

Compliance with a Low Effluent Zinc Permit Limit

IWEA/IWWSG Pretreatment Dinner

February 16, 2012

M. Cristina Winegar, P.E.

Agenda

- Village of Hanover Park
- 2007 NPDES Permit
- Compliance Options
- Sampling Results
- Summary

Village of Hanover Park

- Northwest Suburb of Chicago
- Demographics
 - 80% Residential
 - 15% Commercial
 - 5% Industrial

Village of Hanover Park

- Treatment Plant
 - Owned and Operated by Village of Hanover Park
 - Oxidation Ditch Activated Sludge Plant with UV Disinfection
 - 1.54 MGD Annual Flow
 - 2.42 MGD Design Average Flow
 - Discharge to West Branch of DuPage River



Oxidation
Ditch

West Branch of
DuPage River

Aerobic
Digester

Final
Clarifiers

Sludge
Storage

UV
Disinfection

2007 NPDES Permit

- Total Zinc (Monthly Average)
 - Initially limited to 0.04 mg/L
 - Recently adopted Illinois Pollution Control Board Water Quality Standard (IPCB WQS)
 - Dependent on stream hardness
 - Dependent on ratio of soluble to total zinc

Ceriodaphnia



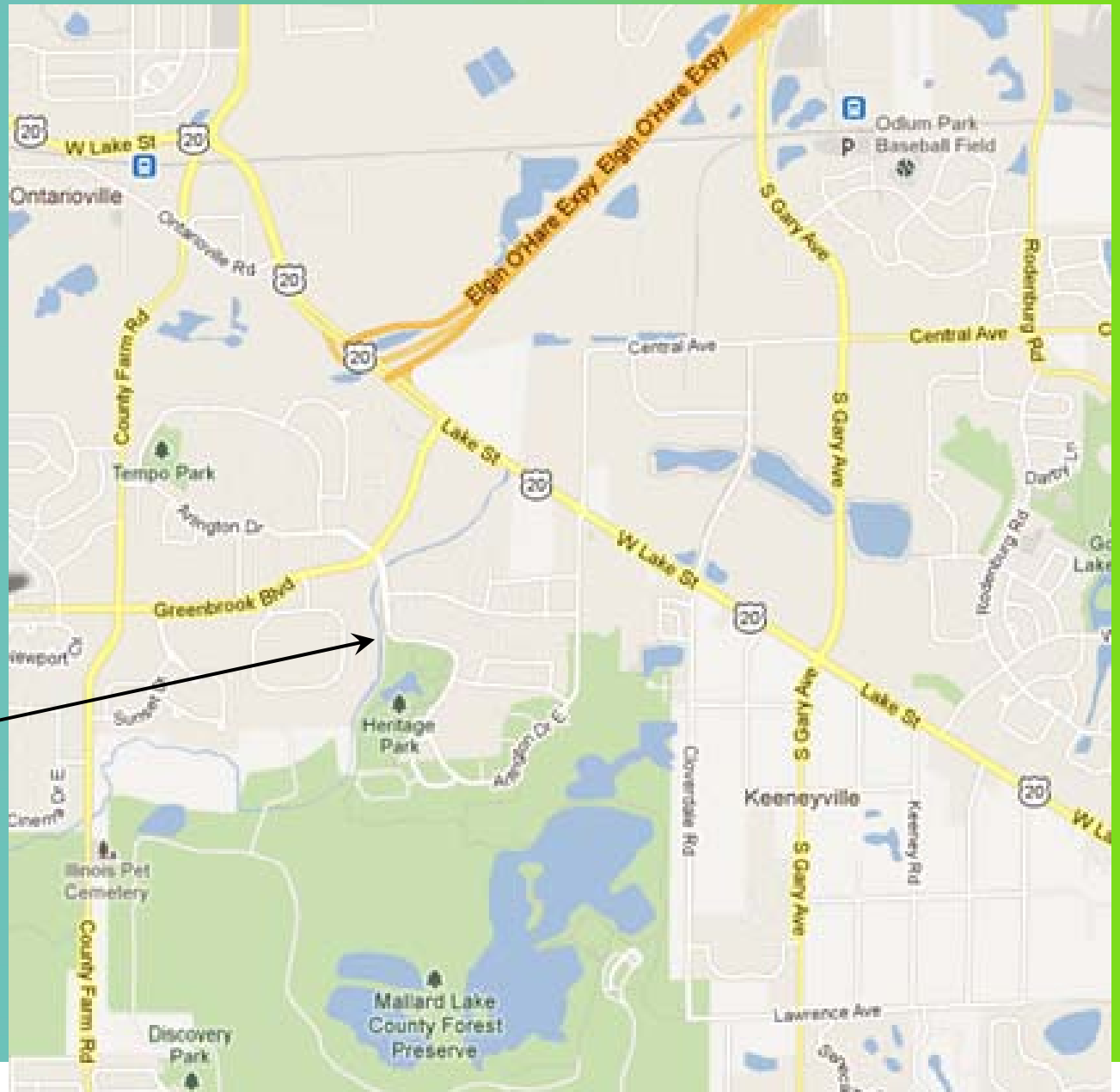
Sampling Program

- Spring 2007 start of zinc sampling program
 - Over 990 Samples obtained to date

- Zinc Translator
 - Raised Limit to 0.044 mg/l

- Stream Sampling for Hardness
 - Raised Limit to 0.046 mg/l

West Branch of
DuPage River



Compliance Options

- Additional Zinc Removal at WWTP
- Request NPDES Permit Time Extension
- Enact Industrial Pretreatment Program
- Request Site Specific Water Quality Standard
- Request Adjusted Standard
- Request IPCB Variance

Industrial Pretreatment Program

- August 2009 Village Board adopted Industrial Waste Control Ordinance
 - Permit all non-residential users ≥ 500 gpd
 - Zinc Sewer Limit = 0.046 mg/l
- November 2009 Industrial Outreach Meeting
- January 2010 1st permit applications mailed

Industrial Pretreatment Program

- Permit Application
- Inspection of Facilities
- Compliance Schedule
- Legal Review of Permit
- Enforcement of Permit

Voluntary Compliance

- WWTP internal audit
- Public Schools and Park District outreach

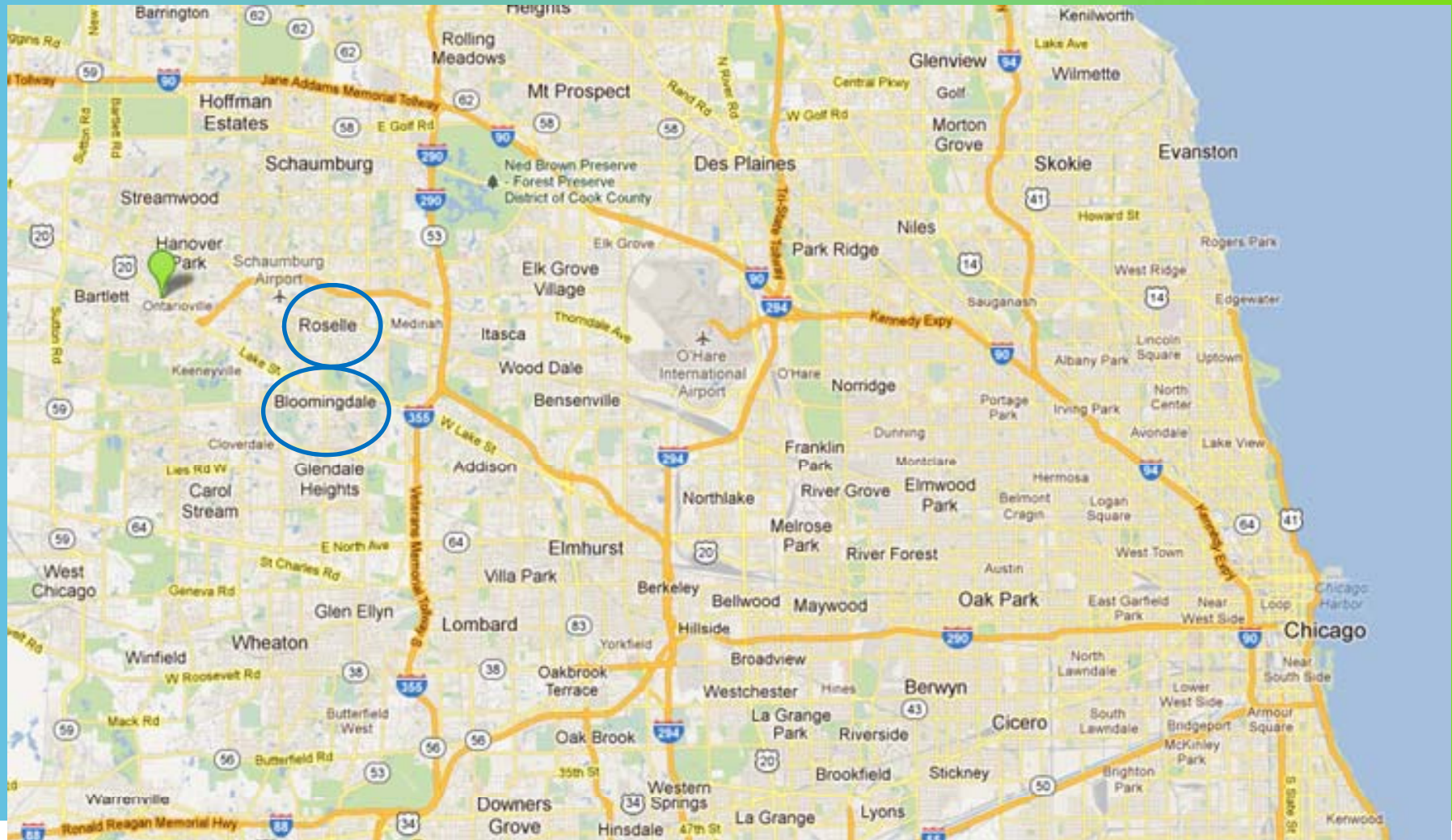
Elgin O'Hare
Expressway

Turnberry
Industrial Park

Route 20



Zinc Consortium



Site Specific Water Quality Standard

- September 2010 Zinc Consortium/IEPA Meeting
- Error in current IL Zinc WQS
- December 2010 IEPA filed petition with the IPCB to correct error
- VoHP corrected permit limit would be 0.067 mg/l

Hyalella azteca



Sampling Results

- 2011 Annual Average WWTP
 - Influent: 0.195 (mg/l)
 - Effluent: 0.064 (mg/l)

Sampling Results

Year	Number of Months Exceeded 0.067 mg/l Limit
2008	1
2009	8
2010	5
2011	5

- Zinc Limit Effective August 2011

Sampling Results

Month	2007	2008	2009	2010	2011
January	0.075	0.067	0.071	0.057	0.055
February	0.079	0.059	0.088	0.087	0.059
March	0.068	0.064	0.078	0.067	0.070
April	----	0.054	0.062	0.070	0.052
May	----	0.059	0.059	0.059	0.063
June	----	0.060	0.076	0.059	0.052
July	0.066	0.062	0.069	0.055	0.063
August	0.047	0.066	0.069	0.065	0.059
September	0.049	0.058	0.076	0.084	0.072
October	0.069	0.066	0.069	0.084	0.074
November	0.108	0.083	0.049	0.082	0.069
December	0.064	0.059	0.050	0.067	0.077

Sampling results for monthly average, total zinc (mg/L)

2011 Monthly Average Zinc

Month	Influent	Effluent
January	0.091	0.055
February	0.095	0.059
March	0.113	0.070
April	0.090	0.052
May	0.195	0.063
June	0.140	0.052
July	0.387	0.063
August	0.152	0.059
September	0.323	0.072
October	0.234	0.074
November	0.210	0.069
December	0.308	0.077

2010 Monthly Average Zinc

Month	Influent	Effluent
January	0.388	0.057
February	0.179	0.087
March	0.127	0.067
April	0.402	0.070
May	0.325	0.059
June	0.286	0.059
July	0.333	0.055
August	0.136	0.065
September	0.462	0.084
October	0.339	0.084
November	-----	0.082
December	0.371	0.067

Types of Violations

- Chronic Violations
 - Monthly Average Effluent $>$ Limit
 - 4 months in a 6-month period

- Magnitude & Frequency Violations
 - Monthly Average Effluent $>$ $1.2 * \text{Limit}$
 - 2 months in a 6-month period

2010 Chronic Violations

Month	Effluent
January	0.057
February	0.087
March	0.067
April	0.070
May	0.059
June	0.059
July	0.055
August	0.065
September	0.084
October	0.084
November	0.082
December	0.067

2010 Magnitude & Frequency Violations

Month	Effluent
January	0.057
February	0.087
March	0.067
April	0.070
May	0.059
June	0.059
July	0.055
August	0.065
September	0.084
October	0.084
November	0.082
December	0.067

Summary

- Extensive Sampling Program
- Total Zinc (Monthly Average)
0.040 → 0.044 → 0.046 → 0.067 mg/L
- Evaluated Compliance Options
 - Requested Time Extension
 - Enacted Industrial Pretreatment Program
 - Initiated Site Specific Water Quality Standard
- Participate in Zinc Consortium
- Continue to Monitor

Zinc Items



Questions