



CITY OF
Crystal Lake
ILLINOIS

May 31, 2013

VIA Email and Certified Mail, Return Receipt Requested

IEPA
Water Pollution Control
Compliance Assurance Section #19
1021 North Grand Avenue, East
Springfield, IL 62794-9276

Re: Permit ILR400179 2013 Annual Report

Greetings,

Transmitted herein, please find the 2013 Annual Report for the City of Crystal Lake's MS4 Permit covering the period of March 2012 through March 2013.

Please contact me should you have any questions or require any additional information.

Sincerely,

Victor C. Ramirez, PE
Director of Public Works

Attachments



Illinois Environmental Protection Agency

Bureau of Water • 1021 N. Grand Avenue E. • P.O. Box 19276 • Springfield • Illinois • 62794-9276

Division of Water Pollution Control ANNUAL FACILITY INSPECTION REPORT

for NPDES Permit for Storm Water Discharges from Separate Storm Sewer Systems (MS4)

This fillable form may be completed online, a copy saved locally, printed and signed before it is submitted to the Compliance Assurance Section at the above address. Complete each section of this report.

Report Period: From March, 2012 To March, 2013

Permit No. ILR40 0179

MS4 OPERATOR INFORMATION: (As it appears on the current permit)

Name: City of Crystal Lake Mailing Address 1: 100 W. Woodstock Street
Mailing Address 2: _____ County: McHenry
City: Crystal Lake State: IL Zip: 60014 Telephone: 815-459-2020
Contact Person: Victor Ramirez Email Address: vramirez@cystallake.org
(Person responsible for Annual Report)

Name(s) of governmental entity(ies) in which MS4 is located: (As it appears on the current permit)

City of Crystal Lake

THE FOLLOWING ITEMS MUST BE ADDRESSED.

A. Changes to best management practices (check appropriate BMP change(s) and attach information regarding change(s) to BMP and measurable goals.)

- | | | | |
|--|--------------------------|---|--------------------------|
| 1. Public Education and Outreach | <input type="checkbox"/> | 4. Construction Site Runoff Control | <input type="checkbox"/> |
| 2. Public Participation/Involvement | <input type="checkbox"/> | 5. Post-Construction Runoff Control | <input type="checkbox"/> |
| 3. Illicit Discharge Detection & Elimination | <input type="checkbox"/> | 6. Pollution Prevention/Good Housekeeping | <input type="checkbox"/> |

B. Attach the status of compliance with permit conditions, an assessment of the appropriateness of your identified best management practices and progress towards achieving the statutory goal of reducing the discharge of pollutants to the MEP, and your identified measurable goals for each of the minimum control measures.

C. Attach results of information collected and analyzed, including monitoring data, if any during the reporting period.

D. Attach a summary of the storm water activities you plan to undertake during the next reporting cycle (including an implementation schedule.)

E. Attach notice that you are relying on another government entity to satisfy some of your permit obligations (if applicable).

F. Attach a list of construction projects that your entity has paid for during the reporting period.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

Victor Ramirez
Owner Signature:

5/31/13
Date:

Victor Ramirez

Director of Public Works

Printed Name:

Title:

EMAIL COMPLETED FORM TO: epa.ms4annualinsp@illinois.gov

or Mail to: ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
WATER POLLUTION CONTROL
COMPLIANCE ASSURANCE SECTION #19
1021 NORTH GRAND AVENUE EAST
POST OFFICE BOX 19276
SPRINGFIELD, ILLINOIS 62794-9276

This Agency is authorized to require this information under Section 4 and Title X of the Environmental Protection Act (415 ILCS 5/4, 5/39). Failure to disclose this information may result in: a civil penalty of not to exceed \$50,000 for the violation and an additional civil penalty of not to exceed \$10,000 for each day during which the violation continues (415 ILCS 5/42) and may also prevent this form from being processed and could result in your application being denied. This form has been approved by the Forms Management Center.

CITY OF CRYSTAL LAKE

NPDES Phase II

Annual Report

(Reporting Year March 2012 to March 2013, Permit No. ILR400179)

Prepared by The City of Crystal Lake Public Works Department

The City of Crystal Lake has been increasing its vigilance to its ever expanding Municipal Separate Storm Sewer System (MS4) Program. While the maintenance and management of the storm sewer system has been a priority of the City in the past, Crystal Lake's MS4 Program will be developed further and incorporated into more aspects of the City's operations. This report will reflect the changes made to the BMPs, the City's status of compliance with permit conditions and a history of the construction projects conducted over the last year. In addition, this document will report the City's new goals and objectives for the coming years, and the status and summary of the past year's stormwater activities among other facts and analysis. The City of Crystal Lake has worked diligently over the last year to increase the status of its MS4 Program. This document it intended to report the status of the City's program, and to establish a foundation for the future of the MS4 Program in Crystal Lake.

Table of Contents

| Description | Page # |
|---|---------------|
| Section A. Changes to Best Management Practices..... | 1 |
| Section B. Status of Compliance with Permit Conditions..... | 2-6 |
| Section C. Information and Data Collection Results..... | 7-21 |
| Section D. Summary of Stormwater Activities..... | 22-24 |
| Section E. Notice of Qualifying Local Program..... | 25 |
| Section F. Construction Projects Conducted..... | 26 |

Section A: Changes to Best Management Practices

- A. Public Education and Outreach**
- B. Public Participation/Involvement**
- C. Illicit Discharge Detection and Elimination**
- D. Construction Site Runoff Control**
- E. Post-Construction Runoff Control**
- F. Pollution Prevention/Good Housekeeping**

Section B: Status of Compliance with Permit Conditions

The status of BMPs and measurable goals performed over the last year are described below.

A. Public Education and Outreach

A.1 Distribute Paper Materials

Measureable Goals –

- *The City of Crystal Lake was able to distribute 735 brochures on rain barrels and their positive effects to the environment. Distribution was as follows:*
 - *27 – Chamber of Commerce Expo*
 - *13 – Library*
 - *19 – Local Elementary Schools*
 - *35 – Local High Schools*
 - *50 – Local Community College*
 - *591 – Lobby of the City's Municipal Complex*

A.3 Public Service Announcements

Measureable Goals –

- *An article was published in the City's spring newsletter explaining the positive results of proper care and maintenance for sewer lines. Proper care for one's sanitary sewer can reduce the rate of infiltration thus reducing the loss of groundwater.*

A.4 Community Event

Measureable Goals –

- *Coordination of replanting and maintenance of the City's rain garden with the Wildflower Preservation and Propagation Committee (WPPC) began in early spring of 2013.*
- *The City's Police Department sponsored its annual Drug Take Back Initiative Program.*

A.6 Other Public Education

Measureable Goals –

- *Staff was the featured presenter at a 4/10/12 workshop hosted by the Crystal Lake Public Library on green initiatives, which included information on the benefits of rain barrels and rain gardens.*
- *The City's "Green Initiatives" page is updated on a regular basis to reflect the most current information.*

B. Public Participation/Involvement

B.2 Educational Volunteer

Measureable Goals –

- *Throughout the year elementary schools toured the various departments of the City which gave the Public Works staff an opportunity to educate students about the differences between storm and sanitary sewers, the wastewater and water treatment processes, etc. In addition to this, was the annual “Trucks on Parade Day” that allowed staff another opportunity to educate children on the equipment used in sanitary and storm sewer maintenance.*

B.3 Stakeholder Meeting

Measureable Goals –

- *No stakeholder meetings were conducted during 2012/13.*

B.6 Program Coordination

Measureable Goals –

- *The final report for the Woods Creek Watershed, which was a collaborative effort between the Village of Algonquin, Village of Lake in the Hills, the City of Crystal Lake, and the Crystal Lake Park District was completed.*
- *The final report for the Silver Creek and Sleepy Hollow Creek Watershed was completed.*
- *Staff continues to coordinate The Rain Barrel Incentive Program to further promote water conservation and the use of rain barrels.*

B.7 Other Public Involvement

Measureable Goals –

- *The Annual Clean-Up Day hosted by the Chamber of Commerce and Park District organization was held.*
- *City staff participated in the Chamber of Commerce’s Annual Expo where it was able to distribute a variety of stormwater related materials.*

C. Illicit Discharge Detection and Elimination

C.5 Illicit Source Removal Procedures

Measureable Goals –

- *The development of a salt storage ordinance was considered, however after further review of the number of sites, City staff chose to address them on a case by case basis.*

C.6 Program Evaluation and Assessment

Measureable Goals –

- *As the City enhances its GIS system, staff continues to update the storm utility layer ultimately creating a more thorough overview of the City's entire conveyance system. This has allowed for the identification of point and non-point sources to inspect.*

C.8 Pollutant Field Testing

Measureable Goals –

- *Sampling, testing, and documenting of influent and effluent flows to various lakes and stream throughout the community have continued. See Section C of this document.*
- *Sampling is completed quarterly to establish a baseline for the watershed area. See Section C of this document for priority pollutant testing results.*
- *Assisted the Village of Algonquin in monthly monitoring of Crystal Creek and the Fox River in Algonquin as part of the Fox River Study.*

D. Construction Site Runoff Control

D.1 Regulatory Control Program

Measureable Goals –

- *The City is in the process of finalizing the ordinance language with the County for an amendment to the Countywide ordinance that would bring regulations for the Crystal Lake Watershed. These amendments are targeted for 2013 consideration by the Stormwater Commission and County Board for adoption in unincorporated areas.*
- *The City is awaiting the County to process our recertification application*

D.2 Erosion and Sediment Control BMP's

Measurable Goals –

- *Continued to enforce and document erosion and sediment control standards.*

D.3 Other Waste Control Programs

Measureable Goals –

- *Revisited discussions regarding an ordinance that regulates waste and debris on construction sites.*

D.4 Site Plan Review Procedures

Measurable Goals –

- *Continued to follow review procedures.*

D.5 Public Information Procedures

Measureable Goals –

- *Tracked and responded to all complaints.*

- *Engineering Division continues to develop a Watershed Developer's Handbook that summarizes the requirements both before and after a development is constructed within the watershed. The goal of the handbook is to provide a concise explanation as to the requirements within the Watershed Implementation Plan. This has not been completed at this time due to the lack of construction in this area.*
- *The Crystal Lake Watershed Maintenance Agreement for private development in the Watershed was developed with approval anticipated in 2013.*

D.6 Site Inspection/Enforcement Procedures

Measureable Goals –

- *Continued to follow and enhance site review inspection procedures.*

E. Post-Construction Runoff Control

E.2 Regulatory Control Program

Measureable goals -

- *Continued to enforce the Crystal Lake Stormwater Ordinance.*

E.3 Long Term O&M Procedures

Measureable Goals -

- *Conducted annual inspections.*
- *Developed and distributed a sample maintenance plan.*

E.4 Pre-construction Review of BMP Designs

Measureable Goals –

- *Continued to follow review procedures.*

E.5 Site Inspections During Construction

Measureable Goals –

- *Tracked all site inspections.*

F. Pollution Prevention/Good Housekeeping

F.1 Employee Training Program

Measureable Goals –

- *Public Works staff reviewed a video on stormwater pollution prevention.*

F.2 Inspection and Maintenance Program

Measureable Goals –

- *The street sweeping program has collected and discarded 2,694 cubic yards of debris from the roadways. The City also collected 1,549 leaf bags at its brush drop off site.*
- *Continued with the cleaning and inspection of the storm conveyance system.*

- *The further development of the GIS storm layer has progressed slowly due in part to software upgrades over the course of the past year.*

F.3 Municipal Operations Storm Water Control

Measureable Goals –

- *The naturalization options for a detention pond located in the rear of the Municipal Complex was postponed due to budgeting, but will be revisited in the very near future.*

F.6 Other Municipal Operations Controls

Measureable Goals –

- *Quarterly spill prevention inspections were conducted.*

Section C: Information and Data Collection Results

Documentation and recordkeeping supporting the many areas of this annual report are retained with the various Divisions of the organization and are available for review at any time. Below you find some samples for review.

Street Sweeping Collection Totals (in cubic yards)

| | |
|--------------------------|--------------|
| March, 2012 | 121 |
| April, 2012 | 161 |
| May, 2012 | 130 |
| June, 2012 | 88 |
| July, 2012 | 117 |
| August, 2012 | 103 |
| September, 2012 | 103 |
| October, 2012 | 1,012 |
| November, 2012 | 766 |
| December, 2012 | 57 |
| January, 20123 | 22 |
| February, 2013 | 0 |
| March, 2013 | 14 |
| Total Cubic Yards | 2,694 |

Leaf Collection Totals

The City collected 1,549 leaf bags at its brush drop off site.

De-icing Product Totals

| NOI | Salt | Calcium | Supermix |
|------------------|---------------|------------------|------------------|
| Year | (tons) | (gallons) | (gallons) |
| 2012-2013 | 5.274.00 | 7.290.00 | 20.140.00 |
| 2011-2012 | 2.525.25 | 3.835.00 | 13.853.50 |
| 2010-2011 | 4.723.00 | 9.269.00 | 1.825.00 |
| 2009-2010 | 4.208.00 | 4.955.00 | 3.370.00 |

Illicit Discharge Detection and Elimination:

(March 2012 thru March 2013)

1) Businesses

- Joseph's Marketplace - 29 Crystal Lake Plaza (September 10, 2012)
City personal observed a discharge of dirty water, grease, and soap washed from a food and grease dumpster pad behind Joseph's Marketplace. An

employee from Josephs was washing down the pad and the residual wash water was entering a nearby storm sewer. According to the market owner this is a practice done once or twice a month to sanitize the area and reduce flies. The City informed the Marketplace that this is an illegal discharge to the storm water system. Joseph's Marketplace indicated that this practice would immediately cease.

2) Residential and Commercial Areas

- 1395 to 1403 Gander Lane

A leak from a punctured diesel fuel tank truck occurred on September 10, 2012. The truck belonged to MDC Environmental Services, Inc. After noticing the leak, the driver immediately deployed his spill kit. This included covering the nearby storm drain to prevent the spill from entering the system. MDC also applied 2000 lbs. of oil dry to the spill on the street, and hired a contractor to power-wash the spill. The City checked on the area two days later. Staining of the pavement was still observable down the street, but there was no evidence that the product had entered a storm drain. No further action was anticipated as the staining of the street will weather over time.

3) Storm Water Receiving Bodies – Monitoring

- Crystal Lake – samples are collected every other week at the following locations:
 - Cove Pond discharge pipe into the lake off of North Shore Drive
 - Lake influent into Crystal Creek at Riverside Dr. and Lake Avenue
 - Pinewood and Honeysuckle Dr. inlet into Crystal Lake
 - Effluent discharge manhole from Lippold Park wetlands (off Thornwood Lane)
 - Influent discharge manhole adjacent to Lippold Park golf driving range and wetlands (collected quarterly)
 - Lippold Park – East, Center, and West (all are adjacent to Route 176)
- Cove Pond – samples are collected every other week at the following locations:
 - Influent culvert pipe into Cove Pond near Green Oaks Drive / Crystal Lake Avenue
 - Effluent discharge pipe from Cove Pond along North Shore Drive
- Groundwater Monitoring
 - Six (6) watershed wells northwest of Crystal Lake are monitored quarterly.

Note: Water elevations are recorded at some of the above locations during the monitoring events. Water volumes and depths are recorded at each well location.

The parameters analyzed at the above locations include the following:

- Total Suspended Solids (TSS)

- Carbonaceous Biological Oxygen Demand (CBOD)
- Ammonia-N
- Total Phosphorous
- Fecal Coliform
- Total Coliform
- Chlorides
- Zinc

The following locations from the wastewater plants are sampled weekly.

- Drainage Ditch to Squaw Creek /unnamed ditch to Sleepy Hollow along railroad tracks, downstream from Sanitary Treatment Plant #3 (collected once per week). Parameters include the following:
 - Temperature
 - pH
- Wastewater Treatment Plant #2 (collected once per week) – Crystal Creek (Upstream), (Cooling Pond Outfall to Crystal Creek), and Downstream

The parameters analyzed in the receiving stream include the following:

- Dissolved Oxygen (DO)
- Ammonia-N
- Total Phosphorous
- Total Suspended Solids (TSS)
- TKN (Monthly)

The following locations into Sleepy Hollow Creek from Wastewater Plant #3 are sampled once per month:

- Effluent to Drainage Ditch (Squaw Creek / unnamed ditch to Sleepy Hollow)
- Terra Cotta Road downstream of drainage pond
- Illinois Route 31 north of east Brighton Lane
- Illinois Route 31 between Squaw Creek Road and Half Mile Road
- Along Ames Road downstream of Thunderbird Lake
- Where Sleepy Hollow crosses on Colby Point Road

The parameters analyzed for Sleepy Hollow Creek include the following:

- Total Phosphorous
- Sulfate
- Chloride
- Total Dissolved Solids (TDS)
- Total Suspended Solids (TSS)
- Hardness
- pH
- Temperature

The following location is sampled from Silver Creek once per month as part of the Fox River Study and managed by the Friends of the Fox.

- Lake Shore Drive and East Park Lane

Three Oaks Recreation Area

- Three samples are collected from the South Lake for clarity (Secchi Disks) and analyzed for the same parameters as the Crystal Lake samples.
- Three samples are collected from the North Lake for clarity (Secchi Disks) and analyzed for the same parameters as the Crystal Lake samples.

Note: the monitoring at Three Oaks Rec Area is part of the Volunteer Lake Management Program (VLMP), which is managed through the Illinois Environmental Protection Agency (IEPA)

Other Receiving Waters with no Documented Monitoring

- Kishwaukee River
- Hampton Hills Unnamed Wetlands
- Woods Creek – North & South Branches
- Veterans Acres Pond

Pollution Prevention /Good Housekeeping

(March 2012 thru March 2013)

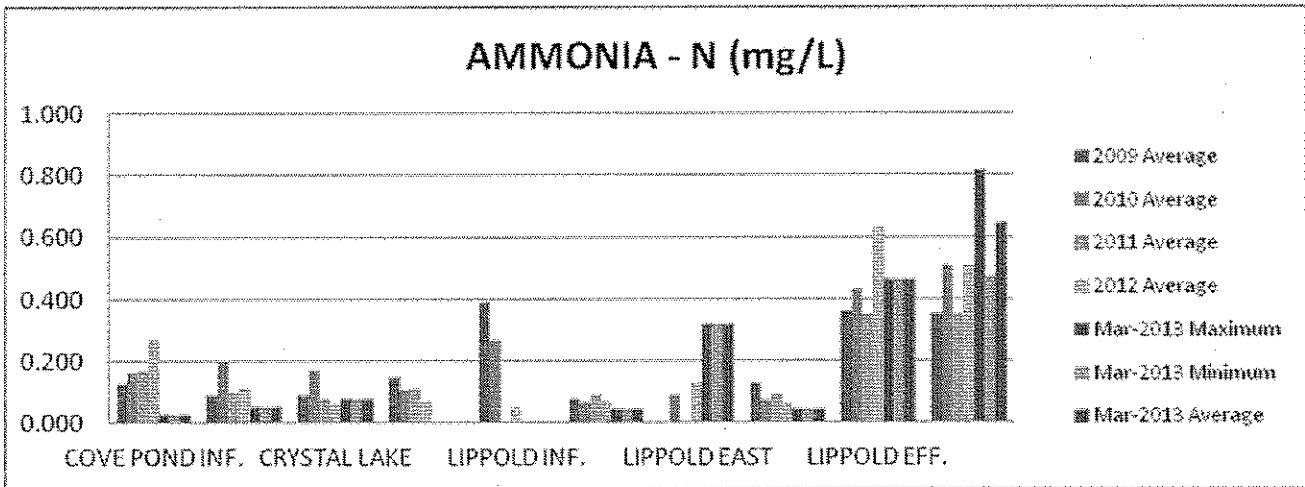
- 1) The City has a Storm Water Management Ordinance (No. 6535). The Storm Water Ordinance documents an illicit discharge and connection section.
- 2) All public works divisions have prepared and implemented Spill Prevention Control and Countermeasure Plans (SPCC). As a requirement of the SPCC Plan, quarterly inspections are conducted and documented at each of the facility divisions.
- 3) All employees in Public Works are trained in spill and clean-up procedures. This includes storm water control and flood management practices.
- 4) Chemicals and waste products in each division are stored following the SPCC guidelines.
- 5) Crystal Lake businesses with the potential for accidental or illicit discharges are required at a minimum to fill out a Wastewater Discharge Questionnaire, and in some cases a Slug Control Plan or Accidental Spill Plan. The Plans document the potential for spills and the prevention of pollutants into both sanitary and storm water sources.
- 6) All employees are trained in observing the potential for illicit discharges from industrial, commercial, and residential sources.

Education and Outreach

- The City has been attending and participating in the Silver Creek and Sleepy Hollow Creek Watershed planning coalition meetings, which are held semi-annually. School groups are also given tours and conduct water monitoring for their science classes at Sanitary Treatment Plant #2 in the receiving stream (Crystal Creek).

AMMONIA - N (mg/L)

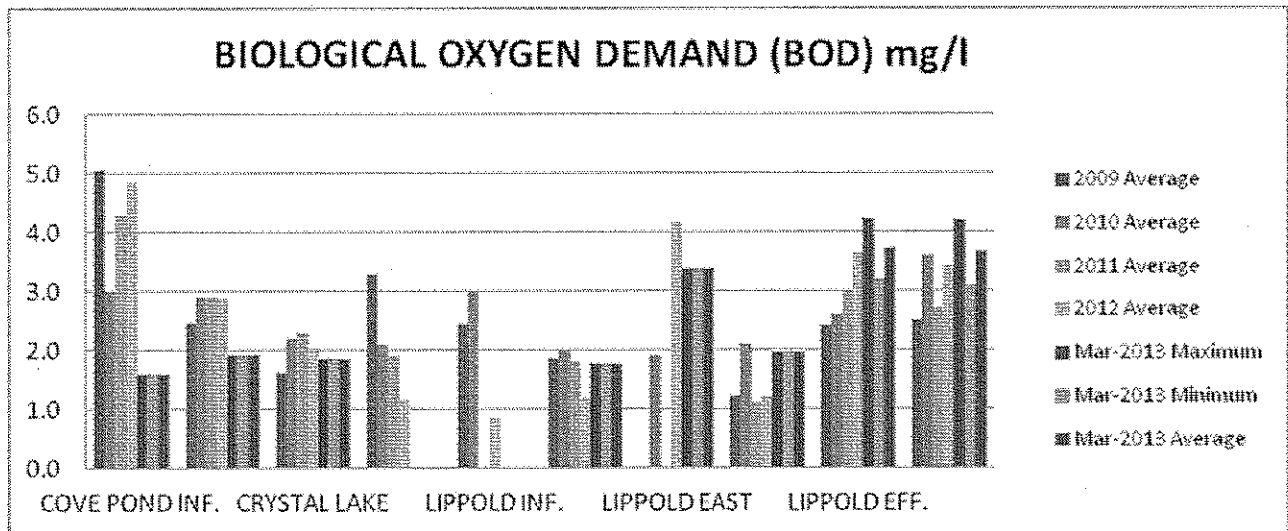
| Location | 2009 | 2010 | 2011 | 2012 | Mar-2013 | Mar-2013 | Mar-2013 |
|----------------|---------|---------|---------|---------|----------|----------|----------|
| | Average | Average | Average | Average | Maximum | Minimum | Average |
| COVE POND INF. | 0.13 | 0.16 | 0.17 | 0.27 | 0.030 | 0.030 | 0.030 |
| COVE POND EFF. | 0.09 | 0.20 | 0.10 | 0.11 | 0.055 | 0.055 | 0.055 |
| CRYSTAL LAKE | 0.09 | 0.17 | 0.08 | 0.06 | 0.077 | 0.077 | 0.077 |
| CREEK | 0.15 | 0.11 | 0.11 | 0.07 | | | |
| LIPPOLD INF. | 0.39 | 0.27 | No Data | 0.05 | | | |
| LIPPOLD CENTER | 0.08 | 0.07 | 0.09 | 0.07 | 0.046 | 0.046 | 0.046 |
| LIPPOLD EAST | No Data | 0.09 | No Data | 0.13 | 0.320 | 0.320 | 0.320 |
| LIPPOLD WEST | 0.13 | 0.07 | 0.09 | 0.06 | 0.044 | 0.044 | 0.044 |
| LIPPOLD EFF. | 0.36 | 0.43 | 0.35 | 0.63 | 0.464 | 0.464 | 0.464 |
| SOD | 0.35 | 0.51 | 0.35 | 0.51 | 0.818 | 0.474 | 0.646 |



Comments: Low level ammonia nitrogen may be present in water naturally as a result of the biological decay of plant and animal matter. Ammonia is a major component of fertilizers. This is consistent with the spikes at Lippold Influent (downstream from the golf driving range); Lippold Effluent and the Sod are also downstream from the driving range and the extensive wetlands of Lippold Park.

BIOLOGICAL OXYGEN DEMAND (BOD) mg/l

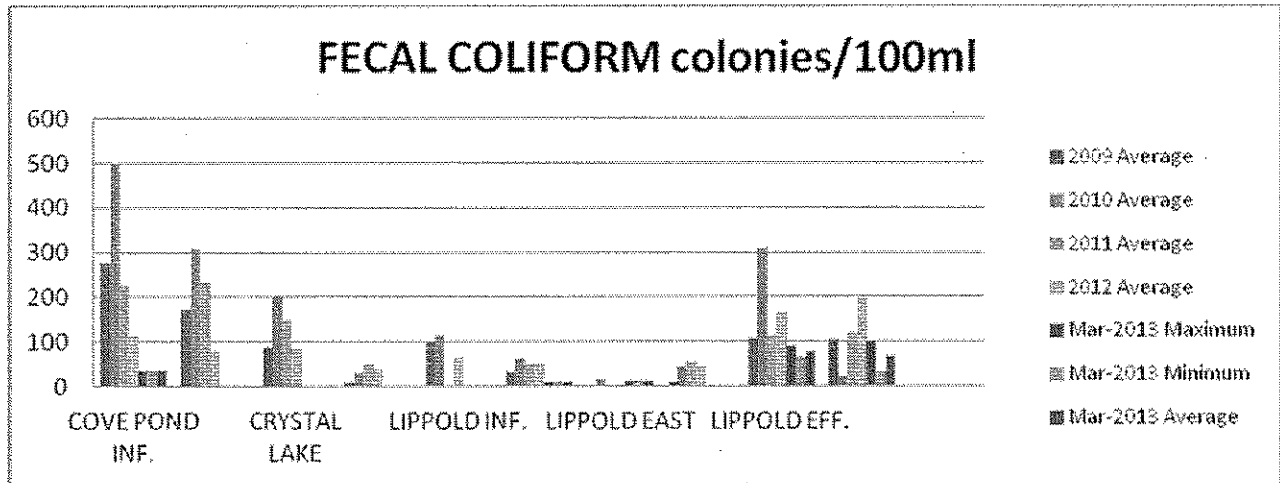
| Location | 2009 | 2010 | 2011 | 2012 | Mar-2013 | Mar-2013 | Mar-2013 |
|----------------|---------|---------|---------|---------|----------|----------|----------|
| | Average | Average | Average | Average | Maximum | Minimum | Average |
| COVE POND INF. | 5.1 | 3.0 | 4.3 | 4.8 | 1.6 | 1.6 | 1.6 |
| COVE POND EFF. | 2.5 | 2.9 | 2.9 | 2.9 | 1.9 | 1.9 | 1.9 |
| CRYSTAL LAKE | 1.6 | 2.2 | 2.3 | 2.0 | 1.9 | 1.9 | 1.9 |
| CREEK | 3.3 | 2.1 | 1.9 | 1.2 | | | |
| LIPPOLD INF. | 2.4 | 3.0 | No Data | 0.8 | | | |
| LIPPOLD CENTER | 1.9 | 2.0 | 1.8 | 1.2 | 1.8 | 1.8 | 1.8 |
| LIPPOLD EAST | No Data | 1.9 | No Data | 4.2 | 3.4 | 3.4 | 3.4 |
| LIPPOLD WEST | 1.2 | 2.1 | 1.1 | 1.2 | 2.0 | 2.0 | 2.0 |
| LIPPOLD EFF. | 2.4 | 2.6 | 3.0 | 3.6 | 4.2 | 3.2 | 3.7 |
| SOD | 2.5 | 3.6 | 2.7 | 3.4 | 4.2 | 3.1 | 3.7 |



Comments: The BOD is a chemical procedure for determining how fast biological organisms use up oxygen in a body of water. It is used as a measure of the degree of water pollution. A low BOD is an indicator of good quality water. The numbers above range from very good (1-2 mg/L) to moderately clean (3-5 mg/L). The highest number at Cove Pond Influent seems logical as more urban and street runoff discharges into this location. The cleanest location appears to be Lippold West which is logical since there is mostly open fields or farmland that discharge into this location.

FECAL COLIFORM colonies/100ml

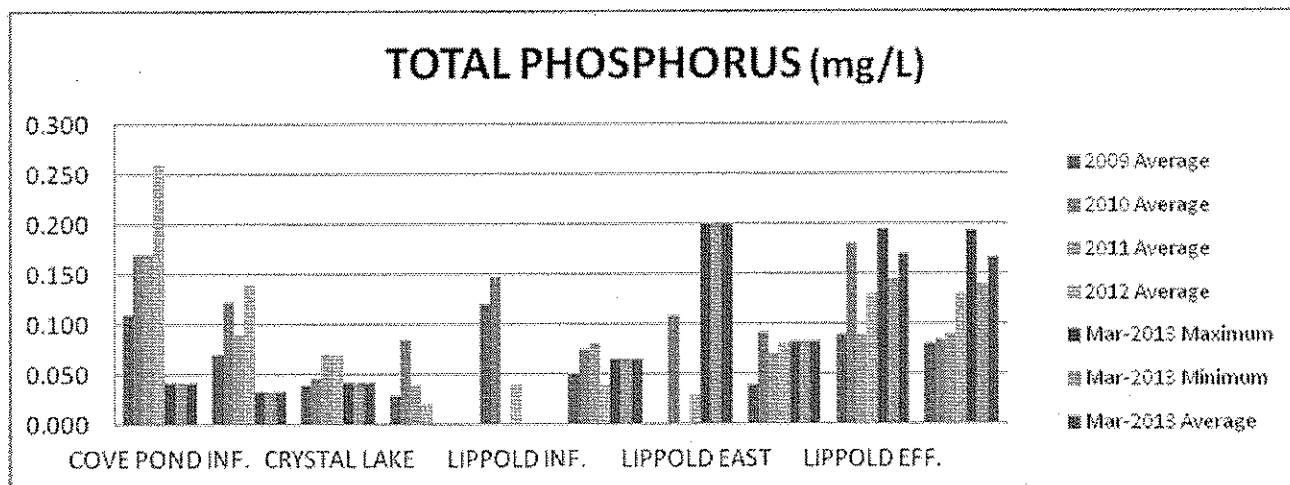
| Location | 2009 | 2010 | 2011 | 2012 | Mar-2013 | Mar-2013 | Mar-2013 |
|----------------|---------|---------|---------|---------|----------|----------|----------|
| | Average | Average | Average | Average | Maximum | Minimum | Average |
| COVE POND INF. | 276 | 498 | 226 | 114 | 36 | 36 | 36 |
| COVE POND EFF. | 173 | 310 | 233 | 78 | 2 | 2 | 2 |
| CRYSTAL LAKE | 87 | 202 | 149 | 85 | 0 | 0 | 0 |
| CREEK | 10 | 30 | 51 | 38 | | | |
| LIPPOLD INF. | 102 | 114 | No Data | 64 | | | |
| LIPPOLD CENTER | 33 | 63 | 50 | 51 | 10 | 10 | 10 |
| LIPPOLD EAST | No Data | 17 | No Data | 0 | 14 | 14 | 14 |
| LIPPOLD WEST | 10 | 44 | 53 | 44 | 2 | 2 | 2 |
| LIPPOLD EFF. | 107 | 308 | 114 | 167 | 92 | 64 | 78 |
| SOD | 105 | 21 | 118 | 196 | 102 | 34 | 68 |



Comments: Fecal Coliform bacteria are a group of bacteria (organisms) that are passed through the fecal excrement of humans, livestock and wildlife. This bacterium can enter and storm runoff, human sewerage, decaying plant material, and some industrial activity. The graph above would indicate that Cove Pond and the usual Lippold Park areas are affected by Fecal Coliform, especially during the warmer months.

TOTAL PHOSPHORUS (mg/L)

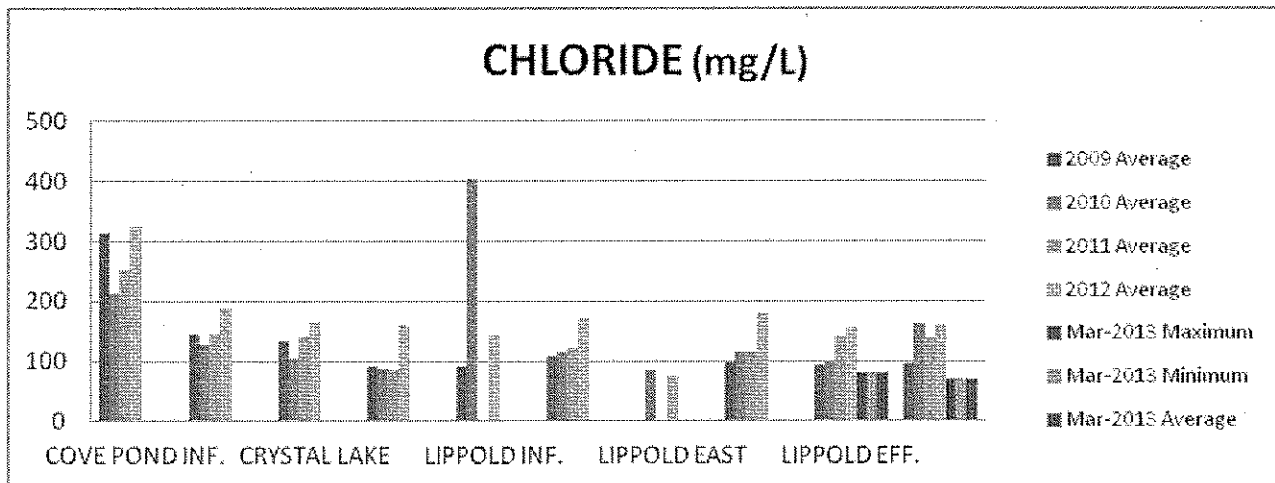
| Location | 2009 | 2010 | 2011 | 2012 | Mar-2013 | Mar-2013 | Mar-2013 |
|----------------|---------|---------|---------|---------|----------|----------|----------|
| | Average | Average | Average | Average | Maximum | Minimum | Average |
| COVE POND INF. | 0.11 | 0.17 | 0.17 | 0.26 | 0.04 | 0.04 | 0.04 |
| COVE POND EFF. | 0.07 | 0.12 | 0.09 | 0.14 | 0.03 | 0.03 | 0.03 |
| CRYSTAL LAKE | 0.04 | 0.05 | 0.07 | 0.07 | 0.04 | 0.04 | 0.04 |
| CREEK | 0.03 | 0.09 | 0.04 | 0.02 | | | |
| LIPPOLD INF. | 0.12 | 0.15 | No Data | 0.04 | | | |
| LIPPOLD CENTER | 0.05 | 0.08 | 0.08 | 0.04 | 0.07 | 0.07 | 0.07 |
| LIPPOLD EAST | No Data | 0.11 | No Data | 0.03 | 0.20 | 0.20 | 0.20 |
| LIPPOLD WEST | 0.04 | 0.09 | 0.07 | 0.08 | 0.08 | 0.08 | 0.08 |
| LIPPOLD EFF. | 0.09 | 0.18 | 0.09 | 0.13 | 0.20 | 0.15 | 0.17 |
| SOD | 0.08 | 0.08 | 0.09 | 0.13 | 0.19 | 0.14 | 0.17 |



Comments: Most of the available phosphorus found in our waterways can be traced directly to human sources. Phosphorus is used in many detergents, boiler treatments, fertilizers, and in some water supply treatments. When this phosphorus reaches the environment through runoff or through wastewater discharges, accelerated eutrophication usually takes place. Eutrophication is when a body of water becomes rich in dissolved nutrients. Again the higher spikes above would be the direct result of fertilizers and street runoff (Cove Pond Influent and Lippold Influent).

CHLORIDE (mg/L)

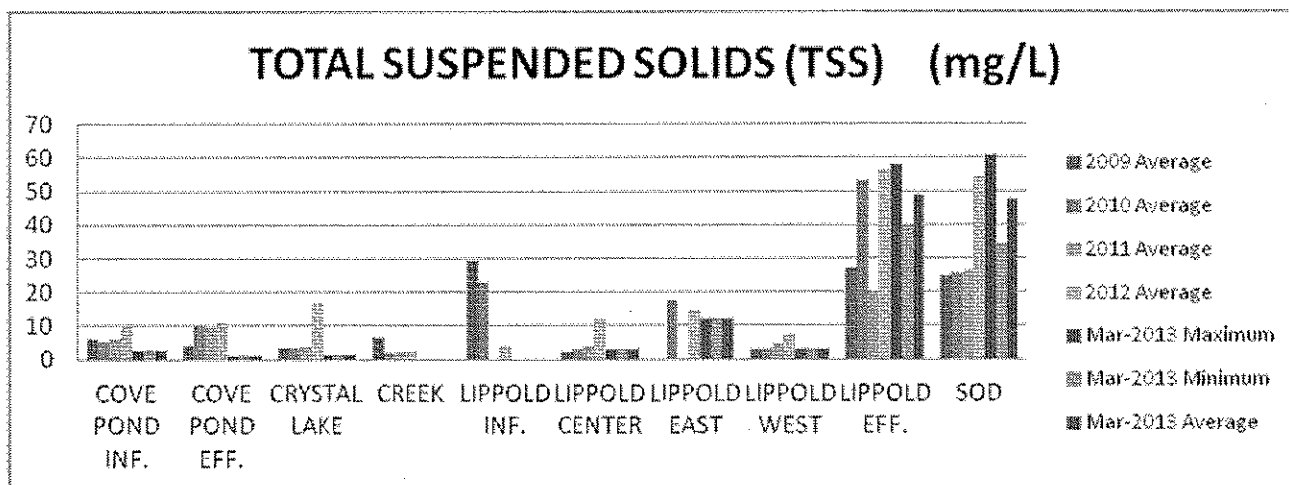
| Location | 2009 | 2010 | 2011 | 2012 | Mar-2013 | Mar-2013 | Mar-2013 |
|----------------|---------|---------|---------|---------|----------|----------|----------|
| | Average | Average | Average | Average | Maximum | Minimum | Average |
| COVE POND INF. | 315 | 213 | 252 | 325 | | | |
| COVE POND EFF. | 145 | 129 | 144 | 188 | | | |
| CRYSTAL LAKE | 134 | 105 | 140 | 165 | | | |
| CREEK | 92 | 87 | 85 | 161 | | | |
| LIPPOLD INF. | 93 | 403 | No Data | 143 | | | |
| LIPPOLD CENTER | 108 | 115 | 121 | 170 | | | |
| LIPPOLD EAST | No Data | 86 | No Data | 75 | | | |
| LIPPOLD WEST | 98 | 115 | 115 | 180 | | | |
| LIPPOLD EFF. | 94 | 98 | 140 | 157 | 80.0 | 80.0 | 80.0 |
| SOD | 95 | 163 | 138 | 161 | 70.0 | 70.0 | 70.0 |



Comments: Chloride is a useful and reliable chemical indicator of river / groundwater fecal contamination, as chloride is a non-reactive solute and is ubiquitous to sewerage and potable water. The graph above would indicate runoff into Cove Pond Influent. Probably the main source of contamination is the use of sodium chloride as a deicing agent from the local roads, sidewalks, and nearby paved parking lots. The other sample locations are fairly consistent at lower concentrations.

TOTAL SUSPENDED SOLIDS (TSS) (mg/L)

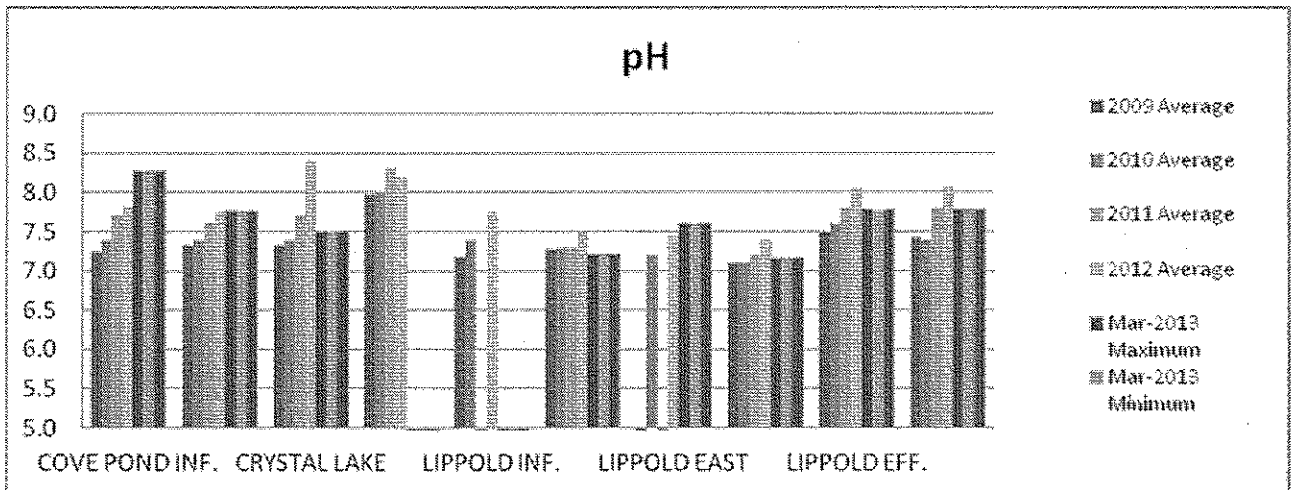
| Location | 2009 | 2010 | 2011 | 2012 | Mar-2013 | Mar-2013 | Mar-2013 |
|----------------|---------|---------|---------|---------|----------|----------|----------|
| | Average | Average | Average | Average | Maximum | Minimum | Average |
| COVE POND INF. | 6.1 | 5.5 | 6.2 | 10.7 | 2.6 | 2.6 | 2.6 |
| COVE POND EFF. | 4.1 | 10.5 | 9.6 | 10.9 | 1.2 | 1.2 | 1.2 |
| CRYSTAL LAKE | 3.6 | 3.4 | 3.9 | 17.0 | 1.6 | 1.6 | 1.6 |
| CREEK | 6.7 | 2.1 | 2.5 | 2.2 | | | |
| LIPPOLD INF. | 29.6 | 23.1 | No Data | 3.7 | | | |
| LIPPOLD CENTER | 2.5 | 3.2 | 3.8 | 11.8 | 3.2 | 3.2 | 3.2 |
| LIPPOLD EAST | No Data | 17.6 | No Data | 14.6 | 12.4 | 12.4 | 12.4 |
| LIPPOLD WEST | 3.1 | 3.0 | 4.6 | 7.2 | 3.2 | 3.2 | 3.2 |
| LIPPOLD EFF. | 27.3 | 52.9 | 19.8 | 56.2 | 58.0 | 40.0 | 49.0 |
| SOD | 25.0 | 25.8 | 26.5 | 54.2 | 60.8 | 34.4 | 47.6 |



Comments: Total Suspended Solids (TSS) are solids in water that can be trapped by a filter. TSS can include a wide variety of material, such as silt, decaying plant and animal matter, industrial wastes, and sewerage. High TSS in a water body can mean higher concentrations of bacteria, nutrients, pesticides, and metals in the water. These pollutants may attach to sediment particles on the land and be carried into water bodies with storm water. The graph above would indicate that runoff from the golf driving range and the Lippold Park wetlands increase TSS at those downstream monitoring points.

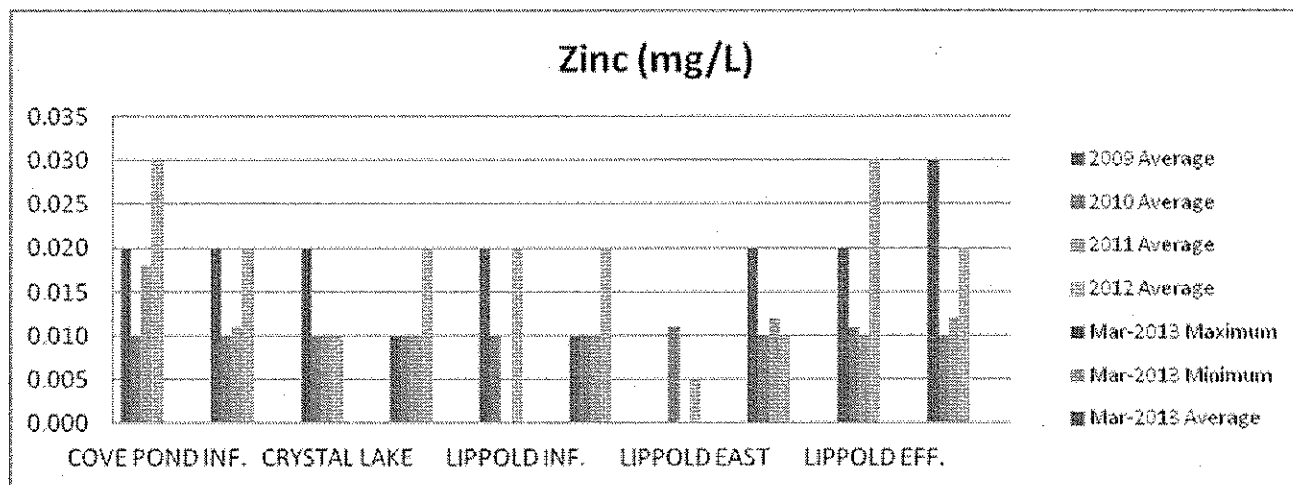
pH

| Location | 2009 | 2010 | 2011 | 2012 | Mar-2013 | Mar-2013 | Mar-2013 |
|----------------|---------|---------|---------|---------|----------|----------|----------|
| | Average | Average | Average | Average | Maximum | Minimum | Average |
| COVE POND INF. | 7.2 | 7.4 | 7.7 | 7.8 | 8.3 | 8.3 | 8.3 |
| COVE POND EFF. | 7.3 | 7.4 | 7.6 | 7.8 | 7.8 | 7.8 | 7.8 |
| CRYSTAL LAKE | 7.3 | 7.4 | 7.7 | 8.4 | 7.5 | 7.5 | 7.5 |
| CREEK | 8.0 | 8.0 | 8.3 | 8.2 | | | |
| LIPPOLD INF. | 7.2 | 7.4 | No Data | 7.8 | | | |
| LIPPOLD CENTER | 7.3 | 7.3 | 7.3 | 7.5 | 7.2 | 7.2 | 7.2 |
| LIPPOLD EAST | No Data | 7.2 | No Data | 7.4 | 7.6 | 7.6 | 7.6 |
| LIPPOLD WEST | 7.1 | 7.1 | 7.2 | 7.4 | 7.2 | 7.2 | 7.2 |
| LIPPOLD EFF. | 7.5 | 7.6 | 7.8 | 8.0 | 7.8 | 7.8 | 7.8 |
| SOD | 7.4 | 7.4 | 7.8 | 8.1 | 7.8 | 7.8 | 7.8 |



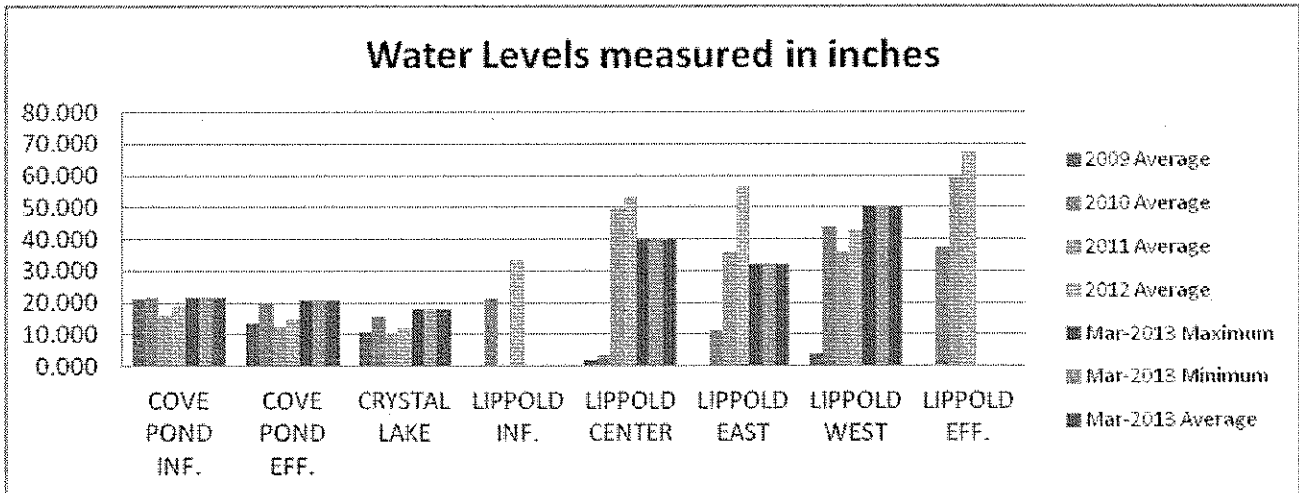
Zinc (mg/L)

| Location | 2009 | 2010 | 2011 | 2012 | Mar-2013 | Mar-2013 | Mar-2013 |
|----------------|---------|---------|---------|---------|----------|----------|----------|
| | Average | Average | Average | Average | Maximum | Minimum | Average |
| COVE POND INF. | 0.020 | 0.010 | 0.018 | 0.030 | | | |
| COVE POND EFF. | 0.020 | 0.010 | 0.011 | 0.020 | | | |
| CRYSTAL LAKE | 0.020 | 0.010 | 0.010 | 0.010 | | | |
| CREEK | 0.010 | 0.010 | 0.010 | 0.020 | | | |
| LIPPOLD INF. | 0.020 | 0.010 | No Data | 0.020 | | | |
| LIPPOLD CENTER | 0.010 | 0.010 | 0.010 | 0.020 | | | |
| LIPPOLD EAST | No Data | 0.011 | No Data | 0.005 | | | |
| LIPPOLD WEST | 0.020 | 0.010 | 0.012 | 0.010 | | | |
| LIPPOLD EFF. | 0.020 | 0.011 | 0.010 | 0.030 | | | |
| SOD | 0.030 | 0.010 | 0.012 | 0.020 | | | |



Water Levels measured in inches

| Location | 2009 | 2010 | 2011 | 2012 | Mar-2013 | Mar-2013 | Mar-2013 |
|----------------|---------|---------|---------|---------|----------|----------|----------|
| | Average | Average | Average | Average | Maximum | Minimum | Average |
| COVE POND INF. | 21.1 | 21.8 | 15.9 | 18.7 | 21.5 | 21.5 | 21.5 |
| COVE POND EFF. | 13.4 | 19.9 | 12.5 | 14.7 | 21.0 | 21.0 | 21.0 |
| CRYSTAL LAKE | 10.7 | 15.6 | 10.2 | 11.8 | 18.0 | 18.0 | 18.0 |
| LIPPOLD INF. | No Data | 21.3 | No Data | 33.3 | | | |
| LIPPOLD CENTER | 2.0 | 3.4 | 49.6 | 53.1 | 40.0 | 40.0 | 40.0 |
| LIPPOLD EAST | No Data | 11.2 | 35.8 | 56.5 | 32.0 | 32.0 | 32.0 |
| LIPPOLD WEST | 3.8 | 43.7 | 35.8 | 42.6 | 50.5 | 50.5 | 50.5 |
| LIPPOLD EFF. | No Data | 37.4 | 59.2 | 67.4 | 56.0 | 56.0 | 56.0 |



Note: The lower number indicates higher levels of water at the water surface to the top of the culvert.

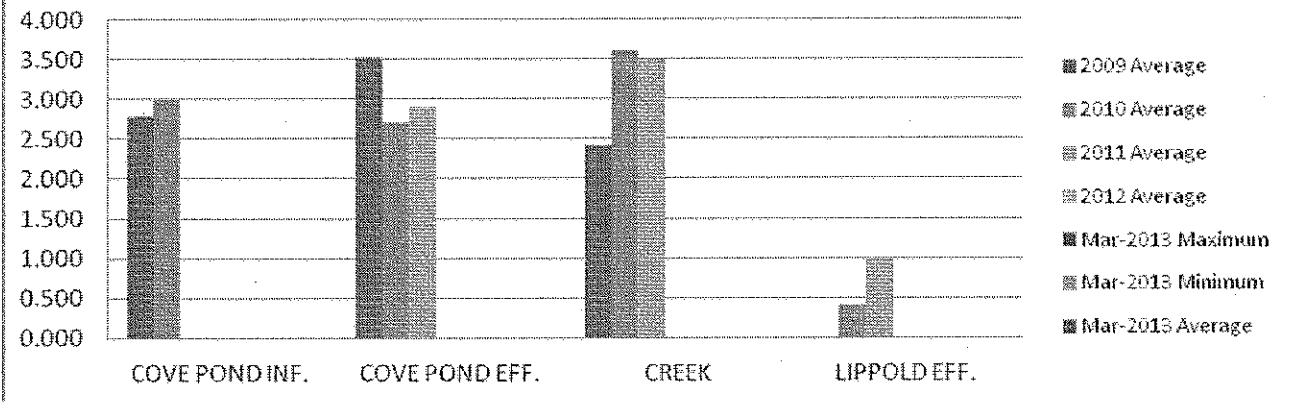
Note: Measured in feet from the top of the surface water in the manhole to the top of the manhole.

Lower values indicate higher water volumes.

Staff Gauge readings measured in (ft)

| Location | 2009 Average | 2010 Average | 2011 Average | 2012 Average | Mar-2013 Maximum | Mar-2013 Minimum | Mar-2013 Average |
|----------------|--------------|--------------|--------------|--------------|------------------|------------------|------------------|
| COVE POND INF. | No Data | 3.0 | No Data | No Data | | | |
| COVE POND EFF. | 2.8 | 2.7 | 2.9 | No Data | | | |
| CREEK | 3.5 | 3.6 | 3.5 | No Data | | | |
| LIPPOLD EFF. | 2.4 | 0.4 | 1.0 | No Data | | | |

Staff Gauge readings measured in (ft)



Section D: Summary of Activities During Next Reporting Cycle

A. Public Education and Outreach

A.1 Distribute Paper Materials

Measureable Goals –

- *Develop new modes of public awareness based on questionnaire feedback.*

A.3 Public Service Announcements

Measureable Goals –

- *Publish at least one article for the quarterly City Newsletter*

A.4 Community Event

Measureable Goals –

- *Continue with community events.*

A.6 Other Public Education

Measureable Goals –

- *Begin design and approval process.*
- *Begin implementation of the new public education process.*
- *The City website will be updated to create better flow.*

B. Public Participation/Involvement

B.2 Educational Volunteer

Measureable Goals –

- *Continue interacting with elementary schools by conducting tours of City departments and functions.*

B.3 Stakeholder Meeting

Measureable Goals –

- *Conduct stakeholder meetings as necessary.*

B.6 Program Coordination

Measureable Goals –

- *Consider development of a watershed plan or assessment for the Crystal Creek Watershed.*

B.7 Other Public Involvement

Measureable Goals –

- *Promote the Annual Clean-Up Day hosted by the Chamber of Commerce and Park District organizations.*
- *Participate in the Chamber of Commerce's Annual Expo.*

- *Consider the use of a travelling kiosk for handouts and educational materials that could be placed at various community events or public spaces, such as City Hall, Three Oaks Recreation Area, Downtown, Metra commuter rail stations, etc.*

C. Illicit Discharge Detection and Elimination

C.6 Program Evaluation and Assessment

Measureable Goals –

- *Create a more formal inspection program for point and non-point sources.*

C.8 Pollutant Field Testing

Measureable Goals –

- *Continue sampling and testing of influent and effluent flows at lakes and streams.*
- *Perform priority pollutant testing of the watershed area.*

D. Construction Site Runoff Control

D.1 Regulatory Control Program

Measureable Goals –

- *Continue to enforce the storm water management ordinance.*

D.2 Erosion and Sediment Control BMP's

Measurable Goals –

- *Continue to enforce and document erosion and sediment control standards.*

D.4 Site Plan Review Procedures

Measurable Goals –

- *Continue to follow review procedures.*

D.5 Public Information Procedures

Measureable Goals –

- *Track and respond to all complaints.*
- *Continue with the development of the Watershed Developer's Handbook.*

D.6 Site Inspection/Enforcement Procedures

Measureable Goals –

- *Continue to follow and enhance site review inspection procedures.*

E. Post-Construction Runoff Control

E.2 Regulatory Control Program

Measureable goals -

- *Continue to enforce the Crystal Lake Stormwater Ordinance.*

E.3 Long Term O&M Procedures

Measureable Goals -

- Conduct annual inspections.

E.4 Pre-construction Review of BMP Designs

Measureable Goals -

- Continue to follow review procedures.

E.5 Site Inspections During Construction

Measureable Goals -

- Track all site inspections.

F. Pollution Prevention/Good Housekeeping

F.1 Employee Training Program

Measureable Goals -

- Provide and/or attend training as available.

F.2 Inspection and Maintenance Program

Measureable Goals -

- Continue with annual street sweeping program.
- Continue and enhance the storm conveyance system cleaning and inspection program.
- Continue with the development of the GIS storm layer.

F.6 Other Municipal Operations Controls

Measureable Goals -

- Perform quarterly spill prevention inspections.

E. Notice of Qualifying Local Program

- Collaborative efforts between Algonquin, Lake in the Hills, and Crystal Lake to utilize grant funding for an assessment of the Woods Creek Watershed.
- Collaborative efforts with the Sleepy Hollow and Silver Creek watershed taskforce.

F. Construction Projects Completed During Reporting Year

- *Pingree Road at Congress Parkway Improvement*
- *IL Route 176 at Briarwood Road Improvement*
- *E. Crystal Lake Avenue from East Street to Erick Street*
- *Dearborn Court Improvement*
- *North Shore Drive Flood Mitigation Improvement*
- *McHenry County Division of Transportation Rakow Road Improvement*
- *McHenry County Division of Transportation Walkup Road Improvement Started*
- *Illinois Department of Transportation IL Route 176 at IL Route 31 Improvement Started*