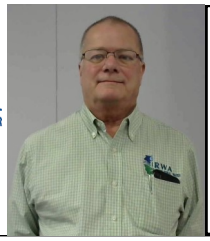
Technical Assistance Bulletin



END OF AN ERA

By: Frank Dunmire, Executive Director

March 2021 Newsletter

Last year was the second and final year of the 101st General Assembly as its term came to an end on January 13, 2021. On that date the 102nd General Assembly was inaugurated and the process of electing a new House Speaker and Senate President was undertaken. It was no surprise that Oak Park Democrat Don Harmon was re-elected as President of the Senate, but all eyes were turned towards the race for Speaker of the House. Michael Madigan was the longest-serving leader of any state or federal legislative body in history - having held the position for all but two years from 1983 to 2021. On January 11th Madigan announced he was suspending his efforts to be elected to a nineteenth term as Speaker, and on January 13th fellow Democrat Emanuel "Chris" Welch was elected as Speaker of the House. It would be just over a month later, on February 18th, Madigan announced that he would resign as state representative effective at the end of February but ultimately moved the effective date up to February 18. Bringing an end to the Madigan era.

Almost the entirety of last year's legislative calendar was canceled due to the COVID 19 pandemic. They did manage to meet three days in late May to pass a budget and other measures and once again for a brief lame duck session in January. This year's legislative calendar has already been postponed twice as legislators wrestle with how to safely conduct the people's business. IRWA has been busy reviewing the nearly 7000 bills that have been filed so far in the 102nd General Assembly. Below are just a couple of the bills that IRWA will be tracking closely. For a complete list, please visit our website at www.ilrwa.org.

HB414 – WATER & SEWER ASSISTANCE

Creates the Water and Sewer Financial Assistance Act. Provides that each water or sewer provider shall assess each of its customer accounts a monthly Water and Sewer Assistance Charge to be deposited into the Water and Sewer Low-Income Assistance Fund

Sponsor:	LaToya Greenwood
Bill Status:	https://ilga.gov/legislation/BillStatus.asp?DocNum=414&GAID=16&DocTypeID=HB&LegID=128415&SessionID=110&GA=102
IRWA Position:	Oppose

HB3739 – LEAD SERVICE LINE REPLACEMENT

Creates the Lead Service Line Replacement and Notification Act. Creates the Lead Service Line Replacement Fund to be used to finance by the collection of a specified lead in drinking water protection fee to be collected by all community water supplies.

Sponsor:	Lamont J. Robinson, Jr.
Bill Status:	https://ilga.gov/legislation/BillStatus.asp?DocNum=3739&GAID=16&DocTypeID=HB&LegID=132788&SessionID=110&GA=102
IRWA Position:	Oppose

IRWA'S MISSION STATEMENT

"Protecting and preserving the water and wastewater resources of Rural Illinois through education, representation and on-site technical assistance"

Wastewater Math

By: Jeff McCready, Wastewater Technician

Questions

1. How deep is a pond if it holds 21 million gallons of water and has a surface area of 400,000 sq. feet

2. How many gallons are in **1 foot** of a pond which is 200 ft. X 50 ft. X 4 ft.?

3. What's the detention time of a pond that contains 6,500 cu.ft. of water and receives a flow of 10,500 gpd?

4. Calculate how many million gallons of water you can treat with a 150 lb. cylinder of chlorine at a dosage rate of 6 mg/l.

5. A lagoon has an influent flow of 500,000 gpd with a BOD concentration of 900 mg/l. What is the population equivalent of the influent?

6. A lift station wet well has a diameter of 15 ft. and is 30 ft. deep. Assuming nothing is going into the wet well, what is the pumping rate of the pump running in gpm when the well drops 6 ft. in 10 minutes?

7. The volatile acids concentration in an anerobic digester is 170 mg/l, the alkalinity is 3,000 mg/l. What is the volatile acids/alkalinity ratio?

8. You apply solids on your sludge bed and it rises 1 foot. The bed is 12 ft. X 10 ft. X 5 ft.. How many gallons were applied?

9. You are running a BOD test. Your initial D.O. 8.2 mg/l. Your D.O. after 5 days is 7.4 mg/l. What is your BOD in mg/l if you used 150 ml's of sample and a 300 ml bottle?

10. After running a BOD test you find the BOD is 200 mg/l. The flow into your 30 acre lagoon is .2 MGD. What is your organic loading?

Answers

1. 400,000 sq. ft. X ? X 7.5 gal/cu.ft. = $\frac{21{,}000{,}000 \text{ gals.}}{400{,}00 \text{ X } 7.5}$ = 7 ft.

2. Surface area = 200 ft. X 50 ft. X 1 ft. = 10,000 cu. ft.
   10,000 cu. ft. X 7.5 gal/cu.ft. = 75,000 gallons

3. $\frac{6{,}500 \text{ cu.ft. X } 7.5 \text{ gal/cu.ft.}}{10{,}500 \text{ gpd}}$ = 4.64 days

4. mg/l X MG X 8.34 lbs/gal = lbs of chemical
   6 mg/l X ? X 8.34 = 150 lbs.
   $\frac{150 \text{ lbs}}{6 \text{ mg/l X } 8.34 \text{ lbs./gal}}$

5. Population Equivalent = $\frac{\text{lbs/day/BOD}}{\text{lbs BOD/day/person}}$

   $\frac{900 \text{ mg/l BOD X } .500 \text{ gal/day X } 8.34}{.17 \text{ lbs BOD/person/day}} = \frac{3{,}753}{.17.}$ = 22,076 people

6. Flow rate gpm = $\frac{.785 \text{ X D. X D. X drop in feet X } 7.48}{\text{Minutes}}$

   $\frac{.785 \text{ X } 15 \text{ X } 15 \text{ X } 6 \text{ X } 7.48}{10} = \frac{7927}{10}$ = 793 GPM

7. Volatile acids/alkalinity ratio = $\frac{\text{Volatile acids, mg/l}}{\text{Alkalinity, mg/l}}$
   $\frac{170 \text{ mg/l}}{3{,}000 \text{ mg/l}}$ = .06 volatile acids/alkalinity ratio

8. 12 ft. X 10 ft. X 1 ft. = 120 cu. ft.
   120 cu.ft. 7.5 gals/cu. ft. = 900 gallons

9. $\frac{\text{Initial D.O. – 5 day D.O. X Bottle Volume}}{\text{ml of sample}}$ = BOD mg/l
   $\frac{8.2 - 7.4 \text{ X } 300}{150}$ = 1.6 mg/l

10. $\frac{\text{mg/l X flow.mgd X } 8.34 \text{ lbs/gal}}{\text{acres}}$
    $\frac{200 \text{ mg/l X } .2 \text{ MGD X } 8.34 \text{ lbs/gal}}{30 \text{ acres}}$ = 11.12 lbs BOD/acre/day

HAPPY SPRING!!

Watch Your Mailbox!

Attendee agendas will be mailed soon for the 39th Annual Technical Conference scheduled for June 15 & 16, 2021 at the Keller Convention Center in Effingham, IL.

This will be a 1 day conference worth 5.75 credit hours for attendees. We will have 69 exhibitors on hand for you to visit with. All CDC guidelines will be followed at the time of the conference including:

* Temperature checks
* Face coverings will be mandatory
* Traffic in the exhibit hall will be one way
* Lunches will be plated (no buffet)
* Hotel staff will be serving coffee, tea and sodas (no self serve)
* Exhibitors must eat lunch at their booth
* There will be no cash prizes, hospitality night, bar crawl or casino night

We will still have the Sportsman's Raffle to assist with our obligation to NRWA's WaterPac fund.

IRWA
ILLINOIS RURAL WATER ASSOCIATION

2021

June 15-16
Annual Technical Conference
Effingham

August 27
Golf Outing
Chatham

September 15-17
IPWSOA Conference
Springfield

October 12—13
Northern Conference
Rockford

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GPS/GIS MAPPING SERVICES

Through the implementation of GPS & GIS technology, IRWA can effectively produce hard copy and digital maps. With this service available from IRWA, utilities can attain new and accurate maps to better manage their water, wastewater, and storm sewer assets.

The printed maps can be large-scale wall maps up to 36”x48” showing utility features with the desired layers (aerial photos, streets, topography, etc.).

The digital map files on a CD, can be viewed and printed with free software that IRWA will provide and install on a utility computer. The software allows you to view and click on a system feature (such as a valve, hydrant, meter pit, curb stop, manhole, lift station, treatment facility, etc.), and pull up attribute data about each…as well as several other capabilities such as printing, zooming, etc.

Also, IRWA has a working relationship, with DiamondMaps.com, to put your IRWA project maps, on their server, for mobile viewing with a smartphone or cellular capable tablet….including editing capability. This is at no extra charge to the system for the first year’s subscription. Continuance of the Diamond Maps service after the first year, is at the utility’s discretion.

Payment for GIS services, is a set charge per feature, with IRWA members receiving an automatic 30% discount, and even more of a reduction with bigger projects. More information is also posted on our website at: www.ilrwa.org, or you may call our office at 217-287-2115.