ten additional storm drain inlet filters in the Lake Thunderbird watershed
- Update OKC Municipal Code to reflect Lake Thunderbird TMDL requirements
- Re-bid HHW disposal and supplies contract
- Present Storm Water Education Program to 2,500 students
- Present Storm Water Education Program to schools in the Lake Thunderbird TMDL watershed



Oklahoma River

Storm Water Management Program - The Storm Water Management Program (SWMP) is reviewed annually and updated as necessary. Updates were performed in 2013 to reflect any changes within the re-issued Oklahoma City Municipal Separate Storm Sewer System permit #OKS000101.



New and Re-Development Projects

The Public Works Department's permitting program requires a plan review process on all plans submitted to the City. During this process, check prints are sent to City departments for their review. The Storm Water Quality Division is part of that review process. Storm Water Quality requires that all plans submitted to the City must have an erosion control site plan and detail sheet. Every site plan is reviewed to ensure that Best Management Practices (BMP's) will be used to control erosion and sediment at the site. After each department has completed their review and a Storm Water Quality permit is obtained, a meeting with the engineer of record is set and City personnel review all remarks with the engineer. The engineer then submits the final set of plans with all the required changes for review. During the 2016 reporting period, 902 construction plans were reviewed by Storm Water Quality.

When the land disturbing activity is finished and perennial vegetation has been established on all exposed soil, the permittee will notify the manager and submit a Notice of Termination (NOT) for the project. A storm water construction technician will inspect the site to determine if one of the following conditions for the NOT have been met:

- site stabilized with a density of at least 70% of the original native vegetation, or
- all storm water discharges from construction activities have been eliminated, or
- if the owner/operator is no longer the owner/operator of the site, then a transfer of coverage to a different owner/operator must have been received.

Plans Reviewed January 1, 2016 through December 31, 2016													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
Monthly Total	38	84	56	66	122	89	97	77	82	59	74	58	902



Storm Water Quality reviewed 902 construction plans



During 2016, 620 NOT's were approved

If the NOT is approved, a final inspection is approved and a Certificate of Occupancy is issued. During the 2016 reporting period, 620 NOT's were approved.

A re-inspection fee of \$35.00 is assessed for each additional inspection of construction sites due to non-compliance. In 2016, a total of 163 re-inspection fees were assessed.

Each application for a storm water quality construction, land disturbing permit or an existing permit renewal is accompanied by a fee of \$55.00. Permits expire one year from the date of issuance. Other fees include a late fee of \$15.00 per month, and a permit re-issuance fee of \$55.00.

If the work described in the permit has not begun within six months after issuance, the permit will expire and the permittee must re-submit all required forms and pay the reissuance fee in order to begin work.

The SWMP was revised to reflect the permit requirements of OKS000101 dated March 15, 2013, and includes criteria and procedures for determining requirements for structural and non-structural controls on new and significant reconstruction of roadways and highways.



Construction of new sand filter

State Fair Park Sand Filter - Funded through the 2007 Bond Authorization, Oklahoma City constructed a sand filter at the State Fair Park. Construction began in January 2015 and the filter became operational in September 2015. During the 2015 permit term, roughly 818,000 gallons of storm water were processed through the unit. Monitoring results indicate that 39 lbs. of Biochemical Oxygen Demand (BOD) and 262 lbs. of Total Suspended Solids (TSS) were removed by the filtering process.

SWQ continued to monitor the sand filter during the 2016 permit term. In August 2016, a HACH FloDar level/flow meter with telemetry was installed in the forebay of the filter to continuously read water levels within the unit. The telemetry has provided nearly real-time measurements of the water level which help maximize treatment efficiency while alerting staff of potential maintenance issues. To determine the pollutant reductions, personnel periodically monitor the influent and effluent quality. These monitoring data provide the information needed to determine the amount of pollutant removed from the captured storm water. Monitoring results indicate that 955,986 gallons of water were processed through the filter in 2016. The filter removed an estimated 0.52 lbs. of oil and grease, 68.92 lbs. of BOD, 2.32 lbs. phosphorus, 249.54 lbs. COD, 2.27 lbs. kjeldahl nitrogen, and 179.2 lbs. TSS. Nitrate plus nitrite values exhibited an export of 0.53 lbs. from the filter.

Construction Notices of Termination January 1, 2016 through December 31, 2016

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
Monthly Total	44	46	76	41	44	55	42	78	49	50	44	51	620



Riverbank stabilization project
at Midwest Boulevard and
NE 59th Street

Flood Control Projects and Structural Controls

On December 11, 2007, Oklahoma City voters passed an \$835.5 million bond issue, with all 11 propositions garnering at least 78% approval of the vote.

The largest portion, \$497.4 million, is allocated to roadway improvements. Among other projects, the bond issue includes \$89.7 million for parks and \$32 million for drainage projects.

In 2016, Public Works had four contractors that maintained 27 miles of creeks that the City owns. The City also used Streets, Traffic and Drainage Maintenance crews to maintain 26 miles of creeks. This is a year-round process. In 2016, approximately 53 miles of creeks were cleaned. The contractors also maintain 248 acres of detention ponds and 18 acres of City-owned vacant lots. The annual budget for these projects in 2016 was \$832,169.

Public Works Drainage Maintenance Division is responsible for repairs made to drainage structures, concrete-lined channels, creeks and manholes. There were 1,151 repairs to drainage structures and 545 repairs to creek/concrete channels. Six staff members, with a budget of \$934,300, provided routine maintenance repairs to the waterways, dams and locks on the Oklahoma River and removed 289 tons of debris in 2016.

The Public Works Storm Water Quality Construction Section and Engineering Division will continue to review construction plans for the development of retention/detention ponds for compliance with the Oklahoma drainage and flood control ordinances.

The City continues to evaluate, prioritize and install structural controls on developed areas and/or retrofit existing structures.



DRAINAGE DESIGN
\$3,833,560

DRAINAGE CONSTRUCTION
\$5,803,590



STREETS DESIGN
\$26,840,183

STREETS CONSTRUCTION
\$74,281,659



Construction storm water quality discharge permits totaled 1,307 active permits

Construction Site Runoff

A construction storm water quality discharge permit is required prior to the start of all land disturbing activities for the construction of:

- New utilities
- Industrial, commercial or institutional facilities
- Residential subdivisions
- Demolition of structures

It is the responsibility of the owner/operator to secure the permit. A total of 694 construction storm water quality discharge permits were issued in this reporting period for a total of 1,307 active permits.

Construction Permits Issued January 1, 2016 through December 31, 2016

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
Monthly Total	62	47	56	43	77	55	70	74	58	52	46	54	694

As permits are issued, they are entered in the V360 Accela Automation permitting database. This database provides multiple departments within the City a solution to automate their workflow. It manages all land use and community development activities such as permits, inspection and reviews, zoning, project plans and code enforcement. The program provides multiple City departments the ability to track, change and share information regarding permitted activities.

A total of 8,098 construction site inspections were completed during this reporting year.

Construction Site Inspections January 1, 2016 through December 31, 2016

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
Monthly Total	413	577	798	806	661	645	560	874	770	586	634	774	8,098

Construction field laptops are fully ruggedized. The laptops enable the technicians to complete their work more efficiently. The speed and dependability allow technicians to immediately load their audits, input the data, print and/or email the results to site operators.

If the operator is not at the site, a call will be made following the inspection to discuss any deficiencies. If the deficiencies are not corrected, a Notice of Violation (NOV) will be issued to the operator, with a date set for the site to be in compliance. If the site is not in compliance on the set date, an Affidavit of Probable Cause will be filed with the City’s Municipal Counselor’s office. A total of 112 Notices of Violation were issued and 4 affidavits processed for construction-related activities during this reporting period.



Staff completed 8,098 construction site inspections

Construction Notices of Violation by Quarter for 2016

	Jan - Mar	Apr - Jun	Jul - Sept	Oct - Dec	Total
Quarterly Total	47	31	28	6	112



2016 EPA MS4 conference in OKC

During the 2016 reporting period, the construction environmental unit supervisor conducted 88 inspector audits under the Quality Assurance Program (QAP). The QAP is an internal program where the supervisor will ride-a-long with the inspector and record how the technician performs an audit. This allows the technician to ask questions and ensures that audits are being performed consistently with federal and state guidelines.



In October, Oklahoma City hosted the 18th Annual EPA Stormwater Conference in partnership with the U.S. Environmental Protection Agency, Texas A&M University-Kingsville and the States of Region 6. Oklahoma City Mayor Mick Cornett kicked off the conference on Tuesday morning. Keynote speakers throughout the week included Debra Nagle, Barry Fagan, Newton Tedder, and Dr. Anand D. Jayakaran.

Registration totaled 331 along with 32 conference sponsors and exhibitors. Attendees received information and training on construction and industrial inspections, program funding, TMDLs, storm water monitoring, and Low Impact Development strategies. The 3-day conference closed with a General Session on Federal, State, and Local enforcement techniques.

Industrial and High Risk Runoff

In order to minimize the impact of storm water discharges from industrial facilities, the storm water quality program includes an industrial storm water permitting component. Operators of industrial facilities that are in one of the 11 categories of storm water discharges associated with industrial activity that discharge or have the potential to discharge storm water to a Municipal Separate Storm Sewer System (MS4) or directly to waters of the United States, require authorization under an NPDES industrial storm water permit.

Permitting requires that a Notice of Intent (NOI) be submitted along with the permit fee. A Storm Water Pollution Prevention Plan (SWPPP) for the facility must be kept on site. A total of 26 new industrial storm water discharge permits were issued during this reporting period, for a total of 417 active permits.

Industrial Discharge Permits Issued January 1, 2016 through December 31, 2016					
	Jan - Mar	Apr - Jun	Jul - Sept	Oct - Dec	Total
Quarterly Total	11	9	4	2	26

Permitted businesses located within the City limits are audited on a regular basis. The intent of these audits is to reduce or eliminate the potential to pollute the surface runoff at each facility. An industrial environmental technician screens these businesses, and other facilities with the potential to cause pollution, for inclusion in the semi-annual industrial auditing program. During this reporting period, a total of 907 industrial facility audits were performed.



A total of 907 industrial facility audits were performed in 2016

Industrial Facility Audits January 1, 2016 through December 31, 2016													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
Monthly Total	98	109	88	81	69	84	69	71	38	48	87	62	907



Industrial facility audit

An “Industrial Audit Report” is completed and discussed with the company representative. Any deficiencies are noted on the report and discussed at the time of the inspection. Upon the next inspection, if the deficiencies have not been corrected, a Notice of Violation (NOV) will be issued. If the facility remains deficient, SWQ will begin enforcement procedures with Oklahoma City’s Municipal Counselor’s Office. During this reporting period, a total of 11 Notices of Violation relating to industrial discharge activities were issued. The majority of NOV’s were issued for failure to maintain SWPPP documentation (site inspections, visual monitoring, annual report) and affidavits were for failure to maintain/obtain permits.

Industrial Notices of Violation Issued January 1, 2016 through December 31, 2016					
	Jan - Mar	Apr - Jun	Jul - Sept	Oct - Dec	Total
Quarterly Total	0	1	0	10	11

A re-inspection fee of \$35.00 is assessed for each additional inspection to facilities due to non-compliance. In 2016, nineteen industrial facility re-inspection fees were assessed.

A \$15.00 per month late fee applies to facilities and/or properties that have failed to renew their permit prior to its expiration.

A No-Exposure Certification (NEC) for exclusion from storm water quality permitting is issued to industrial facilities that meet strict guidelines. A condition of no exposure exists at an industrial facility when all industrial materials and activities are protected by a storm-resistant shelter to prevent exposure to rain, snow, snowmelt and/or runoff. Industrial materials or activities include, but are not limited to, material handling equipment or activities, industrial machinery, raw materials, intermediate products, by-products, final products or waste products. Material handling activities include the storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, final product or waste product. The owner/operator is required to submit the certification form once every five years and must allow the local SWQ industrial environmental technician to perform inspections to confirm the conditions of no exposure.



In 2016, 47 new No-Exposure Certifications issued for a total of 727

During the reporting period, 47 new no-exposure certifications were issued for a total of 727. This is a decrease of 36 permits from last year.

In 2016, industrial environmental technicians continued the five-year re-certification process for businesses with an existing industrial no-exposure certification. During this reporting period, 181 re-certifications were completed.

Industrial No-Exposure Certifications Issued January 1, 2016 through December 31, 2016					
	Jan - Mar	Apr - Jun	Jul - Sept	Oct - Dec	Total
Quarterly Total	20	15	9	3	47



The two day industrial workshop had 328 attendees

Cosmetic cleaning permits are issued to companies using any system or machine to remove undesirable substances from any surface or façade creating free foreign matter. This includes carpet cleaning and power washing companies.

In 2016, SWQ continued the self-audit process. Each active permittee was mailed a self-audit form approximately one month before the permit expired. A total of 139 self-audits were performed in 2016. During the reporting period, a total of 29 new cosmetic cleaning permits were issued for a total of 231 active permits.

Cosmetic Cleaning Permits Issued January 1, 2016 through December 31, 2016					
	Jan - Mar	Apr - Jun	Jul - Sept	Oct - Dec	Total
Quarterly Total	11	8	4	6	29

The Industrial Storm Water Section held a two day workshop in the spring and a two day workshop in the fall during this reporting period. A total of 328 attended the workshops. Industrial workshops and training sessions included the following topics:

- Guidelines and regulations
- Quarterly visual monitoring
- Spill remediation
- Documentation for your SWPPP
- Networking opportunities
- SWPPP examples available for review
- Education on latest rules and regulations
- Fine tune your current program or build a new program from scratch



EPA conference field trip

As a part of Oklahoma City’s permit requirements from the Environmental Protection Agency (EPA) and the Oklahoma Department of Environmental Quality (ODEQ), the City is requiring all Emergency Planning & Community Right to Know Act (EPCRA) Superfund Amendments and Reauthorization Act [SARA] Title III, Section 313 reporters (Toxic Release Inventory [TRI] facilities), Treatment, Storage, and Disposal (TSD) facilities, and municipal landfills that do not qualify for no-exposure, to establish a 5-year “high risk” storm water runoff sampling event in conjunction with all other permit requirements.

Currently, there are 86 industrial facilities that are classified as high-risk sites. Of the 86 facilities there are 28 no-exposures, one Affidavit of No Discharge, and 57 high-risk sites that are required to submit analytical sampling data. No-exposure and Affidavit of No Discharge facilities that are classified as high-risk are not required to sample sites.

Data collected by the industrial facility to satisfy the monitoring requirements of an OPDES or NPDES permit may be used to satisfy the “high risk” sampling requirement, provided that each of the required constituents are analyzed. The City requires that the indicated industrial facilities conduct self-monitoring and report the analytical results to the City’s Storm Water Quality Division once every five years.

After testing, if it is determined that the constituents are above any state, federal or local criteria, then remediation, further testing and/or additional best management practices may be required.



State fair vendor training

The Affidavit of No Discharge for storm water discharges associated with industrial activities program is utilized to certify that a condition of no discharge exists at an industrial facility or site. The affidavit is to be re-submitted at least once every five years. The industrial facility operator must maintain a condition of no discharge at its facility or site in order for the no discharge exclusion to remain applicable. If conditions change which result in storm water discharges into the waters of the State, including Municipal Separate Storm Sewer Systems (MS4s), the facility operator must obtain authorization to discharge under a storm water permit before any discharges occur beyond the boundaries of the facility. There are a total of 12 active no discharge permits.

The Quality Assurance Program (QAP) is an internal program which consists of a supervisor performing monthly ride-alongs with an environmental technician. During the ride-along, the supervisor records how the technician performs an audit. Criteria such as “Were City safety policies followed (PPE, driving, etc.)?”, “Was all documentation reviewed for updates and compliance?”, and “Was enforcement required and performed properly?” are noted. This allows the technician to ask questions and ensure that audits are observed and being performed consistently with federal and state guidelines. During 2016, there were 39 QAP industrial audits performed.

2016 Oklahoma State Fair - The Industrial Section trained 1,105 food vendors, in conjunction with the Oklahoma City County Health Department, regarding the proper disposal of wastewater and grease. The Industrial Section conducted 45 vendor inspections during the state fair, which included the setup and dismantling of vendor booths and rides.

Household Hazardous Waste/Used Motor Vehicle Fluids

Mobile Collection Event - an outreach program designed to collect household chemicals from residents in the neighborhoods where they live. Not only does this program allow staff to educate residents on identifying household hazardous chemicals and proper disposal methods, the program also provides a remote service to the elderly and homebound residents of Oklahoma City. Doing the right thing couldn't be easier. Just drive or walk by and drop off your leftover household hazardous waste products.

There were two mobile collection events held with 324 participants and a total of 60,244 pounds of waste collected. One special collection event was held at the Oklahoma State Fairgrounds to accept tires, e-waste, medications and ammunition for recycling or disposal. One special neighborhood collection event was also held for Woodlawn neighborhood residents. The hazardous wastes received at the special collection events were properly packaged for transportation and disposal. Special collection events will continue to be provided during 2017.

Collection Event Location	Participants	Collected Waste (lbs.)
Special Fairgrounds Collection (4/2/2016)	308	59,337
Woodlawn Neighborhood Collection	16	907



Mobile events collected 60,244 pounds of waste



State fairgrounds fall collection

Opened in 2003, the Household Hazardous Waste Collection Facility (HHWCF) diverts hazardous materials from the municipal waste streams and provides numerous benefits:

- An opportunity for waste reduction education
- Allows for the recovery of materials as resources
- Reduces toxicity of solid waste landfills and wastewater systems
- Helps the public to avoid improper disposal practices
- Protects waste processing equipment and handlers from exposure to hazardous materials

Oklahoma City’s HHWCF is conveniently located near the I-40 and I-44 junction. The facility is designed to accommodate a high volume of traffic and manage large quantities of household hazardous waste on an annual basis. The HHWCF serves the residents of Oklahoma City covering 620 square miles and over 211,000 residential households.

The HHWCF provides a safe and economical process for managing a full range of hazardous materials. Typical types of household hazardous waste received include cleaning products, automotive products, flammable products, lawn and garden chemicals, indoor pesticides, workshop/painting supplies and other products containing hazardous materials.

Due to permit restrictions, unacceptable wastes include: radioactive materials, high-pressure gas cylinders, biohazards, explosives, PCB containing materials, dioxins and highly reactive chemicals.

Residents Served January 1, 2016 through December 31, 2016													
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Monthly Total	514	599	715	1334	854	892	1099	757	701	927	603	592	9,587



Drive-thru convenience at the HHWCF

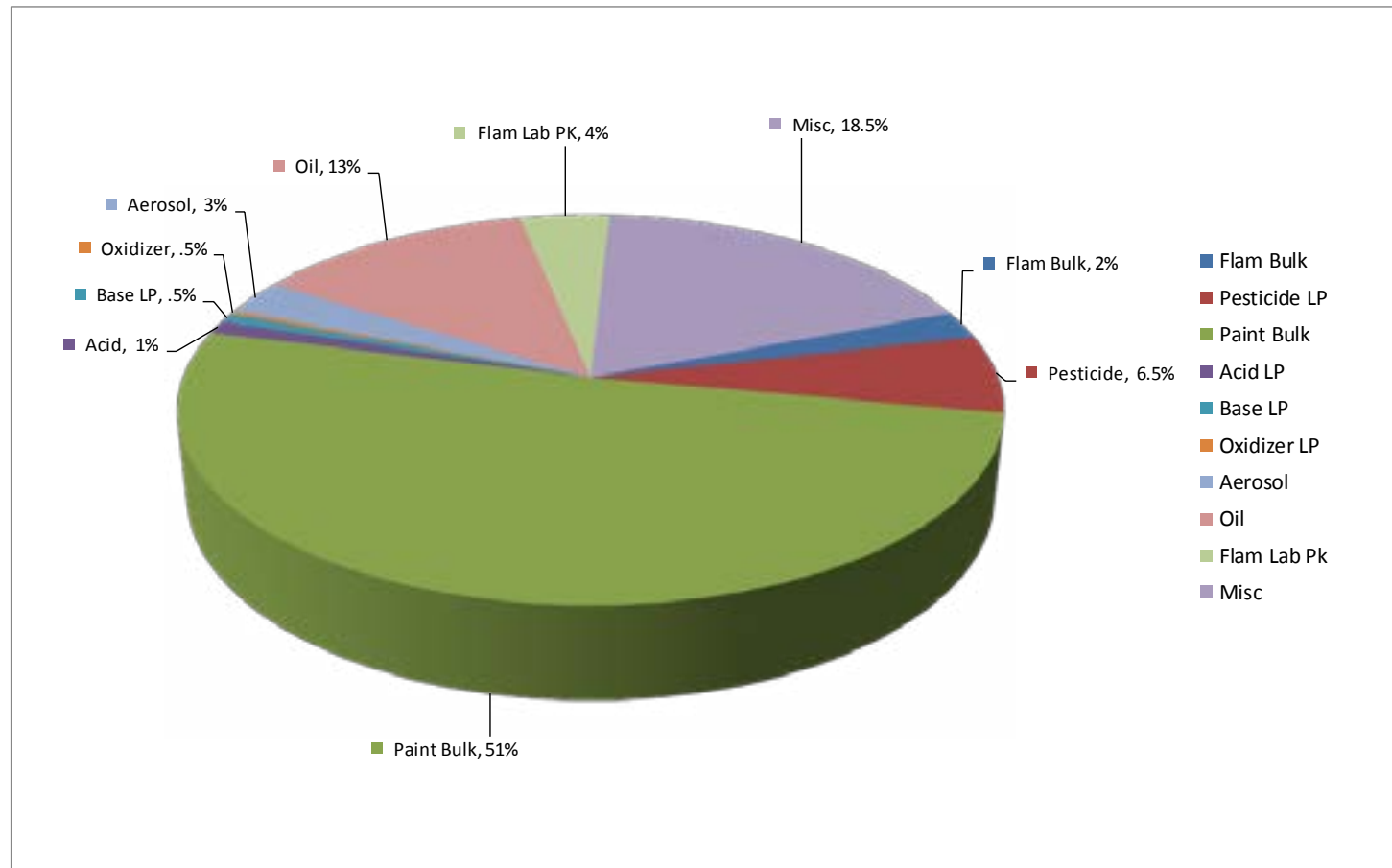
The City has developed a Memorandum of Understanding (MOU) which allows residents residing outside the City limits to utilize services offered at the HHWCF. This offers an excellent opportunity for the surrounding Phase II communities to work with the City in properly managing household hazardous waste. Currently, the City has an active MOU with The City of Edmond, The Village, Yukon, Shawnee, Moore, El Reno, Warr Acres, Bethany and Tinker Air Force Base.

Municipality	Participants	Collected Waste (lbs.)
Bethany	206	29,818
Edmond	85	13,073
El Reno	3	498
Moore	305	20,169
Shawnee	9	747
Village	84	11,516
Warr Acres	123	18,924
Yukon	29	2,864
Total	844	97,609

The HHWCF received 616,067 pounds of household hazardous waste for recycling or disposal. Additionally, 96,844 pounds of household hazardous waste were collected, separated and released to the public for reuse.

A total of 712,911 pounds of household hazardous waste was received and processed by the HHWCF.

Pounds of Waste Received by Month in 2016												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Monthly Total	29,104	32,078	43,770	125,508	52,150	56,053	66,621	50,077	40,297	51,194	34,324	34,891
Grand Total 616,067 Pounds												



Citizen Comments

YOU GUYS ROCK!!!! THANK YOU FOR A WONDERFUL JOB WELL DONE

From: Phyllis Ford [mailto:phyllisjford@gmail.com]
 Sent: Wednesday, June 22, 2016 1:09 PM
 To: Gibson, Lyndel R
 Subject: Thank you!



Household Hazardous Waste Facility

Mr. Gibson, last Saturday my husband, Don Lehman dropped off household waste and picked up a new rain barrel at the Portland Center. He was very impressed with how well organized everything was making the service quick and so helpful. He was eager to tell me that there is a new service of a collection trailer that neighbors can schedule and sponsor a special event for hazardous waste pick up. We are very excited about that since we live at 134th and south Choctaw Rd.

Later in the day Don discovered he had lost his hearing aid. On Monday I called the OKC Hazardous Waste Facility to see if maybe someone had found it. Brenda Underwood answered that call with compassionate understanding. She searched both locations and called back two days later to report it was not found.

You have an impressive team of people doing outstanding work to make a better and safer environment for us all. Thank You!

Phyllis Ford



Heronville Elementary
presentation

Public Outreach

Storm Water Quality has a variety of outreach programs that include outreach to local neighborhoods, schools, and businesses. Some of the programs offered are Curbs to Creeks, Adopt-a-City Street, and a variety of workshops. In 2016, Storm Water Quality continued the “Protecting Our Water Resources” program for Oklahoma City schools. Storm Water Quality also hosted five training workshops and one Household Hazardous Waste special collection events. In addition to hosting events, Storm Water Quality reaches out to the public by using a variety of media outlets.

The Storm Water Quality Downstream Newsletter is an effective communication tool, distributed quarterly, to deliver its message on clean water issues. The newsletter is circulated through e-notices to 2,279 subscribers.

2016 News Releases

- February 12, 2016 - Special collection set for computers, tires, ammunition, and medications
- March 10, 2016 - Special collection set for computers, tires, ammunition, and medications
- March 11, 2016 - Residents encouraged to conserve water with rain barrels
- March 29, 2016 - Special collection set for computers, tires, ammunition, and medications
- March 29, 2016 - Earth Day Festival at Martin Nature Park
- April 27, 2016 - Residents encouraged to fight mosquitos by reporting standing water
- May 26, 2016 - Residents encouraged to conserve water with rain barrels
- November 21, 2016 - Residents encouraged to conserve water with rain barrels

The Protecting Our Water Resources program is for elementary school students throughout Oklahoma City. The program teaches students about water quality and pollution using hands-on activities. The program was also featured at school assemblies. Students had the opportunity to participate and be hands-on since most of the presentations were given in classrooms with 20-30 students at a time. Eight Oklahoma City public schools participated in the program and 2,327 students participated in the program in 2016.



Environmental radio promotion



Storm drain marking volunteer

Public Participation and Involvement

Curbs to Creeks - As provided in Part III.A Implementation and Augmentation of SWMP(s), SWMP component 7(b) “Install an average of 500 curb markers annually using volunteers and City employees”. Storm Water Quality personnel and volunteer groups installed, replaced, or identified 509 curb markers during the 2016 permit term. After installation, all markers affixed in the field were recorded into a field book and entered into the City’s Geographic Information System database.

Industrial Audit Section inspectors continued encouragement of permitted industries to participate in the program. Information regarding the Curbs to Creeks Program was added to presentations to industries attending the spring and fall industrial workshops.

City employees installed 331 markers. Staff identified 163 locations which the storm drain inlets were embossed with a “Dump No Waste” message. Fifteen previously marked stations were replaced with new storm drain markers.

River Cleanup Project - A river cleanup project was initiated in October 2016 to encourage residents to take an active role in helping preserve the health and beauty of our local waterways. This project offers groups an opportunity to participate in river preservation and restoration. Participants included 19 employees from Boeing Aircraft and their families. In only two hours, these volunteers collected 86 bags which totaled 1,386 pounds of litter, from wetlands adjacent to the Oklahoma River.

Adopt-A-City Street Program - Residents, organizations and businesses can make a difference in their community by adopting a city street. The Adopt-A-City Street Program supports environmental stewardship while encouraging the spirit of volunteerism.

Participants may adopt a city maintained street for a two-year period. A minimum of four (4) litter collection events are required each year. The participating group is also required to submit an Activity Request form prior to each event and a Litter Collection Report after each event. Each group receives a sign installed at each end of their adopted street which remains in place until the group discontinues participation in the program. Other support from the City includes: orientation meetings, safety information, safety vests, work gloves, trash bags, and trash bag collection by the City’s Solid Waste Division.

Volunteers in the program include groups of all sizes with individuals of all abilities. In 2016, 86 activity permits were issued for litter collection events. During these events, 942 volunteers collected 627 bags of litter. This partnership between residents and city government has multiple social, environmental, public health and economic benefits for all parties involved.

New Organizations for 2016

- 965 Airborne Air Control Squadron
- Classen Ten Penn Neighborhood Association
- Church of the Living God #290
- Oklahoma Branch Commissioned Officers Association
- Reroof America Contractors
- Stuntin’ Bikes Motorcycle Club
- Team RWB OKC
- Upsilon Iota Graduate Chapter



Additional information about the Adopt-A-City Street Program can be found at www.okc.gov

Public outreach contacts consist of populations reached through various outreach efforts including presentations, news releases, or other media releases (interviews, radio announcements, etc.). Counts may include a viewing area population (often supplied by the media outlet) where contacts are based on demographic viewing areas and are estimated to the best ability of the providing source.



The spring 2016 advertising campaign, to promote awareness of services provided by the HHWCF to the citizens of Oklahoma City and other metro municipalities, was planned and implemented. After evaluating a variety of advertising alternatives, staff determined that the most effective impact could be accomplished by utilizing the following media outlets during the 2016 ad campaign:

Print advertisements included:

The Daily Oklahoman was distributed to the following geo targeted areas: Edmond, Yukon, Mustang, Piedmont, Deer Creek, NW Oklahoma City, Nichols Hills, The Village, Quail Creek, Moore, Oklahoma City (South), Midwest City, Del City and Choctaw. These impressions were spread over a 4 month period.

The Oklahoma Gazette ran four, ¼ page advertisements. The Gazette prints 53,500 copies that are distributed to over 800 drop sites in the metro area each Wednesday. An online edition is also published each week.

El Nacional De Oklahoma, a local Hispanic print media printed four ¼ page advertisements. The paper has over 400 rack locations throughout central Oklahoma with 10,000 copies distributed each month.

Television advertisements included:

Cox Cable Interconnect ran 551 30 second television advertisements. These spots appeared on the following networks; AMC, Discovery, Food Network, Fox News, History, HGTV, MSNBC, TNT, Travel Channel, TV Land, Golf Network, Fox Sports 1, and NBC Sports. Highlights of these placements were top rated events such as NASCAR Racing, Masters Golf, NBA Playoffs, and Texas Rangers baseball. Over 1.7 million household were reached in April and May 2016.



Household Hazardous Waste vehicle



Top - Cameron Health and Safety Fair

Bottom - Participants at the Trunk-or-Treat event

Earth Day - Storm Water Quality celebrated Earth Day by participating in various festival style events. At our booths, we taught residents how to prevent storm water pollution and distributed information about positive environmental practices. The following are some of the outreach events Storm Water Quality participated in and the estimated number of visitors to our booths:

- Earth Fest at Martin Nature Park - 200 booth visitors
- Dell Earth Day Festival - 400 booth visitors
- Cameron Health & Safety Fair - 250 booth visitors

Trunk or Treat - The City hosted the 3rd Annual ‘Trunk or Treat’ event for City employees and their families on October 27th at the Police and Fire Training Center. More than 500 children and parents attended. Andrea Shelton, Sunni Stephenson and Dazhane Frankline wore costumes and distributed candy, stickers, coloring books about preventing storm water pollution. Kids even had the chance to meet the Storm Water mascot ‘Wayne Drop.’

Central Oklahoma Storm Water Alliance - The City and the Central Oklahoma Storm Water Alliance (COSWA) partnered together to encourage residents to conserve water and reduce pollution through the use of rain barrels.

In 2014, the Oklahoma City Council passed an urban agricultural ordinance that allows a maximum of two 85-gallon rain barrels in the front yard. Any number of rain barrels can be placed on the side or back of a property, as long as they are not visible from the street. The containers must be securely covered and any openings must be covered with a screen that prevents infestation by insects and other pests.

COSWA, with the support of the Oklahoma Department of Environmental Quality, set up a booth at the January ‘Home and Garden Show’ held at the fairgrounds park in order to promote the rain barrels and storm water pollution best management practices.

Other outreach strategies used during the promotion included advertisements, news releases, TV and radio, Facebook, utility bill inserts and information cards.

Oklahoma City held one pick up event in the Spring, with 324 rain barrels distributed.

COSWA combined efforts for a spring radio public outreach campaign with the slogan ‘Every Day Environmentalist.’ The campaign addressed environmental issues ranging from proper application of fertilizer, dumping grass clippings into drainage ways and illegal swimming pool draining. Approximately 320 spots, along with 175 bonus spots, were purchased at a cost of \$16,000 during March and April.



Top - Rain barrel drop-off

Bottom - Staff assist with resident pick-up



SWQ completed 984 training hours

Employee Education

Training - A total of 984 training hours were accomplished by Storm Water Quality staff members to meet safety, license or certification training requirements. Safety topics included subjects such as hearing conservation, fire extinguisher safety, personal protective equipment, housekeeping, Department of Transportation hazardous materials, blood borne pathogens, hazard communication, fall protection and respiratory protection, among others.

Licenses - Licenses include Oklahoma Department of Environmental Quality Class "C" and "D" Water Works Operators, Class "B", "C" and "D" Wastewater Works Operators, Class "A" Wastewater Works Laboratory Operator, Confined Entry/Rescue and 40-Hour HAZWOPER.

Memberships

- Central Oklahoma Storm Water Alliance (COSWA)
- International Erosion Control Association (IECA)
- Local Emergency Planning Committee (LEPC)
- American Public Works Association (APWA)
- National Storm Water Center Certified Storm Water Inspector (CSI)
- Enviro-Cert International Inc. Certified Professional in Erosion and Sediment Control (CPESC)

Professional Development - Training included workshops, conferences, meetings, online seminars, tabletop exercises and presentations. Subjects included low impact development, structural management practices, erosion & sediment control, emergency planning, post emergency assessments, disaster recovery, TMDL development & compliance, construction permitting, industrial permitting, nutrient removal, bioretention and water quality modeling, among others.

Conferences and Workshops Attended

- 18th Annual EPA Region 6 Storm Water Conference
- Oklahoma Compost Conference
- Pesticide Reduction Strategies for Nursery Runoff
- LEPC Region 6 Workshop
- Oklahoma City Cyanotoxin Workshop
- Stakeholder meeting for the OKR10 and OKR05 General Permits



Malarkey Roofing Products
2016 Industrial Achievement
Award



A total of 21,763 curb miles were swept in 2015

Roadway Operations and Maintenance

The Public Works Department, Streets and Drainage Maintenance Division, manages the panning crews which provide maintenance of the curb inlets. Through this program, eight staff members are equipped with ten Vector trucks, loaders, trucks and various other support vehicles/equipment used to remove sediment and debris from the storm sewer system. The reporting period budget was \$1,000,000. Crews removed 332 tons (664,960 pounds) of debris during the permit term.

Oklahoma City uses a roadway inspection company called Fugro-Roadware to inspect the arterial streets, and two in-house pavement inspectors to evaluate residential streets. Inspections by Fugro-Roadware are completed by driving each arterial, while sensors collect the amount and type of distress on that road. These distresses are used to calculate a Pavement Condition Index (PCI), a scale of 0-100, according to American Society for Testing and Materials (ASTM) standards. The in-house inspectors use ArcGIS mobile application to record the type and amount of distress seen on the residential streets, and that is then used to calculate a CI using MicroPaver, which operates on the same ASTM standards. The final score for each segment, along with traffic count, citizen input and past treatments, is used to prioritize maintenance needs.

The SWMP was updated to include any roadway operation and management changes. The most recent revision was September 15, 2013.

Unlimited Sweepers & Cleaners LLC swept 21,763 curb miles during this permit period. The average amount monthly was 1,814 curb miles. A total of 3,279 tons of debris was collected.

Pesticide, Herbicide and Fertilizer Application

The City is required to provide at least one annual training/educational event for City employees related to pesticide and fertilizer application.

To address this requirement, the Storm Water Quality Management Division facilitates and provides pesticide/fertilizer training. Our goal is to assure that every City employee that works with or applies pesticides is a Certified Applicator, Certified Service Technician or an applicator-in-training. This requires a close relationship with the Oklahoma Department of Agriculture Food and Forestry (ODAFFF) to assure the appropriate regulatory training requirements are met, annual certification examinations are provided and consistent documentation and maintenance of Continuing Education Units (CEU) are achieved. Oklahoma State University's Cooperative Extension Service, in Stillwater and Oklahoma City, are essential resources in our technical pesticide, herbicide and fertilizer training.

Classes are publicized by e-mail, e-newsletter, word of mouth and fax communications. The Parks and Recreation Department, Public Works Department and Utilities Department participate in the classes.



Participants at the pesticide and fertilizer training class



Oklahoma City pesticide training class

In accordance with the “Combined Pesticide Law & Rules: Title 2, Oklahoma Statutes, Section 3-81 through 3-86; 35:30-17-1 through 35:30-17-99”, our CEU and initial classes cover:

- Laws and rules
- Pesticides (formulations, registrations, labeling and label comprehension, handling and storage, toxicity, and hazards)
- Application equipment and calibration
- Pests and Integrated Pest Management
- Identification of hazardous areas
- Drift prevention
- Endangered species
- Surface and groundwater protection
- Worker protection

Speakers and trainers are drawn from a knowledgeable and experienced group of professionals, including but not limited to: pesticide vendors, Oklahoma State University professors and instructors, ODAFF Inspectors, and City employees. The workshops are designed to provide guidance and up-to-date information to assist workers, using Best Management Practices.

The 2016 pesticide workshop took place on March 3rd at the Mike DeGiacomo Training Facility with 28 people in attendance. Speakers for the workshop were Dr. Marley Beem, Jennifer Olson, and Dr. Mike Schnelle. General subject matter included aquatic plant management, diagnosis and management of diseased trees, and low pesticide plant materials.

This workshop offered three CEUs in Ornamental and Turf Outdoor (category 3a), Aquatics (category 5) and Demonstration and Research (category 10). A total of 81 CEUs were earned during the training.

Pesticide General Permit - Oklahoma City submitted a Notice of Intent to the Environmental Protection Agency for coverage under the National Pollutant Discharge Elimination System (NPDES) Pesticide General Permit in 2012. The 2016 Pesticide General Permit Annual Report was submitted to ODAFF on January 26, 2017 for applicable pesticide discharges to Waters of the Nation.

Four departments/authorities are currently identified in the Pesticide General Permit Management Plan as potential dischargers of qualifying pesticide applications. The Public Works Department reported four programs which include the West Nile Virus/Mosquito Program, Oklahoma River Maintenance Program, Guardrail Program and Channel Spraying Program. Parks and Recreation Department and the Utilities Department reported one program each; Slope Spray Program and Reservoirs and Canals Maintenance, respectively. The Oklahoma City Public Property Authority (OCPPA) reported five recreational areas; the James E. Stewart Golf Course, Trospen Park Golf Course, Earlywine Golf Course, Lake Hefner Golf Course and Lincoln Park Golf Course.

The Public Works West Nile Virus/Mosquito Program, Public Works Channel Spraying Program, the Public Works Oklahoma River Maintenance Program, OCPPA Lake Hefner Golf Course and the Utilities Department Reservoirs and Canals Division reported qualifying applications to Waters of the United States, 3.12 acres and over 278,750 linear feet qualified as reportable discharges. Six different pesticides were utilized and accounted for 3.48 pounds of solid product and over 108 gallons of liquid concentrate used to control mosquito populations and nuisance/hazardous vegetation.



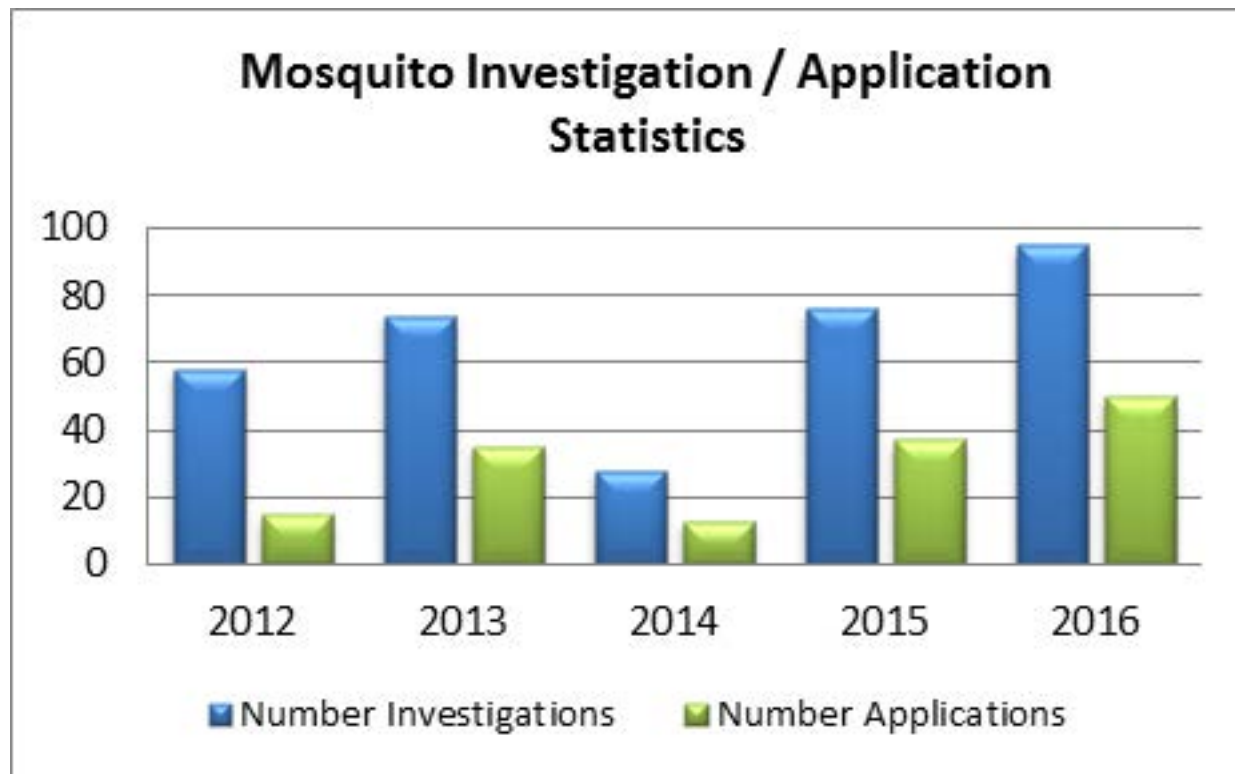
Oklahoma River tributary



Mosquito habitat investigation equipment

Mosquito Larvicide Application Program - Oklahoma City has worked with the Oklahoma City/County Health Department (OCCHD) for 14 years to monitor and control mosquito populations within Oklahoma City.

SWQ used larvicides to control temporary and permanent mosquito nursery pools, which included applications to the MS4. Altosid XR (EPA Registration Number 2724-421), is used in transitory or perennially inundated areas that support mosquito egg laying, larvae growth and emergence. The pesticide's active ingredient is (s)-Methoprene (2.1% dry weight basis) which functions as a larval growth inhibitor. This larval growth inhibitor specifically stops the mosquito life cycle in larval stages and can be effective up to 150 days in the application area.



FIGHT THE BITE

Your Best Protection is Prevention!



Drain

Drain anything in your yard that collects water or allows water to stand. Mosquitoes only need a small amount of water to breed.



Dress

Dress in long sleeves and pants when you're outside to discourage mosquitoes from biting.



Deet

Spray a safe repellent on exposed skin and clothes. The CDC recommends DEET, picaridin, IR3535 or oil of lemon eucalyptus.



Prevent

Mosquitoes bite any time of day or night. Check and repair screens on doors and windows. Keep them closed and use air conditioning when you can.

In 2016, Oklahoma City's Storm Water Quality Division and the Oklahoma City County Health Department joined forces to create a flyer to combat the potential threat of the Zika virus and West Nile Virus. The "Fight the Bite" flyer features preventive measures that every resident can take to protect themselves from mosquito bites. Over 500 flyers were printed, in English and Spanish, and distributed during local presentations. During the month of June, 228,382 flyers were sent out with all Oklahoma City Utilities water bills.



Mosquito monitoring

Altosid Pro-G (EPA Registration Number 2724-451) was added as an alternative to Altosid XR. As with Altosid XR, (s)-Methoprene is the active ingredient. However, Altosid Pro-G is effective for a shorter duration of time (~30 days versus ~150). A granular formula was preferred for those pools which required smaller applications due to water depth, proximity to larger non-infested waters or waters which are transient and more permanent control was unnecessary.

Mosquito Dunks (EPA Registration Number 6218-47) was added as an alternative treatment to the (s)-Methoprene based products. Mosquito dunks are formulated with *Bacillus thuringiensis* subspecies *israelensis* (BMP144) solids, spores and insecticidal toxins. This product provides an alternative for smaller sources of mosquitos such as temporary pools, containers or other vessels which may contain mosquito larvae. The effective period is approximately 30 days.

OCCHD provided Oklahoma City an additional pesticide for larvae control. FourStar (EPA Registration Number 8336-3) is used in temporary or permanent water sources and can control mosquito larvae through a sustained release of up to 180 days. This particular formulation is in briquette form and is a *Bacillus sphaericus* strain 2362, *Bacillus thuringiensis* sp. *israelensis* Serotype H14.

Trained personnel respond to every call regarding suspected or confirmed mosquito habitat. Field observations are recorded and applications will be conducted if habitat is present and mosquito larvae are detected.

During the 2016 permit term, SWQ personnel conducted 95 mosquito investigations, which resulted in 50 applications and a surface treatment area of approximately 25,079 sq. feet. The application rate versus the investigation rate was 52.6 %.

Oklahoma City's mosquito control program is permitted through the State of Oklahoma Department of Agriculture, Food, and Forestry's (ODAFF) AgPDES program. Permit coverage began on March 4, 2012 and is currently up for renewal in 2017. Oklahoma City submitted the AgNPDES Annual Report related to qualifying pesticide applications to Waters of the United States to ODAFF on January 26, 2017.

In early 2013, efforts were initiated between Oklahoma City and OCCHD to begin an adult mosquito surveillance program. This program was continued during the 2016 permit term. Oklahoma City staff provided secure mosquito monitoring stations, personnel and maintenance of the surveillance equipment. OCCHD provided the adult mosquito traps, taxonomic identification and testing for the presence of the West Nile Virus (WNV). Two types of mosquito traps are currently used; six gravid traps and one BG Sentinel 2 trap. The BG Sentinel 2 trap uses a chemical attractant to specifically target the *Aedes* mosquito. Seven monitoring stations were assessed throughout the mosquito season accounting for 151 field visits. Technician's collected 6,532 adult mosquitos of which approximately 79.3% (5,179) were tested for the presence of the WNV. Eleven test results were positive for the presence of the WNV. Monitoring results are currently being used to understand local mosquito population densities and dynamics, identify the presence of the WNV in mosquito populations, and identify key mosquito species which show the presence of WNV. The program is expected to continue during the 2017 mosquito season.



Mosquito habitat



Storm Water Quality personnel responded to 373 Action Center requests

Pollution Complaints and Spill Response Program

Action Center - In an effort to make neighborhoods a great place to live, the City provides a one-stop citizen assistance office. Residents can contact the Action Center to report problems or get information about City services. When a problem is reported, the appropriate department is notified. The Action Center request is tracked and a letter is sent to the citizen to let them know the City is working on a solution. During the reporting period, SWQ personnel responded to 373 Action Center requests.

The online Action Center service request form makes it easier for citizens to find and accurately report problems in their neighborhood. The system now includes all valid Oklahoma City street addresses, an expanded list of service types and access to previously reported requests.

For citizens to report a problem, they simply select a request type such as: swimming pool water discharge, grass clippings being dumped into the MS4, or blowing dust and debris. Citizens may provide detailed comments and then submit the request. The system assigns the request a confirmation number that allows a person to check the status of the request at any time. Not only can residents check the status of their service request, they can see if there are existing requests on a specific address.

Residents are encouraged to use the on-line system to report non-emergency problems. The on-line service request form may be submitted 24 hours a day, seven days a week. Residents may also report problems by calling the Action Center.

Hazardous Spills and Illicit Discharges Response - The Storm Water Quality Management Division responds as technical advisors to the fire department hazardous materials unit on emergency spill calls to ensure proper cleanup. SWQ environmental technicians are on-call 24 hours a day for response to spills and to serve as technical advisors to prevent/ or mitigate contaminated runoff from entering the storm sewer system. During the reporting period, SWQ technicians responded to 108 hazardous material incidents.

SWQ environmental technicians also respond to pollution source investigations. Discharges can occur through illicit plumbing connections to the City's storm sewer system, deliberate dumping, or accidental spills. The program works to reduce the number of discharges by tracking and eliminating illicit connections, enforcing state and local statutes regarding illegal discharges, and responding to spills to ensure material containment and cleanup. During the reporting period, SWQ responded to 211 pollution source investigations.



SWQ responded to 108 hazardous materials incidents

Public Works Response Manager - Storm Water Quality utilized an internal system to follow resident concerns. The system, known as the public works response manager, allows employees to enter the residents' concern, assign the concern to the appropriate division, check the status of the concern and mark the item as complete. This system assists in the timely response to concerned residents.

2016 Response Manager Results			
Subject	Created	Completion Date	Response Time (days)
Letter with Comments on the City of Oklahoma City's Lake Thunderbird TMDL Compliance Plan & Monitoring Plan	1/21/2016	2/15/2016	24
Response Manager	2/11/2016	2/15/2016	3
Crystal Hill Estates	2/11/2016	2/15/2016	3
Response Manager	2/11/2016	2/15/2016	3
Draft 2016 Pesticide General Permit - Federal Register Notice published on January 26th	2/12/2016	3/11/2016	27
Sent from Snipping Tool	2/16/2016	3/2/2016	14
Drainage_3436 SW 157th	5/11/2016	5/23/2016	11
Internship opportunity for Juba Allen	5/12/2016	6/8/2016	26
Creek repairs at 6232 Kingston Road	6/9/2016	6/14/2016	4
13020 Providence Creek Drive	6/17/2016	7/6/2016	18
Standing Water Problem - Ella Hollier	7/19/2016	7/20/2016	0
Ilga Semeiks 202-512-6013 Govt. Accountability Office in DC	7/21/2016	7/25/2016	3
Phase I Environmental Site Assessment Information Request	7/28/2016	7/28/2016	0
Property at 11808 Sorrento Lane	7/28/2016	8/8/2016	10
Raptor Development west of Epworth Villa Southside of 150th	8/4/2016	8/9/2016	4
SWQ Student Intern Possibilities	8/11/2016	8/15/2016	3
Oct-07-2016	10/7/2016	10/10/2016	2
NE 42nd and Lincoln - Thompson Woodland Park - drainage area	10/19/2016	10/21/2016	1
Municipal Citation Form	11/9/2016	11/15/2016	5

MS4 Monitoring - Floatable Monitoring Program

Seventy-nine stations (excluding the Oklahoma River debris barriers) were active during the 2016 permit term.

Oklahoma City uses channel-wide netting, circular outfall netting, storm drain inserts and debris barriers to capture or contain floating debris from the drainage systems and waterways.

To reduce the discharge of floating debris into the Oklahoma River, twenty-six river debris barriers were installed in the Western Avenue, May Avenue and Eastern Avenue river basins. The barriers are continuously monitored and debris is removed on an as-needed basis by Oklahoma City crews. As these structures are subjected to harsh environmental conditions, damage to the debris barriers has occurred. Twenty-five barriers are still in place. One barrier station was retired due to non-use and that barrier re-purposed as a replacement for a failing barrier. An annual comprehensive inspection was conducted in December 2016. Field notes indicate three barriers are in need of replacement.

The Floatable Debris Program is targeted to assess factors from human-generated debris carried into streams and storm drainage networks during elevated flow conditions. Quantities collected are expected to fluctuate with the volume of runoff associated with each individual storm event. Certain debris items, such as algal biomass and grass clippings, are also expected to fluctuate seasonally when algae metabolism slows or warm season grasses become dormant.



Two-hundred and ninety tons of floatable debris removed from Oklahoma River in 2016



Floatable debris barriers along the Oklahoma River

Removal and categorization of debris from the seventy-nine stations was maintained after each rainfall event or on an as needed basis. A total of 8,319 pounds were collected during the 680 site visits at the floatable debris monitoring stations. Approximately 745 pounds of trash was collected from these events. The remaining 7,574 pounds of the debris collected was classified as natural debris.

A subset of 33 floatable debris collections included an inventory of the items removed from the netting structures. Categorization of the litter resulted in the identification of 77 cups, 16 bags, 30 bottles, 7 cans, 82 wrappers, 9 straws, 19 utensils, 29 cigarettes and 4 packing peanuts.

The Public Works Department, Streets and Drainage Maintenance Division provide a significant role with regard to the floatable debris removal program. On average, the Division employs six staff members to remove debris and provide maintenance in the impounded segments of the Oklahoma River. Seasonally, additional employees may be added on an as needed basis to provide increased support for the debris removal activities.

During 2016, the Oklahoma River Maintenance Crew removed and properly disposed of 290 tons of debris. Records are maintained for each basin (Western, Eastern and May Avenue basins). The Eastern Avenue basin accounted for the highest amount of debris removed (160 tons) followed by the Western Avenue (84 tons), and the May Avenue (46 tons).

Catch Basin Program - OKC continued a new program in 2016 to investigate the pollutant removal efficiency of OKC's catch basin inserts. Catch basin inserts are storm water quality devices installed underneath storm drain grates to remove floatable debris and coarse particulates such as sediment, leaves, and grass trimmings. While catch basin inserts can be effective for removing large floatable debris, little research has been done on their ability to remove waterborne pollutants. To assist with ongoing watershed modeling and to gain a better understanding of catch basin inserts as a BMP, OKC began collecting samples from several inserts throughout the city.

This program will enable a comparison of pollutant removal efficiencies between different land uses (e.g., residential vs. commercial), examine seasonal variations in pollutant removal (e.g., the impact of leaves on nutrient loads), or determine any impacts from different land management practices (e.g., frequency of fertilizer applications). Samples were collected from 2 stations regularly (twice per month) for at least 12 months to allow for a seasonal comparison of nutrient removal. All other sites will be selected randomly and samples will be collected at least once per year. The first sample for this program was collected on June 17, 2015. Samples were laboratory-tested for total nitrogen (TN), total Kjeldahl nitrogen (TKN), total phosphorus (TP), total nitrogen as nitrite/nitrate (TN-NO₂/NO₃), and total solids for dry weight. The study was completed in October 2016 and a report with preliminary data analysis is currently in draft. The study was completed in October 2016. Sixty-seven samples were acquired during the study, 60 of which were collected in 2016.



Floatable debris collection nets



Three stations were monitored in the 2016 permit term

Wet Weather Analytical Monitoring

During the 2016 permit term, SWQ selected three stations to monitor; 85, 616 and 754. No optional stations were monitored during the permit term.

Accomplishments for this program included:

- 66% completion of the three permit required wet weather stations at a frequency of two times per permit year. A total of seven rainfall events were attempted or conducted. Four events were successfully monitored. Three additional attempts were made, however the collection events were cancelled due to insufficient rainfall to meet the qualifying rainfall quantities.

Permit Year 2016 Storm Event Monitoring Locations	
Site Number	Type
616	Permanent
754	Permanent
85	Permanent

Precipitation Amounts for 2016 - National Weather Service historical records for Oklahoma City (Will Rogers World Airport) were researched for precipitation data. The 2016 monthly precipitation totals were compared to the corresponding thirty-year average monthly totals from 1981 through 2010.

The annual precipitation for Oklahoma City in 2016 was 26.29 inches, 10.07 inches less than the thirty-year average of 36.36 inches. In April, July and September of 2016, Oklahoma City received greater precipitation than the 30-year average for the corresponding months. For all other months, Oklahoma City received less than average monthly precipitation. Monthly precipitation in Oklahoma City was below average for 75% of 2016.

Month	2016 Precipitation (inches)*	1981-2010 Average Precipitation (inches)**
Jan	0.11	1.39
Feb	1.35	1.58
Mar	1.02	2.90
Apr	7.31	3.07
May	2.62	4.65
Jun	3.30	4.93
Jul	3.65	2.93
Aug	0.55	3.28
Sep	4.25	4.06
Oct	0.82	3.71
Nov	0.52	1.98
Dec	0.79	1.88
Total	26.29	36.36



Wet weather sampling monitoring

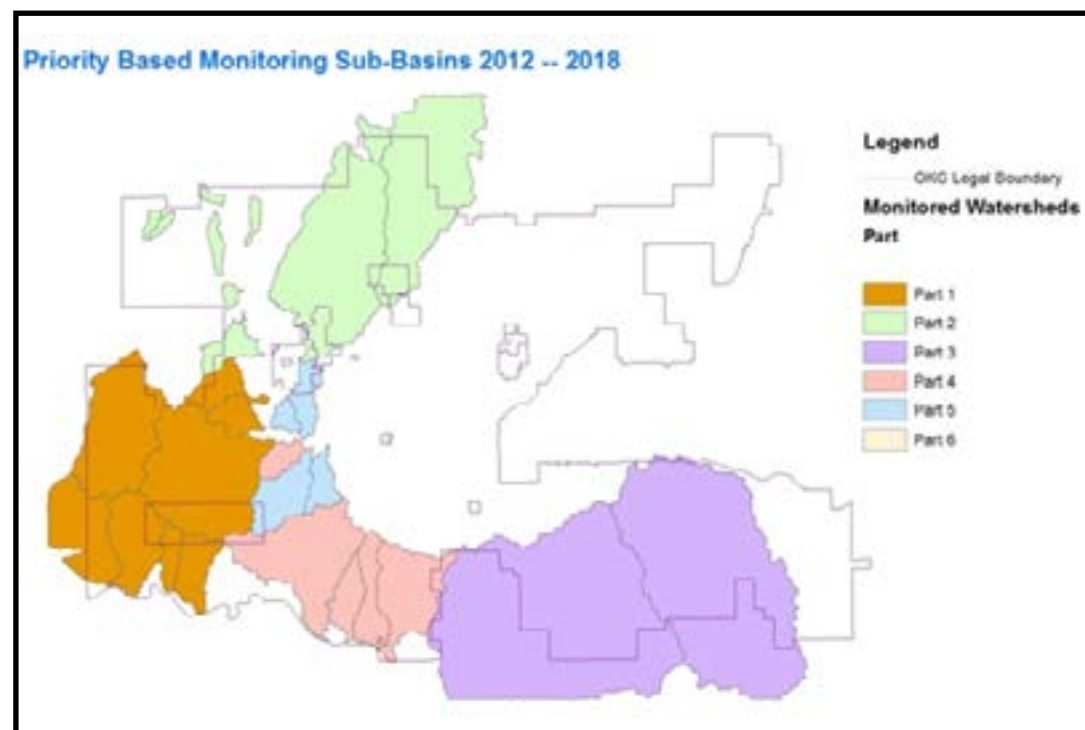


Priority based monitoring program documentation

Priority Based Monitoring Program

The Priority Based Monitoring Program was developed to acquire additional information within basins identified during the Watershed Characterization Program as not meeting one or more State Water Quality Standard. Impairment listings identified in the most recent Integrated Report were used to prioritize additional watersheds for inclusion in the program. Quality Assurance Project Plans (QAPPs) were developed for each study basin. QAPPs describe the purpose, scope and quality assurance/quality control objectives for the monitoring efforts. The scope of the project is to identify specific sub-drainage areas which may be contributing to the impairment listing.

The initial planning stages for the project were implemented during late 2011 and early 2012. The anticipated project completion is expected to span two Municipal Separate Storm Sewer System Permit cycles. Part I monitoring requirement was initiated in April 2012. Basins selected for monitoring are generally grouped in geographically close proximity for efficiency purposes.



Program milestones are listed below.

- Completion of QAPP documentation for Part I through Part VII.
- 100% completion of all monitoring requirements for Part I, II, III, and IV.
- 100% completion of summary reporting for Part I, II, and III (Parts I-III summary reports are included with this annual report).
- 7% completion of Part V monitoring efforts.





Locations selected for study will be visited during 30 fixed interval monitoring events

Water Quality Monitoring Activities – General Overview - The number of monitoring stations selected is based on the data needs of each study area. In situ monitoring and laboratory test parameters are determined based on information needed to describe any relevant water quality problems identified by previous water studies or external sources. Generally, each location selected for study will be visited during thirty (30) fixed interval monitoring events over a fifteen (15) month period of time. Other monitoring efforts, such as diurnal dissolved oxygen, caffeine, triclosan, indicator bacteria, optical brightener, conductivity and biological studies will be conducted seasonally or within any other targeted conditions.

A tailored monitoring plan for each basin was developed by selecting from a list of field observations and laboratory parameters. Stations are monitored with a subset of laboratory parameters; including but not limited to total phosphorus, total nitrogen, nitrate as nitrogen, nitrate plus nitrite, biochemical oxygen demand (BOD), carbonaceous biochemical oxygen demand (CBOD), chemical oxygen demand (COD), E. coli, Enterococci, total suspended solids (TSS), sulfate, caffeine, triclosan, optical brightener, ammonia nitrogen and selenium. In situ parameters may include dissolved oxygen (grab and diurnal), swath based optical brightener, water temperature, specific conductance, discharge, oil & grease (visual), pH, habitat assessment, turbidity, total chlorine and free chlorine. Biological collections (fish) may be necessary at certain stations. In those cases, fish will be identified to species level.

Priority Monitoring Part III - Water Quality Monitoring Summary - Twenty-one (21) monitoring locations were selected in eleven (11) sub-basins within the Canadian River watershed. Stations were sampled in 2014 and 2015 permit term however, four stations (stations 575, 1116, 1165, and 1250) were monitored at the wrong location. SWQ rescheduled and monitored these locations during the 2016 permit term.

The first sampling events were conducted on August 19-20, 2014 and continued through October 2015.

During the 2016 permit term, 103 station visits were conducted which included the collection of 60 water samples (excluding quality assurance samples) and 96 field chemistry reports (excluding in situ quality assurance samples). Eighteen quality assurance laboratory samples were collected or created which included 2 replicate samples, 8 split samples and 8 trip blanks.

Eleven diel studies were completed for Part III during the 2016 permit term. A total of 4,308 dissolved oxygen readings were recorded during these diel studies.

Seventeen triclosan and caffeine samples were collected (excluding 4 quality assurance samples) at stations 575, 1116, 1165 and 1250.

At the closure of the 2016 permit term, the re-sampling effort for those stations monitored at the wrong locations in 2014-2015, as a component of Part III was 100% complete.



There were 21 monitoring locations selected in 11 sub-basins within the Canadian River watershed



SWQ staff perform monitoring activities

Priority Monitoring Part IV - Water Quality Monitoring Summary - Nineteen monitoring locations were selected in 5 sub-basins within the Canadian and North Canadian River watersheds.

Monitoring activities started in October 2015 and continued through the November 2016.

During the 2016 permit term, 481 station visits were conducted which included the collection of 339 water samples (excluding quality assurance samples) and 463 field chemistry reports (excluding in situ quality assurance samples). Seventy-two quality assurance laboratory samples were collected or created which included 36 split samples and 36 trip blanks.

Seventeen diel studies were conducted for Part IV. 4,958 dissolved oxygen measurements were acquired.

Eighty-nine triclosan and caffeine samples were collected during the permit year.

Four fish collections were conducted during the summer 2016 (stations 653, 898, 895, 375).

At the closure of the 2016 permit term, the water sampling component of Part IV was 100% complete.

Priority Monitoring Part V - Water Quality Monitoring Summary - Twelve monitoring locations were selected in 5 sub-basins of the North Canadian River watershed.

Monitoring activities started in December 2016 and continued through the 2016 permit year.

Twenty-four station visits were conducted which included the collection of 20 water samples and 24 field chemistry reports.

Eleven diel studies are scheduled for Part IV. Diel studies will be conducted in the 2017 permit term.

Triclosan and caffeine studies are scheduled to initiate during the 2017 permit year.

Three fish collections are scheduled for the summer of 2017.

At the closure of the 2016 permit term, the water sampling component of Part IV was 7% complete.



Water quality monitoring



Illicit discharge inspection

Illicit Discharge Detection and Elimination Program

Dry weather screening is a field monitoring technique used by the City to detect illicit discharges such as illegal connections, potable water line leaks, wastewater line leaks, illegal discharges and out of compliance discharges from construction activities, industrial operations and residential land uses.

Part III.A.14 of the OKC MS4 Permit requires the completion of 100% of the 554 Dry Weather Field Screening stations three times each permit term. Year 1 and 5, 100% of the sites will be monitored. Year 2, 3 and 4 roughly 1/3 of the sites will be monitored.

Screening results identified as illicit non-storm water discharges were investigated and appropriate actions taken.

A total of 554 station visits were completed from February 19, 2016 through December 31, 2016. This accounts for roughly a 100% completion rate of the 2016 testing requirements. Verification of field paperwork indicated that 21 stations have pending follow-up investigations to determine the cause of the elevated field testing results. Those stations will be visited early 2017.

Dry Weather Monitoring Schedule 2012 - 2016	
Permit Number	Number of Locations
2012	554
2013	143
2014	188
2015	223
2016	554

Sixty-six percent of the stations monitored had sufficient water for testing. The remaining 33% were determined to have insufficient water for sampling; however, field observations were conducted.

Storm Water Quality Management identified 57 observations or field chemistry results which warranted further investigation. Thirty-six follow-up investigations were accomplished and remedial actions sought by the responsible parties, when applicable. The remaining 21 investigations are scheduled for completion during the 2017 permit term.

2016 Discharge Investigation Sites	
Major Basin	Number of Pollution Investigations
Deep Fork River	12
Deer Creek	8
North Canadian River	35
Canadian River (South)	2
Total	57

2016 field testing results indicated variability with regard to parameters which require additional follow-up. Total chlorine accounted for the highest percentage (47%) followed by pH (30%), detergents (7%) and copper (4%). Multiple parameter detections were observed at several stations and included pH & detergents (4%), chlorine & detergents (4%) and chlorine & pH (5%).

Additional testing was completed in March and April 2016 to finalize the 2015 listed stations or required follow up investigations. Thirteen stations required follow-up investigation.



North Canadian River



Five-hundred and fifty-four sites sampled in 2016

2016 Statistics		
Month	Number of Site Visits	% of Total
February	5	0.9%
March	65	11.7%
April	36	6.5%
May	42	7.5%
June	27	4.9%
July	62	11.2%
August	31	5.6%
September	48	8.7%
October	158	28.5%
November	69	12.5%
December	11	2.0%
Total Site Records	554	100.0%
Nine stations were not completed due to construction or changes in the collection system.		

2016 Detection Statistics		
Parameter	Number of Sites	% of Follow-up
pH	17	30%
Total Chlorine	27	47%
Detergents	4	7%
Phenol	0	0%
Copper	2	4%
pH & Detergents	2	3.5%
Chlorine & Detergents	2	3.5%
Chlorine & pH	3	5%
Totals	57	100%

Storm Water Quality continued to utilize the CUES steerable storm drain camera system to identify sources of pollutants, verify structural defects, confirm repairs and isolate blockages within the storm drainage network. The camera system is housed in an enclosed cargo trailer which can be used as a stand-alone unit or towed behind a vehicle to locations throughout the City. Video inspections are recorded onto a DVD for documentation purposes. A standardized field form is completed for each video inspection, which includes investigation location information, conduit size and configuration, time, defects or other problems encountered. Specific distances of items noted are recorded for any necessary follow-up actions.

During 2016, Storm Water Quality Management performed ten camera operations. 4,082 feet (0.77 miles) of storm drains were inspected during these investigations. The transporter and camera unit assisted in the discovery of structural problems, sanitary sewer infiltration, potable water infiltration, and commercial illicit connections.

In addition to Storm Water Quality's camera operations, the Streets and Drainage Maintenance Division of the Public Works Department provides camera inspection services. Crew tasks generally include isolating structural problems, responding to poor drainage or inspecting replaced or reconditioned storm drainage structures. Fifty-six camera inspections were completed during the permit term which totaled 12,956 feet (2.45 miles).

Streets and Drainage Maintenance and the Storm Water Quality Division performed a combined total of 66 closed circuit storm drain camera inspections during the 2016 permit term which accounted for 17,038.8 feet (3.22 miles) of assessed structural assets.



CUES camera



Pet waste contributes to bacteria in waterbodies

Special Roxboro Project - SWQ continued several special water sampling programs during the 2016 permit term including the Special Project Roxboro Addition. This project originally included the collection of field water quality information at 3 monitoring stations using a LaMotte Storm Drain Kit at a collection frequency of 2 visits each month. Sampling visit frequency was reduced to monthly in 2014. The Roxboro Addition (project area) is located between Hefner and Rockwell near NW 116th Street in a single family medium density residential area. The program was initiated by citizen request and continues to date on a monthly basis. Field parameters include estimated or measured discharge, total chlorine, pH, water temperature, phenol, copper and detergents. During the 2016 permit term, 18 site visits were conducted for the Special Project Roxboro Addition.

Oklahoma River Bacteria Program - To generate the information needed to assess the levels of fecal contamination indicators in the Oklahoma and North Canadian River, SWQ initiated a 3 part bacteria monitoring program. The program includes dry weather, wet weather and fixed interval sampling efforts with focus on the bacterial parameters E. coli and enterococci. Data were reported for 3 monitoring stations (1359, 1372 and the Portland Boat Ramp) during 2016. Ninety-four sampling events were recorded during the permit year. An additional 25 samples were collected or created as part of the project quality assurance efforts. Quality Assurance samples included 5 equipment blanks, 7 trip blanks, 7 sample splits and 6 sample replicates.

In efforts to foster safe water recreation, Oklahoma City allows swimming in natural waters on a permit basis. These revocable permits have specific language detailing indicator bacteria (E. coli) and blue-green algae threshold counts to continue an event which includes primary body contact recreation. Five sampling events were conducted in support of permitted swimming activities. Samples were collected for a special KOCO News Channel 5 video shoot in May and the Redman Triathlon at Lake Hefner in September.

Optical Brightener Program - In addition to the traditional Illicit Discharge Detection and Elimination (IDDE) program, SWQ also conducts a complimentary program to detect optical brighteners in surface waters and storm drainage networks. To improve the program's detection capabilities, optical brightener devices are placed in high densities and in relative close proximity to each other within a sub-basin study area. These efforts are often paired with the IDDE program monitoring stations and run in tandem as a subprogram to the IDDE or other program efforts. During the 2016 permit term, 107 optical brightener tests were conducted (including quality assurance samples) representing 88 test stations throughout Oklahoma City. No detections were made during the permit year.



Optical brightener program



Oklahoma River

Supporting Permit Conditions, Monitoring Programs and Documents

Interjurisdictional Agreements - The City has agreed to supplement its permit application to allow the Oklahoma Department of Transportation (ODOT) and the Oklahoma Turnpike Authority (OTA) to be co-applicants and co-permittees through a Memorandum of Understanding (MOU).

Budget - The storm water drainage utility was established by city council on June 13, 1995 to address federal mandates governing National Pollution Discharge Elimination System (NPDES) programs, and is responsible for planning and implementing strategies for improving the quality of storm and other runoff waters. The utility is an enterprise with operating revenues generated from a drainage fee. Fees are billed monthly, along with water, wastewater and solid waste fees.

Revenue for 2016	
Fine/Court Cost	\$467
Permitting	\$116,200
Reimbursements	\$255,760
Drainage Utility Fee	\$14,104,870

Revenues	Actual FY 15	Adopted FY 16	Adopted FY 17
Drainage Fee	\$16,850,160	\$16,820,685	\$17,667,703
Interest Income	60,197	65,180	128,302
ODOT Reimbursements	255,766	255,766	255,766
Permits	86,665	117,384	106,312
Other	268,997	659,441	53,192
Fund Balance	0	3,413,746	1,925,115
Reserve for Outstanding Encumbrances	0	861,930	1,712,963
Storm Water Drainage Utility Fund	\$17,521,785	\$22,194,132	\$21,849,353

Storm Water Quality Positions and Budget

Program	FY 15		FY 16		FY 17	
	Adopted Positions	Actual Expenses	Adopted Positions	Actual Expenses	Adopted Positions	Actual Expenses
Environmental Water Quality	6.10	\$562,410	6.10	\$863,074	6.10	\$769,887
Household Hazardous Waste	7.10	823,354	7.10	1,003,922	7.10	960,544
Public Outreach	1.00	105,718	1.00	126,243	1.00	97,031
Storm Water Permitting	13.80	\$1,200,625	13.80	1,336,463	13.80	1,276,523
Line of Business Total	28.00	\$2,692,107	28.00	\$3,329,702	28.00	\$3,103,985

Administration

Raymond Melton, Environmental Protection Manager
 Jessica Gravlin, Administrative Coordinator
 Amanda Blalack, Office Coordinator
 Dazhane Franklin, Professional Technician
 Andrea Shelton, Community Relations Coordinator

Construction

David Phillips, Environmental Unit Supervisor
 Scott Cox, Environmental Technician
 Bruce Teel, Environmental Technician
 Bryan Jones, Environmental Technician
 Jimmy Stotts, Environmental Technician
 Bill Whitaker, Environmental Technician

Environmental

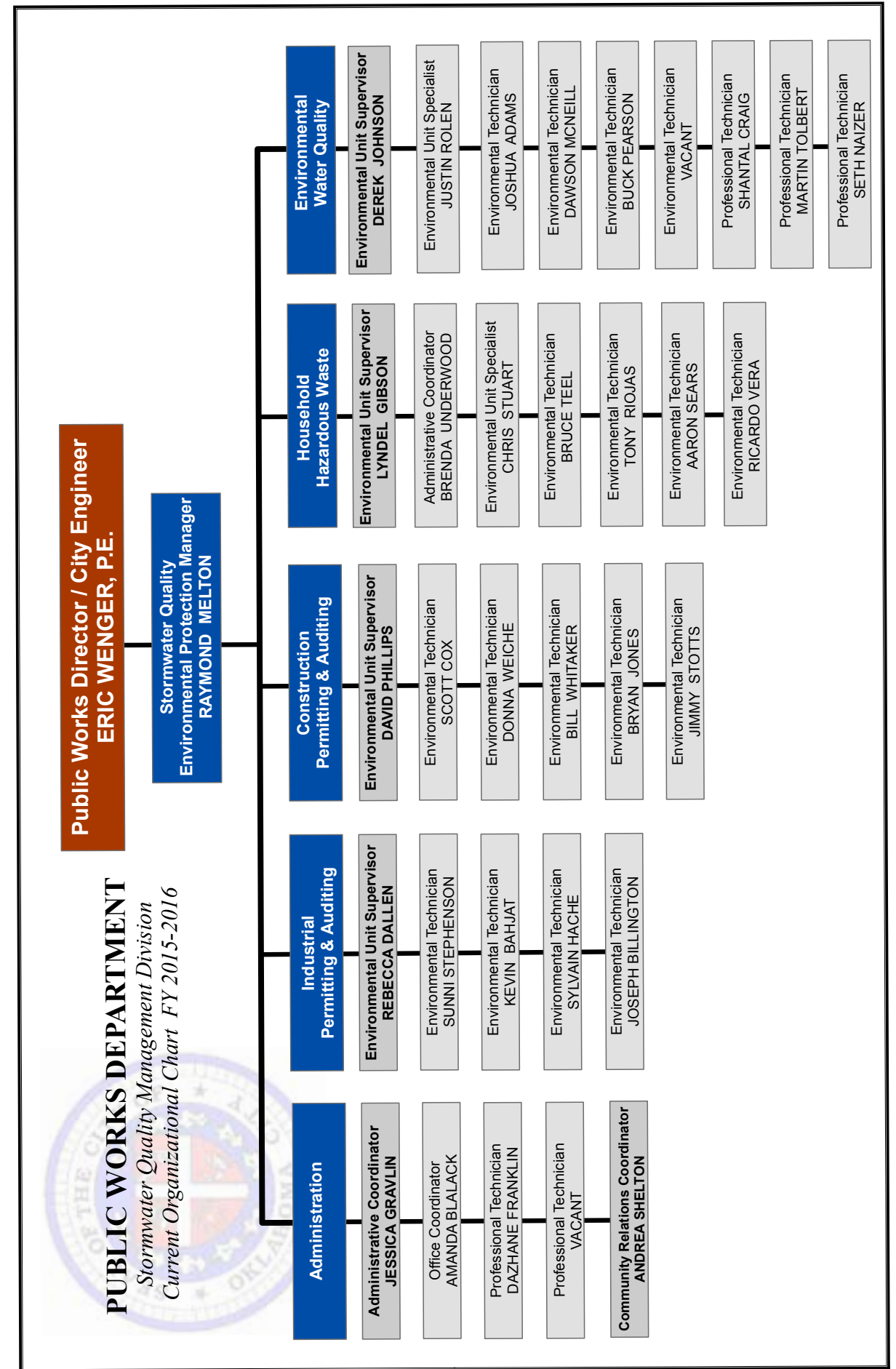
Derek Johnson, Environmental Unit Supervisor
 Justin Rolen, Environmental Unit Specialist
 Josh Adams, Environmental Technician
 Dawson McNeill, Environmental Technician
 Buck Pearson, Environmental Technician
 Vacant, Environmental Technician
 Shantal Craig, Professional Technician
 Martin Tolbert, Professional Technician
 Seth Naizer, Professional Technician

Household Hazardous Waste

Lyndel Gibson, Environmental Unit Supervisor
 Brenda Underwood, Administrative Coordinator
 Chris Stuart, Environmental Unit Specialist
 Heather Bishop, Environmental Technician
 Tony Riojas, Environmental Technician
 Aaron Sears, Environmental Technician
 Ricky Vera, Environmental Technician

Industrial

Rebecca Dallen, Environmental Unit Supervisor
 Sunni Stephenson, Environmental Technician
 Kevin Bahjat, Environmental Technician
 Sylvain Hache, Environmental Technician
 Joseph Billington, Environmental Technician





Lake Thunderbird TMDL planning meeting

MS4 Specific Requirements

Program Component - Part II.B.2 of the Oklahoma City MS4 Permit requires certain initiatives to incorporate, plan and implement to reduce pollutants discharged into waters of the State. The following sections provide the requirements and annual program accomplishments for the applicable Total Maximum Daily Loads in Oklahoma City.

Part II.B.2 Total Maximum Daily Load (TMDL) Allocations

1. Discharge of a pollutant into any water for which a TMDL or watershed plan in lieu of a TMDL for that pollutant has been either established or approved by the DEQ or EPA is prohibited, unless your discharge is consistent with that TMDL or watershed plan. You must incorporate any limitations, conditions, monitoring and other requirements applicable to your discharges into your SWMP to ensure that the waste load allocation, load allocation and/or the TMDLs associated implementation plan will be met within any timeframes established in the TMDL or watershed plan. You must adopt any WLAs assigned to your discharges specified in the TMDL as measurable goals within the permit.

2. If a TMDL or watershed plan in lieu of a TMDL is approved for any water body into which you discharge after the date that your permit becomes effective, you must incorporate any limitations, conditions, and requirements applicable to your discharges into your SWMP to ensure that the waste load allocation, load allocation and/or the TMDLs associated implementation plan will be met within any timeframes established in the TMDL or watershed plan. Monitoring and reporting of the discharges may also be required as appropriate to ensure compliance with the TMDL or watershed plan. You must adopt any WLAs assigned to your discharges specified in the TMDL as measurable goals within the permit.

Lake Thunderbird Report for Nutrient, Turbidity, and Dissolved Oxygen TMDL

- November 20, 2013, OKC was notified by the Oklahoma Department of Environmental Quality of EPA approval of the Lake Thunderbird.
- Requirements included incorporation of the TMDL WLA into the City's Storm Water Management Plan; develop a TMDL Compliance Plan, and a comprehensive Monitoring Plan.

2016 TMDL Milestones

TMDL Monitoring Plan

Monitoring Summary

- Purchased and installed two passive sampling devices for each of 14 major outfall monitoring locations in the Lake Thunderbird watershed.
- Purchased and installed three automatic sampling stations with data telemetry for long-term monitoring. Continuous level and flow measurements were acquired at each station. Field discharge measurements were conducted to develop a stage versus discharge relationship at each station.
- Thirty-three dry weather screening stations were visited during the 2016 permit term. Sixty-six total visits were conducted. Thirty-three percent of the visited stations were dry. The remaining 67% had water quality testing conducted of which five stations required further investigation for elevated chlorine levels.
- Conducted a monitoring event (fixed interval monitoring) at each of the three pour point monitoring locations in the Lake Thunderbird watershed.



TMDL passive sampling program



TMDL related training for City staff

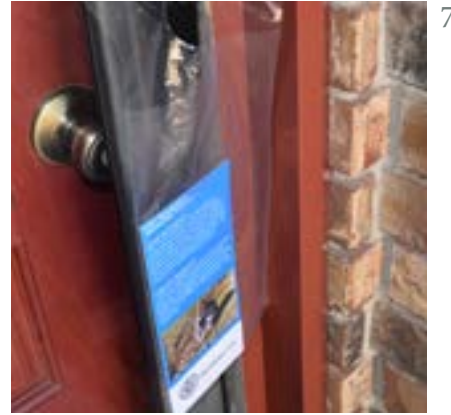
- Thirty-four station visits were conducted at each of the Pour Point sampling stations during the 2016 permit term. Visits were conducted to install equipment infrastructure/monitoring equipment, maintain onsite data loggers, measure discharge, and acquire laboratory samples.
- Twenty-six station visits were made to selected major out-fall monitoring stations. No samples were acquired during the 2016 permit term.

Training/Meetings

- Eighteen training hours accomplished by City staff on March 4, 2016 regarding directed TMDL related information (presentation provided on disk).
- Oklahoma City co-presented with the City of Moore, Norman and the Oklahoma Department of Environmental Quality regarding the Lake Thunderbird TMDL to participants of the EPA Region 6 MS4 Conference in Oklahoma City on October 5, 2016.
- Representatives from Oklahoma City, Moore and Norman participated in a Lake Thunderbird Taskforce to discuss TMDL objectives, strategies, monitoring results and potential collaborative efforts. 2016 permit term meeting were held on November 9 and December 8.
- Seventeen meetings were logged during the 2016 permit terms which were directly related to the Lake Thunderbird TMDL.
- Oklahoma City has scheduled a Lunch and Learn educational opportunity for City staff in February 2017. Efforts will be made to invite staff from the Public Works, Planning and Utilities Departments. Guest Presenter will be Mara Ryan with Contech Engineered Solutions.

Non-Structural BMP Load Reductions

- Developed a brochure (door hanger) and distributed to 92 homes within a certain proximity of each passive sampler installed in the field. The brochure briefly describes why the equipment was installed, what the devices looks like, and contact information if further details are needed.
- Oklahoma City education and outreach programs include presentations, radio and television media opportunities, various brochures, email notifications, newsletters, billboards and public meetings, among others. A subset of educational and outreach events were selected with subject matter directly or indirectly related to the Lake Thunderbird TMDL objectives. Outreach may have been specifically directed events (such as a utility bill insert) or more generalized, such as a booth at the State Fair of Oklahoma. Contacts for each selected event were totaled. Research was conducted to quantify recall rates for common sources of information. Those percentages were used to determine the contacts which retain the information. To determine the customer base within the TMDL area, the population was determined as a percentage of the Oklahoma City population. That percentage was used to calculate an estimated number of potential consumers. Eighty-four outreach efforts were selected with an estimated total contact base of 2,518,687. An estimated 127,038 were calculated to retain the various forms of information. Please note that different media sources and subjects may be provided to the same contact iteratively and this is not a population based statistic.
- Oklahoma City has provided rain barrels at a low cost to Citizens since 2014. Although rain barrels are structural BMPs, SWQ has considered the devices a temporary control structure and rain barrels are not included as a permanent structural control. In 2014 and 2015, 39 rain barrels were purchased by watershed residents.



TMDL door hanger



Rain barrel in Lake Thunderbird Watershed

- During the 2016 permit term, 7 additional rain barrels were purchased by residents in the TMDL area accounting for a potential collection of up to 2,530 gallons of rain water for each significant rainfall event.
- Active construction and land disturbing permits are reviewed annually in the Lake Thunderbird watershed. The watershed treatment model partially bases the reductions on treatability, which is defined as the fraction of sites that are regulated by the program. Previously, SWQ had assigned a 20% treatability (which means only 20% of the active construction in the watershed is permitted). Based on Construction Inspector knowledge, SWQ believes the percentage of permitted construction is higher than previously reported. Conservatively, SWQ has used 40% treatability during 2016. For the 2017 permit term (and for all future reporting), staff are working towards integrating the SWQ construction management program (in Accela) with Oklahoma City's Geographical Information System. This will provide staff the ability to see all active building permits and active construction permits and determine the actual percentage of regulated construction sites. Other factors include proper installation and maintenance. No additional effort has been placed on proper installation and maintenance. Treatability is the only variable which has changed during the permit year which provides a revised load associated with construction activity. The load reductions associated with the increased percentage of construction permits include 73 lbs total nitrogen, 15 lbs total phosphorus, 49,832 lbs total suspended solids.

Structural BMP Load Reductions

- Thirty storm drain inserts are installed in the Lake Thunderbird TMDL area. During 2016, 237 site visits were conducted. Debris removed totaled 975 pounds. A secondary project's data was used to develop an average concentration of total nitrogen, total Kjeldahl nitrogen, total phosphorus and nitrate plus nitrite concentrations for the debris collected. This average concentration data was used to estimate the pounds of the aforementioned pollutants removed through the collection of debris from storm drain inserts in the TMDL area. An estimated 5 lbs total nitrogen, 5 lbs kjeldahl nitrogen, 0.68 lbs total phosphorus and 0.002 lbs NO₂ plus NO₃ were removed from the inserts.
- Oklahoma City performed field investigations of all structural best management practices in the TMDL area. This information was compiled and entered into a geographical information system database. BMP summary files are being developed which describe the initial field assessments, design, maintenance and monitoring, relevant pictures, presentations and correspondence related to each project. Three of the 19 structural BMPs were modeled using the Watershed Treatment Model. These estimated load reductions are included as part of the load reductions for the Lake Thunderbird TMDL. It is anticipated that the remaining structures will be modeled during the 2017 permit term. The database of structural BMPs should provide staff with sufficient information to determine how the existing structures function and which structures would benefit from maintenance, retrofitting or other enhancements.
- The City prepared project proposals and estimates for the 2017 Bond Election. SWQ staff prepared and submitted three project proposals within the Lake Thunderbird Watershed which are specifically for structural water quality facilities. The requested \$12M funding amount is based on estimated land acquisition and construction costs for the facilities.



Lake Thunderbird TMDL sampling



The City of
OKLAHOMA CITY
DEPARTMENT OF PUBLIC WORKS

CERTIFICATION STATEMENT

**NPDES Permit No. OKS000101
Review of Storm Water Annual Report**

I certify under penalty that this document and all attachments were prepared under my direction or supervision, in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information 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.


Eric J. Wenger, P.E., Director
Public Works/City Engineer

2/27/17
Date



February 1, 2017

Eric J. Wenger, P.E., Director
Public Works/ City Engineer
City of Oklahoma City
420 West Main Street, 7th Floor
Oklahoma City, OK 73102

Attention: Raymond Melton

Dear Mr. Melton:

Enclosed is the Oklahoma Department of Transportation portion of the Fiscal Year 2016 Annual Report to be submitted to the Oklahoma Department of Environmental Quality in accordance with the Oklahoma City Municipal Separate Storm Sewer System (MS4) Permit Number OKS000101. This report covers the period from January 1, 2016 through December 31, 2016.

Please provide this office with one copy of the Annual Report as it is submitted. If you have any questions or require further information, please contact Ms. Michele Dolan at (405)521-6771.

Sincerely,


Casey Shell
Chief Engineer

Enclosure



CERTIFICATION STATEMENT

NPDES Permit No. OKS000101
Review of Storm Water Annual Report

I certify under penalty that this document and all attachments were prepared under my direction or supervision, in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations.

A handwritten signature in black ink that reads "Casey Shell".

Casey Shell
Chief Engineer

A handwritten date in black ink that reads "1/25/17".

Date

FISCAL YEAR
2016
ANNUAL REPORT
BY THE
OKLAHOMA DEPARTMENT OF TRANSPORTATION (ODOT)
ON
OKLAHOMA CITY MS4 PERMIT # OKS000101

February 1, 2017

Status

The Oklahoma Department of Transportation (ODOT) has implemented and is in compliance with the Storm Water Management Plan. The following items demonstrate activities undertaken for this annual report period.

Expenditures

As part of ODOT's Storm Water Management Program, the Oklahoma City metro area highway system shoulders are swept to remove sediment and debris. This sweeping program for the annual report period covered three thousand, seven hundred lane miles at a cost of approximately \$627,000. A private contractor picks up litter from the highways in the city at an annual cost of over \$100,000. The estimated total expenditure for ODOT in anti-litter efforts statewide is approximately \$4,000,000.

Erosion and Sediment Control

ODOT's "Storm Water Management Guidelines for Design and Construction Activities" is used by ODOT design, construction and maintenance personnel, consulting engineers and contractors to select, design and maintain appropriate erosion control measures for our construction and maintenance activities. Currently, ODOT is working with a consultant to create manuals for Design, Implementation and Inspection of erosion and sediment control devices for construction projects. An internal Erosion and Sediment Control task force was formed in January 2003 to improve and standardize best management practices for ODOT and entities acting on their behalf.

The Department formed four Storm Water Advisory Teams (SWAT) for the development of Design, Construction, Maintenance and Public Education/ Public Involvement Best Management

Practices for the agency in 2009. Currently, these teams are in the process of developing and conducting training and materials for educating ODOT personnel on Storm Water regulations.

ODOT Environmental staff has conducted thirty-five construction site inspections on road projects across the state in FY16. Any project with compliance issues was given fourteen days to remedy prior to a second inspection. These inspections will be ongoing for the foreseeable future. The goal is to inspect/educate all road construction contractors that perform earth work on at least one project with every ODOT construction office in the state.

ODOT adopted a non-compliance assessment specification for construction contractors. The specification gives ODOT a mechanism to assess per day monetary fees for failure to comply with effective and timely measures, as requested by the weekly construction inspections.

Phase II MS4 Program

As of February 2005, ODOT was required to obtain a Phase II MS4 permit from DEQ. During this process, ODOT has been reviewing all aspects of our operations to comply with these additional requirements. ODOT has hired a consultant to advise the agency on the six Minimum Control Measures; Public Education and Outreach, Public Participation and Involvement, Illicit Discharge Detection and Elimination, Construction, Post Construction and Good Housekeeping / Pollution Prevention programs. ODOT has a proposed Combined Phase I and Phase II application that is currently waiting to be reviewed by DEQ.

Oklahoma Department of Environmental Quality personnel conducted a review of the ODOT Phase II MS4 Program on November 13th – 16th, 2012. The purpose of the review was to evaluate the current status of the ODOT Phase II MS4 program. The assessment consisted of a records review of ODOT's Storm Water Management Plan and site inspections of ODOT maintenance yards. Inspections were performed at the Cherokee County Maintenance Yard in Tahlequah, the Comanche County Maintenance Yard in Lawton, the Rogers County Maintenance Yard in Claremore and the Division One Headquarters in Muskogee. Overall, the maintenance yards visited were in good condition and the pride superintendents take over their yards was noted by the ODEQ inspectors. Additional storm water-related training for maintenance crews and engineering staff was encouraged and will be scheduled in the coming year.

ODEQ personnel inspected the ODOT central office garage and the Oklahoma City maintenance yard in November 2014. Minor violations such as, dumpsters without lids, were noted by the inspectors but have since been corrected. There were no spills of reportable quantity for 2016.

Illicit Discharge Detection and Elimination Program (IDDE)

ODOT continues to conduct Outfall Mapping in the regulated areas of the State. This effort is being done by Consultants. This data (pictures, inspection results) is being built into ODOT's

Geographical Resource Intranet Portal system that contains multiple databases with many facets of highway information. A guidance document was developed to assist ODOT personnel in identifying and reporting an Illicit Discharge. It was distributed to all ODOT Maintenance staff. Discussion on tracking Highway Spills from accidents is ongoing between DEQ, ODOT Risk Managers, Maintenance personnel and the Highway Patrol.

Good Housekeeping / Pollution Prevention Plans (GHPPP)

ODOT has completed an inventory survey of facilities statewide to develop training on Good Housekeeping and Pollution Prevention. Funding for facility upgrades and/ or relocation is being pursued by the Agency. ODOT has built new maintenance facilities for Okmulgee County, Ellis County, Roger Mills County, Cotton County, Custer County, Kingfisher County, Atoka County and Jackson County. Construction is currently ongoing for facilities in Cleveland County and McIntosh County. Construction is scheduled to begin on facilities in Creek County, Lincoln County and Pittsburgh County in the coming year. Currently, each of the eight Field Divisions are evaluating location, condition and need to determine which County facility will be moved or rebuilt on site. These upgrades will further the Good Housekeeping /Pollution Prevention Minimum Control Measure by adding updated secondary containment devices and retention facilities. In addition, ODOT has developed a Good Housekeeping Pollution Prevention Plan Facility template. The templates are being completed for facilities in the regulated areas to satisfy DEQ requirements. Currently, all the facilities located in the regulated areas have been inspected for pollution prevention opportunities, procedures have been reviewed with their Maintenance Supervisors. GHPPP's and training are being developed.

ODOT has incorporated a "Clean Sweep" program at all of the facilities throughout the State. This program is intended to remove old materials that may be potential pollutants. This program is ongoing and is being conducted with the assistance of the Department of Central Services on the sale of the material that can be repurposed. This undertaking is being done for the Good Housekeeping/ Pollution Prevention MCM, as well as evaluating which facilities will require Spill Prevention, Control and Countermeasure (SPCC) plans. It has been determined that many facilities will not meet the required capacity for SPCC plans, after the Clean Sweep operation has been conducted.

Additionally, ODOT has hired a Consultant to map all the maintenance facilities in the regulated areas for possible water quality impacts, e.g., sensitive waters, aquatic resources of concern, endangered and threatened species. This information will be incorporated into the mapping database mentioned in the IDDE section.

Herbicide Application

The application of herbicides is performed by Oklahoma Department of Transportation employees. ODOT closely follows the procedures, rules, and regulations contained in the Oklahoma Pesticide Applicators Law. ODOT requires all its applicators to be licensed and are

subject to the implementing regulations of this law. ODOT partners with the Oklahoma Department of Agriculture to offer the Pesticide Applicators test required for a license during our annual workshops.

ODOT has a contract with the Oklahoma State University/ Oklahoma Cooperative Extension Service to provide annual herbicide applicator workshops. Fifteen continuing education workshops were held across the state in each of the eight field divisions. Approximately six hundred people attended the workshops statewide, which includes eighty-three employees from the Oklahoma City area. A large portion of this workshop covered the various issues concerning environmentally safe usage of herbicides. Calibration/ Equipment Assessment Workshops were held statewide in April 2016. Four Certification Workshops were held statewide with ninety-five employees attending. ODOT has scheduled the continuation of this training/certification for the coming year.

On October 31st, 2011, new EPA regulations were promulgated that brought Pesticide Application under the Clean Water Act, if applicable. ODOT has adopted a thirty foot buffer zone from all USGS "Blue Line" streams to meet EPA's Pesticide General Permit requirements. By using "terrestrial only" applications, ODOT will not be required to obtain Pesticide Application permits under the Clean Water Act. ODOT Environmental Programs Division attended the Field Division workshops, explained the buffer zone requirements, demonstrated how this process of shutting off the spray in the correct areas and the importance of complying with this regulation. An interactive, online map of Oklahoma USGS "Blue Line" streams was created by ODOT GIS personnel to assist applicators in identifying shut off areas for their prospective roadways.

Public Education/ Litter Program

ODOT has continued the statewide anti-litter campaign, "Oklahoma, Keep Our Land Grand". The litter hot-line (1-888-5-LITTER), is available to report littering anywhere across the state. Callers can report the offenders tag number. The people observed littering were sent a postcard requesting them to help "Keep Our Land Grand". Littering is against the law and offenders can be fined from \$200 to \$2000.

School-age children are invited annually to enter a poster contest, sponsored by ODOT; Oklahoma Department of Environmental Quality, Oklahoma State Department of Education, Keep Oklahoma Beautiful, Oklahoma Environmental Management Authority, Oklahoma Rural Water Association, Oklahoma Chapter of the Sierra Club, Solid Waste Institute of NE Oklahoma, Waste Research, Inc., Oklahoma Arts Council, Oklahoma Employees Credit Union, OGE Energy Corporation, Veolia Water, Oklahoma Tourism & Recreation Department (Oklahoma State Parks), Wal-Mart, AEP-Public Service Company of Oklahoma, Oklahoma Turnpike Authority and the Oklahoma Highway Safety Office. Fourteen thousand students, grade Kindergarten through 12th participated in the 2016 contest. The winning posters are printed for distribution to schools, businesses, and chambers of commerce. A quantity of forty five

thousand calendars, featuring the winning posters, will be printed and distributed statewide to schools, libraries city, county, state and federal offices. One of the twelve winning posters will be featured on fourteen thousand color reprints distributed for promotional display purposes to spread the anti-litter message to Oklahoma citizens of all ages.

The 24th Annual State poster contest winners were honored at an April awards luncheon at ODOT's office in Oklahoma City. ODOT Director Mike Patterson welcomed attendees to the gathering and talked about the importance of litter abatement. OKC Beautiful put on an interactive skit entitled "Mother Earth" about litter and recycling. Guests were also treated to a luncheon. Each state poster winner received a monetary award of \$250, \$150 or \$100 for first, second or third place. Winners also received a mounted reprint of their poster, placemats and t-shirts bearing their design. The twelve winners were then presented to the Oklahoma State House of Representatives at the Capitol. Each of the 12 students had the opportunity to get their photos taken with their respective representative.

As a component of ODOT's continuing education efforts, monthly Spotlight on Storm Water email bulletins began being developed and distributed in August 2013. The bulletins can be discussed at safety meetings, posted on bulletin boards or at the construction site field offices. They are intended to inform ODOT personnel about common problem areas on the construction site, new regulations and also highlight examples of effective erosion control.

Adopt-a-Highway/ TRASH-OFF

ODOT'S anti-litter efforts are still on-going and include two hundred forty four separate "Adopt-a-Highway" groups who remove litter from their two mile section of state highways at an interval of four times a year, and the "TRASH-OFF", an annual volunteer spring roadside cleaning sponsored by ODOT. Oklahoma City has twenty five "Adopt-a-Highway" groups covering fifty miles at a minimum of four times a year.

The Twenty-eighth Annual TRASH-OFF was the signature event of the Great American Cleanup (GAC) Oklahoma. This year's GAC took place from March 1 through May 31, 2016 and resulted in 2,229,121 pounds of litter and debris collected from Oklahoma roadsides and public areas by 56,000 volunteers and participants. This saved taxpayers an estimated 6.5 million dollars in clean-up costs. In addition, Keep Oklahoma Beautiful sponsors a banquet in the fall where awards are given to participants for "Best First Effort" and "Best Overall Effort".

ODOT is a member of the Central Oklahoma Storm Water Alliance (COWSA.) ODOT created a Storm Water contact link to the Website to receive questions or concerns regarding our processes and/or construction projects.

Wildflowers

Wildflower planting was ODOT's first landscaping program which started in 1976, but went into full scale planting in 1987. There are more than two thousand, two hundred acres in five hundred eighty six sites planted statewide. The Oklahoma Legislature passed a bill in May 2006 creating a new Oklahoma wildflower car tag. Every wildflower tag will donate twenty dollars toward the planting of wildflowers on Oklahoma roadsides.

Citizen donations of \$280,086 have purchased wildflower seed for planting along highways during the last 24 years. To date, ODOT has planted approximately two thousand three hundred acres on roadside sites statewide.

Three drill seeders, specifically designed for wildflower seed, are used by ODOT for planting on highway roadsides. These drills are available for use by Oklahoma communities and organizations.

In the spring of 2016 a memorandum of agreement was signed in partnership with the Federal Highway Administration and the Missouri, Texas, Iowa, Kansas and Minnesota DOT's designating Interstate 35 as the Monarch Highway. The goal is to protect more of the Monarch Butterfly's natural habitat by allowing milkweed and native flowers to grow in the right-of-way where possible. In anticipation of the collaboration, ODOT began refraining from mowing highway rights-of-way statewide, except where necessary, until July when the flowers are primed for seed dispersal. Mowing was continued in urban areas and safety zones, which includes medians and rights-of-way up to 30 feet from the pavement's edge. A pollinator garden was also planted by ODOT staff at the Oklahoma City Welcome Center. The garden, a registered Monarch Waystation, is a 20 foot by 40 foot plot containing five types of milkweed, Black-eyed Susans, purple coneflower and other types of wildflowers. The garden will serve as educational tool for the public to help them recognize and protect milkweed and other native wildflowers.

Collection and Recycling

ODOT's Oklahoma City Maintenance personnel recycled approximately 250 gallons of oil this past year. The oil is picked up by a private contractor six times a year. Approximately, 4,494 tires were recycled in 2016.

Mowing

ODOT's maintenance activities are being performed by private contractors that mow just over forty seven hundred acres per year in the Oklahoma City metropolitan area. This is done five times a year at a cost of approximately \$1,000,000.



March 7, 2017

Eric J. Wenger, P.E.
Director Public Works/City Engineer
City of Oklahoma City
420 West Main Street, Suite 700
Oklahoma City, OK 73102

Dear Mr. Wenger,

Enclosed is the Oklahoma Turnpike Authority's portion of the Annual Report to be submitted to the United States Environmental Protection Agency (EPA) in accordance with the City of Oklahoma City's Separate Storm Sewer System (MS4) Permit Number OKS000101. This report covers the period from January 1, 2016 through December 31, 2016.

Please provide this office with one copy of the Annual Report when it is submitted to EPA.

Sincerely,

Edward Dührberg, P.E.
Project Engineer



NPDES Permit No. OKS000101
January 1, 2016 through December 31, 2016
Annual Report for
Oklahoma Turnpike Authority (OTA)

1. Status of the Implementation of the Storm Water Management Program (SWMP).

Requirements outlined in the Part 2 of OPDES Permit OKS000101 have been met.

Structural Controls and Storm Water Collection System Operations:

All of OTA's below ground stormwater carrying structures are inspected on a biannual time schedule as part of OTA's commitment to a well maintained stormwater system. In 2016, a total of 499 structures were inspected on the John Kirkpatrick Turnpike. Any unacceptable conditions were reported immediately to the maintenance and engineering staff for review and action.

Above ground stormwater controls are monitored daily by the maintenance staff who are equipped to handle any flow problems that could arise. Examples of such controls include detention areas and roadside ditches. To ensure the stormwater is flowing efficiently, OTA mows five (5) cycles per season. Approximately one thousand and eighty one (1,081) acres are mowed per cycle.

Roadways:

Seventy five (75) lane miles are swept twice per year to ensure that the John Kirkpatrick and Turner Turnpikes are operating in a manner that will minimize discharge of pollutants from the roadway. During this operation, shoulders are swept to remove accumulated sediment, salt, and other debris.

In addition to the eleven (11) trash containers that are maintained year around along the Kilpatrick and Turner Turnpikes, maintenance staff also collected and properly disposed of approximately five hundred forty (540) cubic yards of trash.

The OTA also participates in the Great American Clean-up from March to May, in which trash and litter are picked up from the Turnpike roadsides and the volume is reported to Keep Oklahoma Beautiful (KOB).

Pesticide, Herbicide, and Fertilizer Application:

The OTA requires all turnpike herbicide applicators as well as all contract applicators to be licensed and subject to all of the regulations under the Oklahoma Herbicide Applicators Law including re-certification. Applicators receive yearly training on pesticides, herbicides, and fertilizers chemicals from the Oklahoma Vegetation Management Association. The OTA has fourteen (14) certified applicators on the Kilpatrick and Turner Turnpikes. Approximately three hundred eighty two (382) gallons of herbicide were applied around sign footings, fences, and at various other locations within the limits of the right of way.

Illicit Discharge and Improper Disposal:

As part of the below ground stormwater control structures inspection, no illicit discharge was detected.

OTA's maintenance staff collected and recycled one thousand thirty one (1,031) quarts of oil. The oil is routinely picked up at the maintenance yard by a private contractor. In addition to the oil, OTA recycled ninety (90) filters. OTA also returned sixteen (16) batteries and thirty eight (38) tires for recycling to the location where new ones were purchased.

Spill Prevention and Response:

OTA operates two Maintenance facilities on the Kilpatrick Turnpike, and the OTA has developed a Stormwater Pollution Prevention Plan (SWPPP) for each. Both facilities follow the spill prevention and response procedures specified in Section 3.4 of their respective SWPPPs.

Construction Site Runoff:

Strict guidelines are set forth to ensure that each construction site has adequate controls for reducing pollutants. All construction plans that are produced by or for the OTA have a mandatory Storm Water Management Plan and Erosion Control Plan. These plan sheets provide information such as location/description of project, sequence of erosion control activities, area disturbed, name of receiving waters, soil stabilization practices, structural practices, offsite vehicle tracking, layout showing exactly where soil stabilization and structural practices should be placed, and

references to the OTA Standard Specification for all Stormwater Guidelines. The most optimal approach and recommendations are discussed and agreed upon prior to project implementation to guarantee that the best option shall be undertaken for the project.

During construction, all stormwater activities are monitored and enforced daily by the OTA's on-site representative.

Upon project completion, OTA conducts a final inspection and assures that the areas impacted by OTA projects are restored to compliance level within 30 days after the final inspection.

Public Education:

OTA participates in the "Everyday Environmentalist" radio campaign which is heard on various radio stations in the Oklahoma City area. In 2015 the OTA website underwent a major revision. An additional revision is underway and will be complete in 2017. The educational bookmark produced in 2015 is still available on the website and at the OTA Headquarters reception area.

Employee Education:

OTA Kilpatrick Turnpike Maintenance employees attend periodic safety meetings which can include stormwater topics. Illicit discharge and wet weather inspection training was presented to OTA Maintenance staff on December 20, 2016, at OTA Headquarters in Oklahoma City. OTA is implementing web-based stormwater training for its employees starting in calendar year 2017.

Public Participation and Response:

The OTA is part of the anti-litter campaign, "Oklahoma Keep Our Land Grand." As part of this campaign, the OTA offers a toll free number to call to report littering as well as a place to report littering on the website. Individuals who are observed littering are sent a notice to remind them that littering is a punishable offense and that the goal is to keep Oklahoma land looking grand. For the year 2016, five hundred forty five (545) litter calls were received by the Pikepass Office, which is 24% fewer calls than received in year 2015.

Landscape:

OTA maintains seven (7) wildflower pots and two (2) tree farms on the right-of-way adjacent to the turnpikes.

2. Proposed SWMP Changes.

The OTA does not propose any changes to the SWMP.

3. Revision to the Assessment of Controls and the Fiscal Analysis.

The OTA proposes no revision to the assessments of controls. The Fiscal Analysis is as shown on the City of Oklahoma City's Report.

4. Monitoring Data Accumulated Throughout the Reporting Year.

Refer to the Regional Storm Monitoring Report.

5. Annual Expenditures for the Reporting Period with a Breakdown for the Major Elements of the SWMP and the Anticipated Expenditures for the Year Following each Annual Report.

Description	Cost
Structural Controls Inspections	\$ 9,750.00
Mowing	187,381.84
Sweeping	6,109.65
Trash Collection and Disposal	97,955.92
Herbicide Licensing	1,325.00
Herbicide (Product + Application)	33,552.47
Landscape	2,184.57
Public Education	2,000.00
Total	\$340,259.45

OTA will spend an estimated \$ 350,000.00 in 2017 for the major elements of this SWMP.

6. A Summary Describing the Number and Nature of Enforcement Actions, and Inspections.

All enforcement actions in OTA's watershed located within the City's jurisdiction are issued by the City of Oklahoma City in concurrence with the OTA.

All Turnpike roadway areas are inspected regularly as part of ongoing Maintenance activities. Routine monthly inspections and quarterly visual assessment inspections take place at the John Kilpatrick Turnpike Maintenance yards per the SWPPPs developed for those facilities.

Additional inspections of OTA stormwater infrastructure is described in the *Structural Controls and Storm Water Collection System Operations* section earlier in this report.

7. Identification of Water Quality Improvements or Degradation.

OTA did not identify any water quality improvements or degradations during this report period.

8. Regional Monitoring Report.

Please see the City of Oklahoma City's report.

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.



Edward Dyrberg, P. E.
Oklahoma Turnpike Authority

3/7/17

Date



Storm Water Quality Management 2016 Annual Report



The City of
OKLAHOMA CITY