

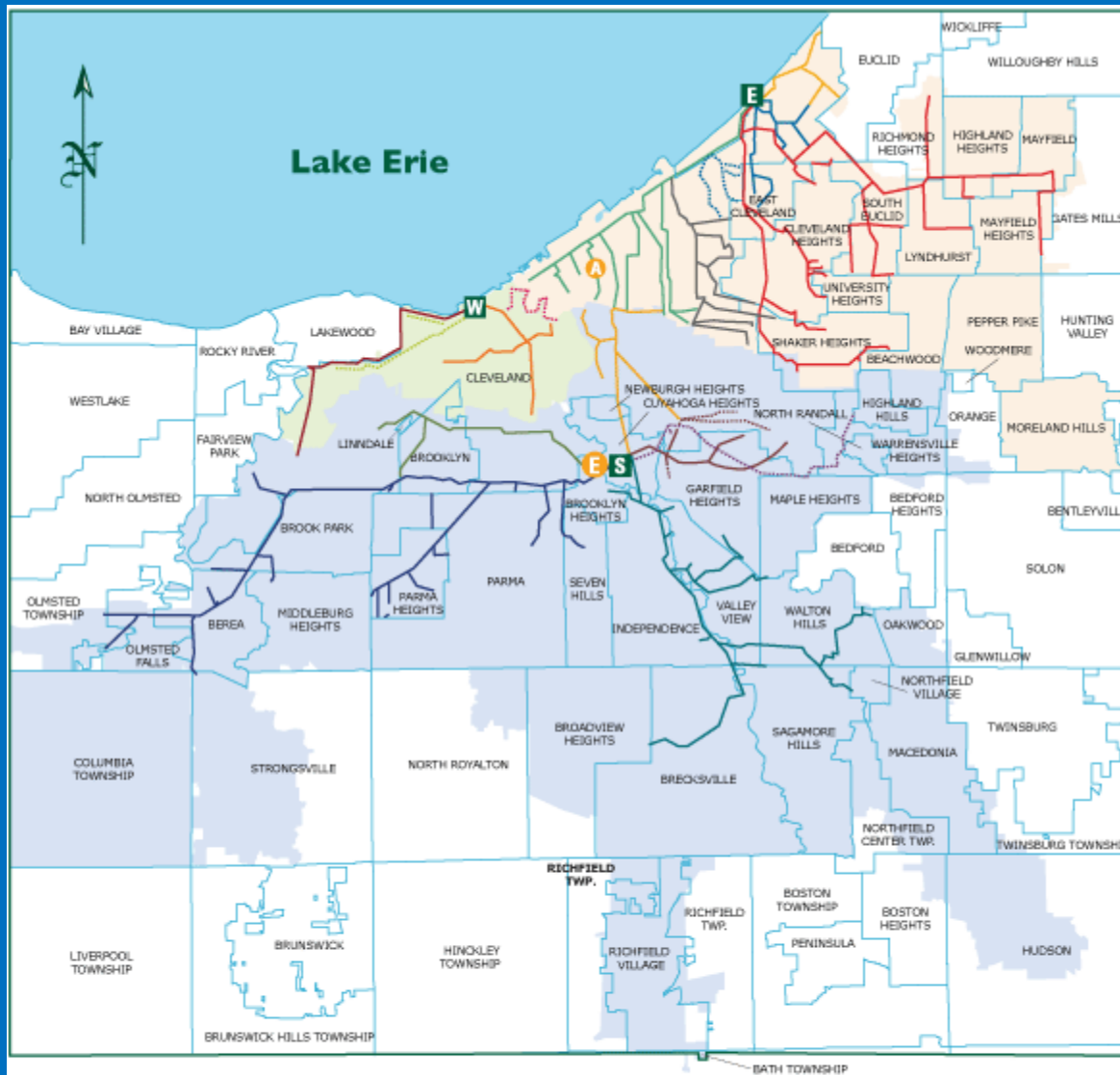
Monitor Your Influent

Case History of an Enforcement Action

Wolfram von Kiparski
Northeast Ohio Regional Sewer District

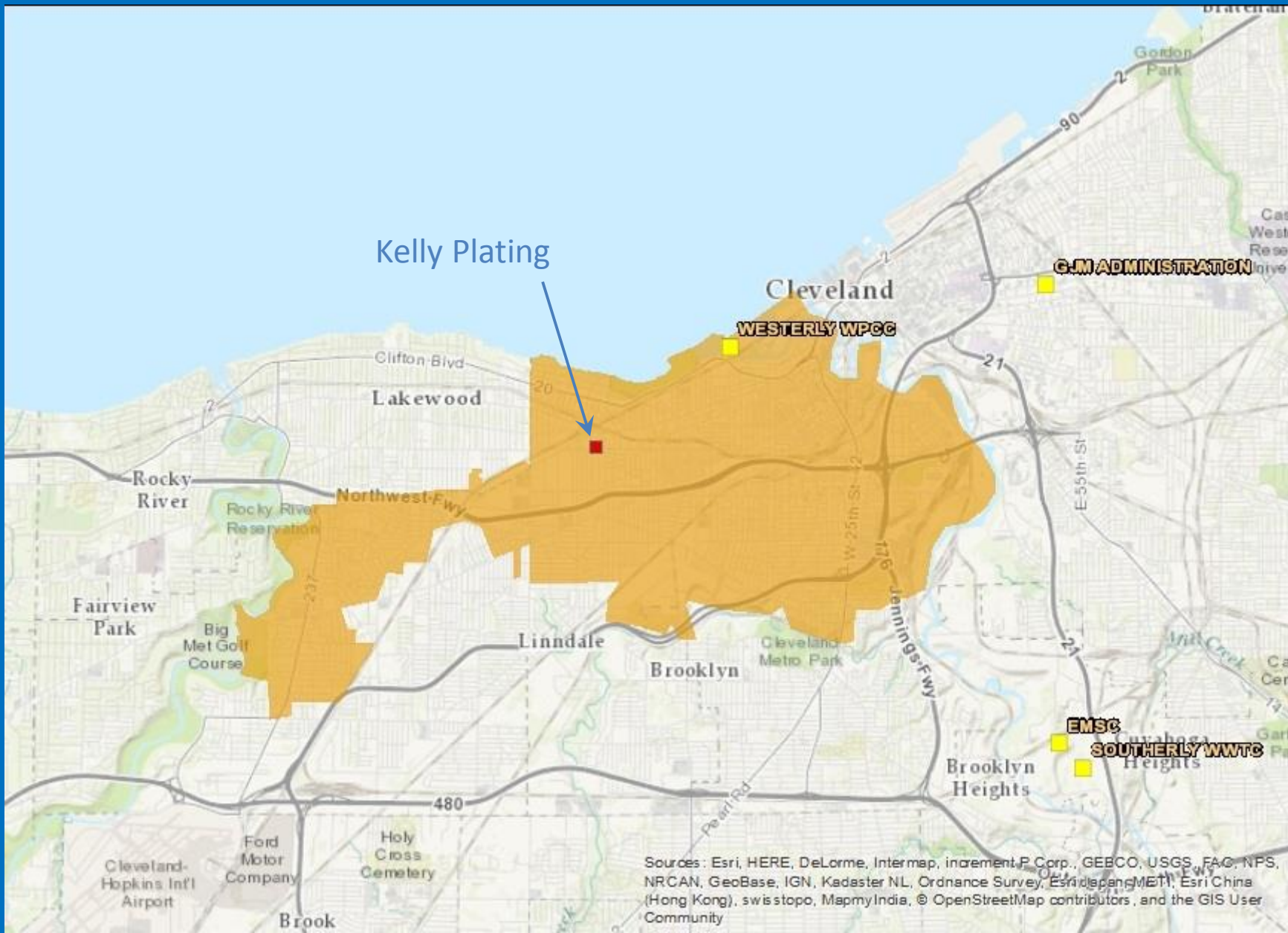
Northeast Ohio Regional Sewer District

- City of Cleveland plus 60 surrounding communities
- 3 WWTPs – total ~245 MGD
- Over 1,000,000 residents
- Thousands of businesses
- Pretreatment Program since 1984



- | | | |
|--|-------------------------------------|------------------------------------|
| E EASTERLY TREATMENT PLANT | S SOUTHERLY TREATMENT CENTER | W WESTERLY TREATMENT CENTER |
| E EASTERLY SERVICE AREA | S SOUTHERLY SERVICE AREA | W WESTERLY SERVICE AREA |
| E ENVIRONMENTAL & MAINTENANCE SERVICES CENTER | A ADMINISTRATION BUILDING | |





Kelly Plating

Cleveland
WESTERLY WPCG

G.M. ADMINISTRATION

Northwest Fwy

Linndale

Brooklyn

EMSC
SOUTHERLY WWTC

Brooklyn
Heights

Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Timeline of Events

- Late Summer – Early Fall 2012 , periodic high zinc loading begins at Westerly WWTP
- February – March 2012, high zinc loading noticed by WQIS
- March 14, 2012 – covert monitoring of Kelly Plating wastewater begins
- March 19, 2012 – dumping of plating wastes confirmed
- March 2012 – U.S. EPA Criminal Investigation Division contacted.
Ohio EPA Office of Special Investigations and
Ohio Bureau of Criminal Investigation also involved.
- May 19, 2016 – Facility site visit by US EPA, Ohio EPA, Ohio BCI, and NEORS
Emergency Termination of Service Order issued

When your plant gets hit, you will want to know:

What happened?

When did it happen?

Who did it?

What was the effect?

How can we fix it?

Do you have the tools in place to answer these questions?

Industrial Monitoring

- Daily WWTP raw influent monitoring/sampling
 - flow rate, chemicals, nutrients, solids
- In-house laboratory
- Water Quality and Industrial Surveillance
- Pretreatment Program
 - 1131 Industrial Users in IU database
 - 173 Significant Industrial Users
 - Facility inspections and wastewater sampling
 - Automated sampling equipment

Data Analysis

How you look at your data has an influence on identifying problems and describing the problem to others.

Tabular

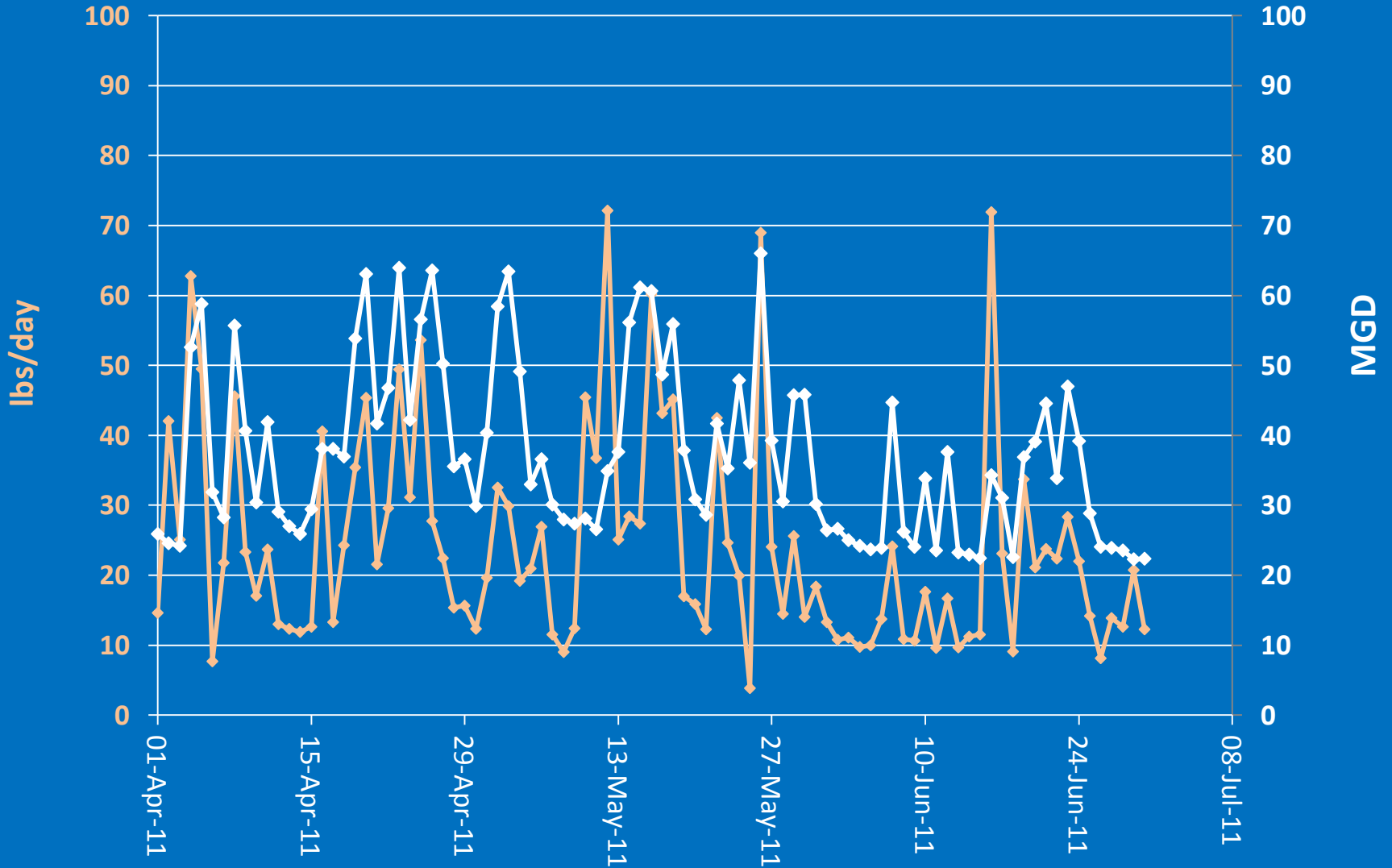
Graphical

Statistical

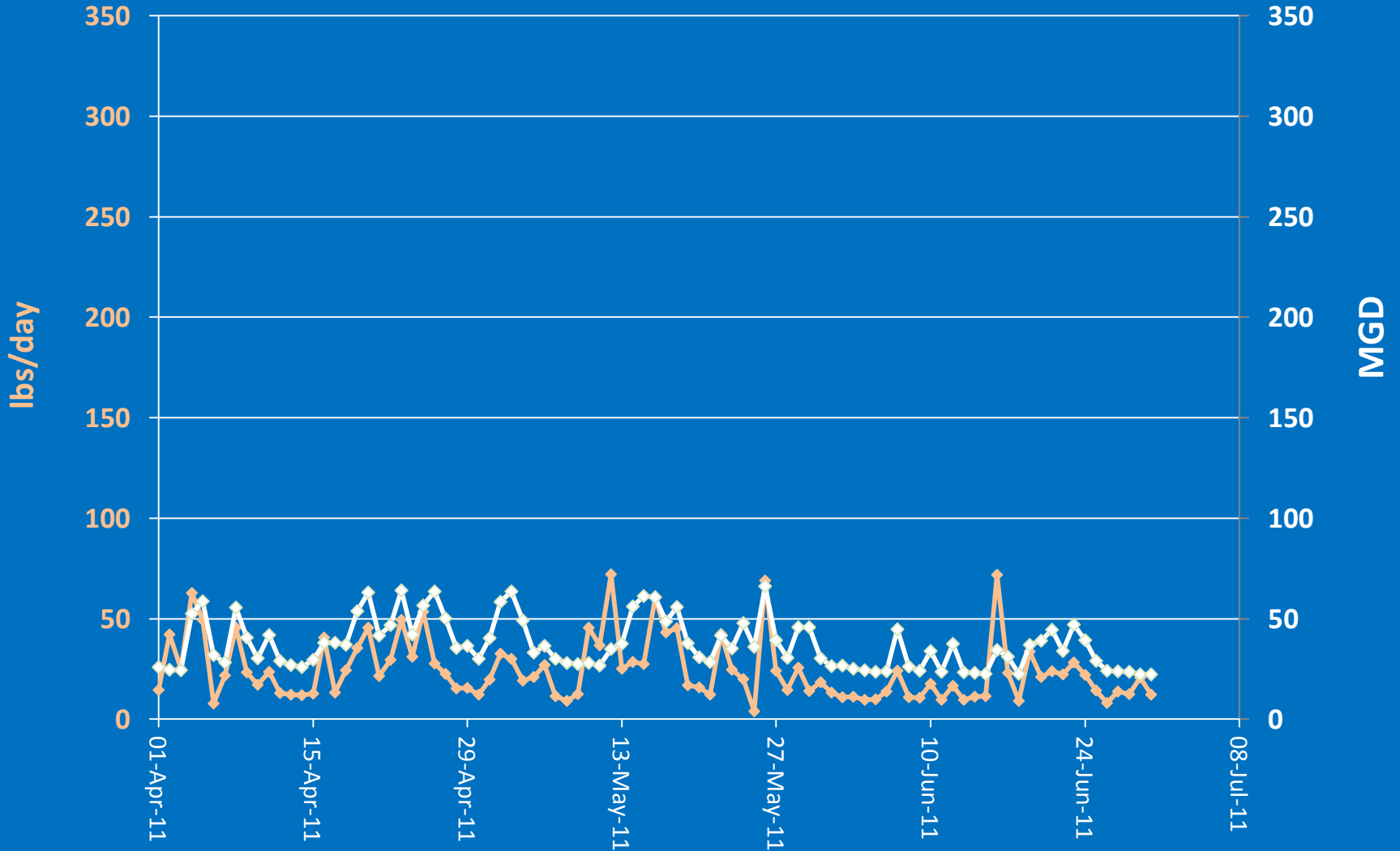
Tabular data – Westerly WWTP Zinc Loading – Spring 2011

date	Zinc µg/liter	flow MGD	loading lbs/day
01-Apr-11	67.73	25.9	14.6
02-Apr-11	205.2	24.6	42.1
03-Apr-11	124.3	24.2	25.1
04-Apr-11	143.1	52.6	62.8
05-Apr-11	101	58.8	49.5
06-Apr-11	28.99	31.9	7.7
07-Apr-11	92.47	28.3	21.8
08-Apr-11	98.23	55.7	45.6
09-Apr-11	68.78	40.7	23.3
10-Apr-11	67.47	30.4	17.1
11-Apr-11	67.8	41.9	23.7
12-Apr-11	53.67	29.1	13.0
13-Apr-11	54.68	27.0	12.3
14-Apr-11	55.01	25.9	11.9
15-Apr-11	51.6	29.4	12.7
16-Apr-11	127.8	38.1	40.6
17-Apr-11	41.8	38.1	13.3
18-Apr-11	78.72	37.0	24.3
19-Apr-11	78.76	53.9	35.4
20-Apr-11	86.33	63.1	45.4
21-Apr-11	61.92	41.7	21.5
22-Apr-11	75.84	46.8	29.6
23-Apr-11	92.73	64.0	49.5
24-Apr-11	88.51	42.2	31.2
25-Apr-11	113.7	56.6	53.6
26-Apr-11	52.26	63.6	27.7
27-Apr-11	53.61	50.3	22.5
28-Apr-11	51.92	35.6	15.4
29-Apr-11	51.35	36.6	15.7
30-Apr-11	49.35	29.9	12.3
01-May-11	58.43	40.3	19.7
02-May-11	66.8	58.4	22.5

Westerly WWTP zinc loading - Spring 2011

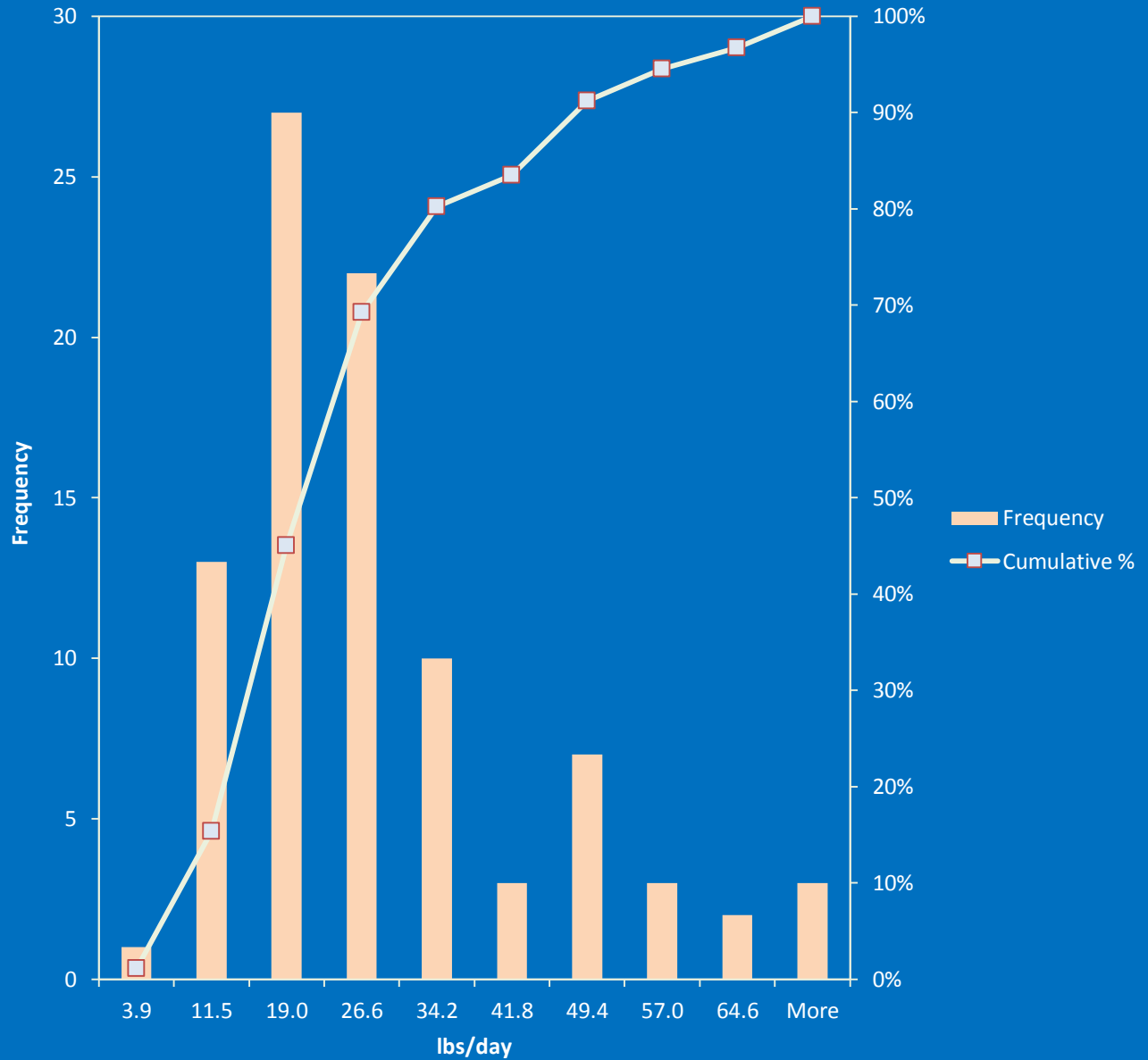


Westerly WWTP zinc loading - Spring 2011



Spring 2011 - Descriptive Statistics

Mean	24.4
Standard Error	1.6
Median	21.0
Standard Deviation	15.4
Sample Variance	236.9
Kurtosis	1.6
Skewness	1.4
Range	68.3
Minimum	3.9
Maximum	72.2
Sum	2216.3
Count	91
Confidence Level(95.0%)	3.2



Speculate – what would an illicit discharge look like?

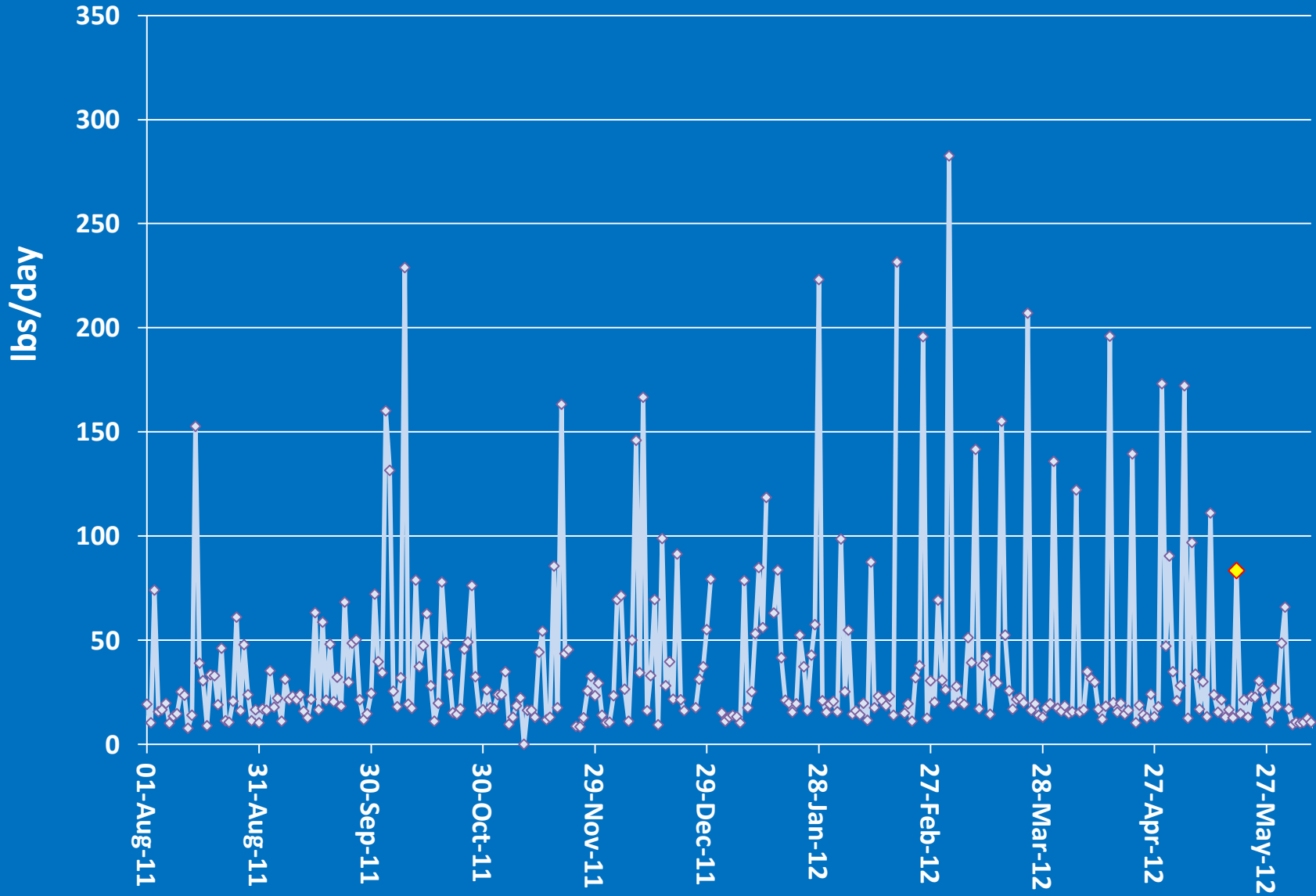
A single SIU, discharging 25,000 gallons of industrial wastewater at 5 mg/L zinc:

$$5 \text{ ppm zinc} \times 8.34 \frac{\text{pounds}}{\text{gallon}} \times 0.025 \text{ MGD} \cong 1 \text{ pound zinc}$$

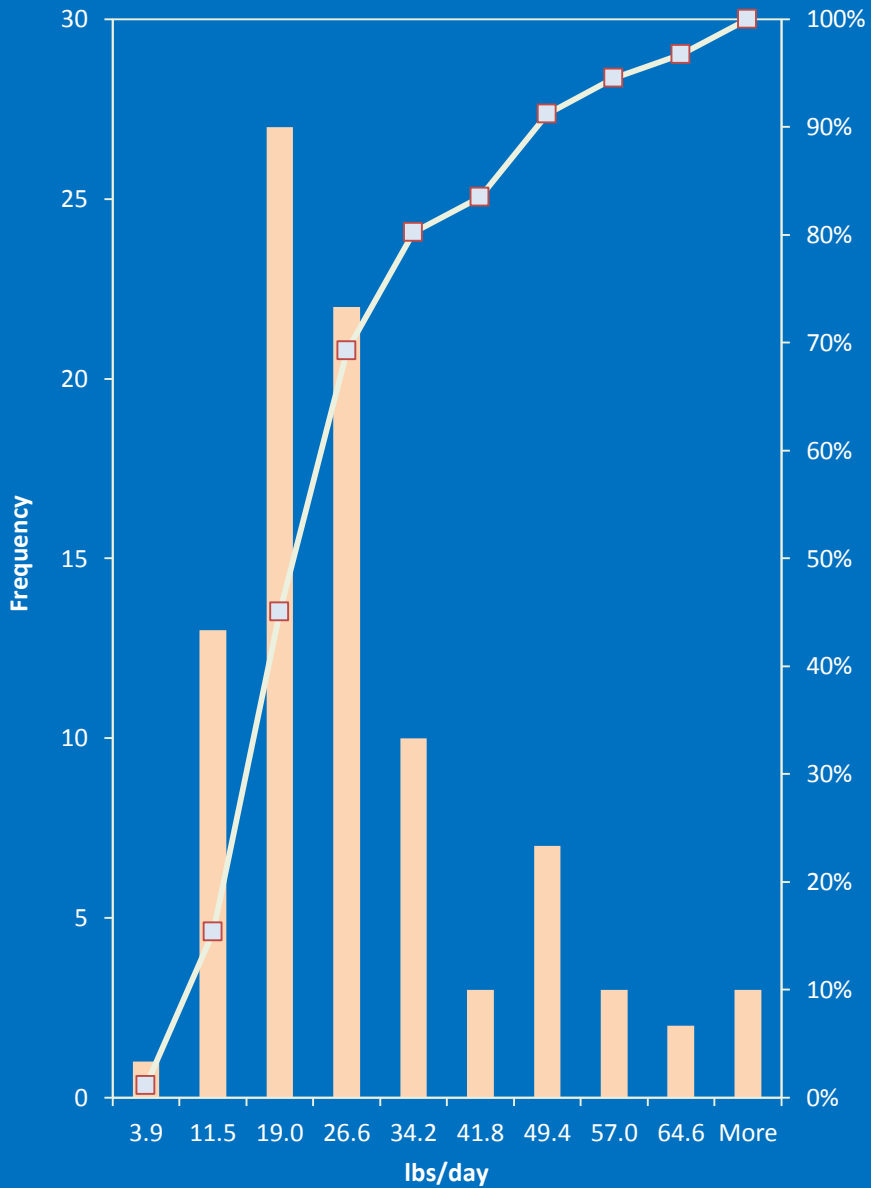
A single SIU, dumping 1,200 gallons of industrial wastewater at 4000 mg/L zinc:

$$4000 \text{ ppm zinc} \times 8.34 \frac{\text{pounds}}{\text{gallon}} \times 0.0012 \text{ MGD} \cong 40 \text{ pounds zinc}$$

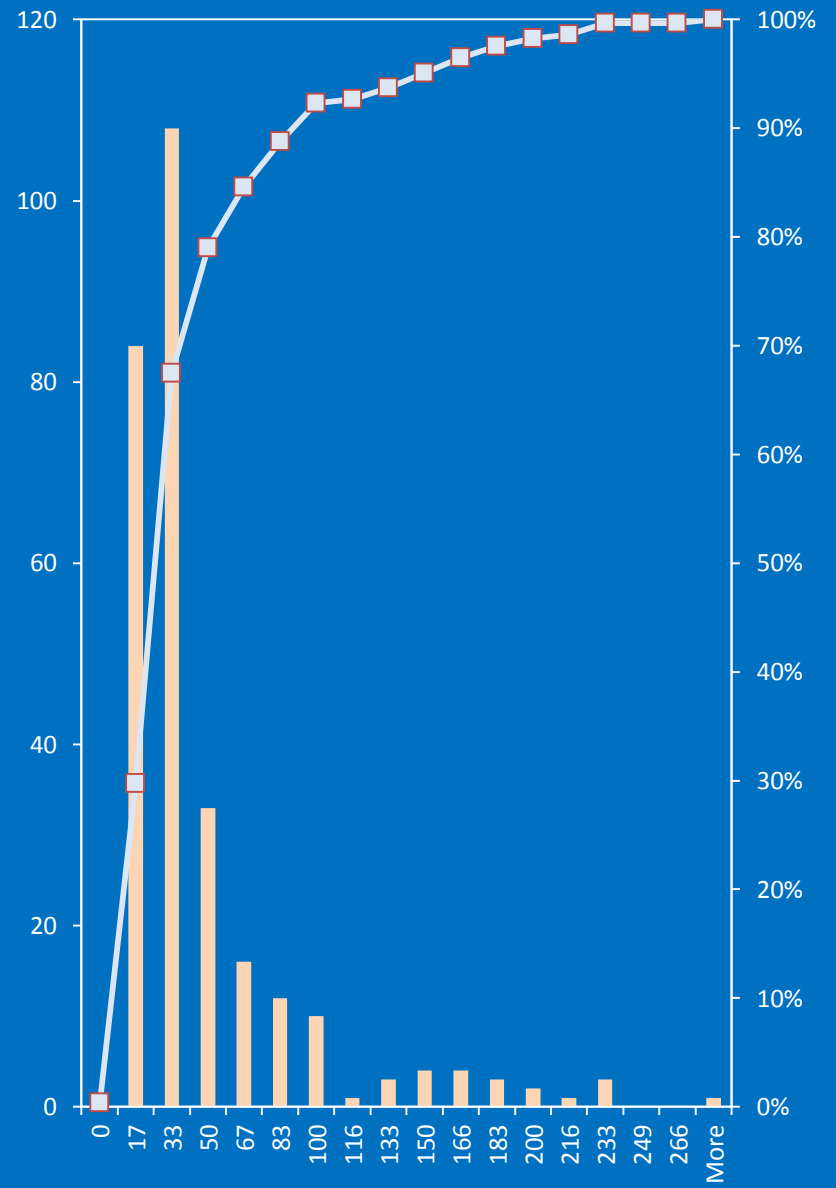
Westerly WWTP zinc loading – 2011/2012



Spring 2011



Summer 2011 – Spring 2012



"100% process" manhole

Kelly Plating

18"

No. 10

No. 10 69"

69"

No. 5

No. 5

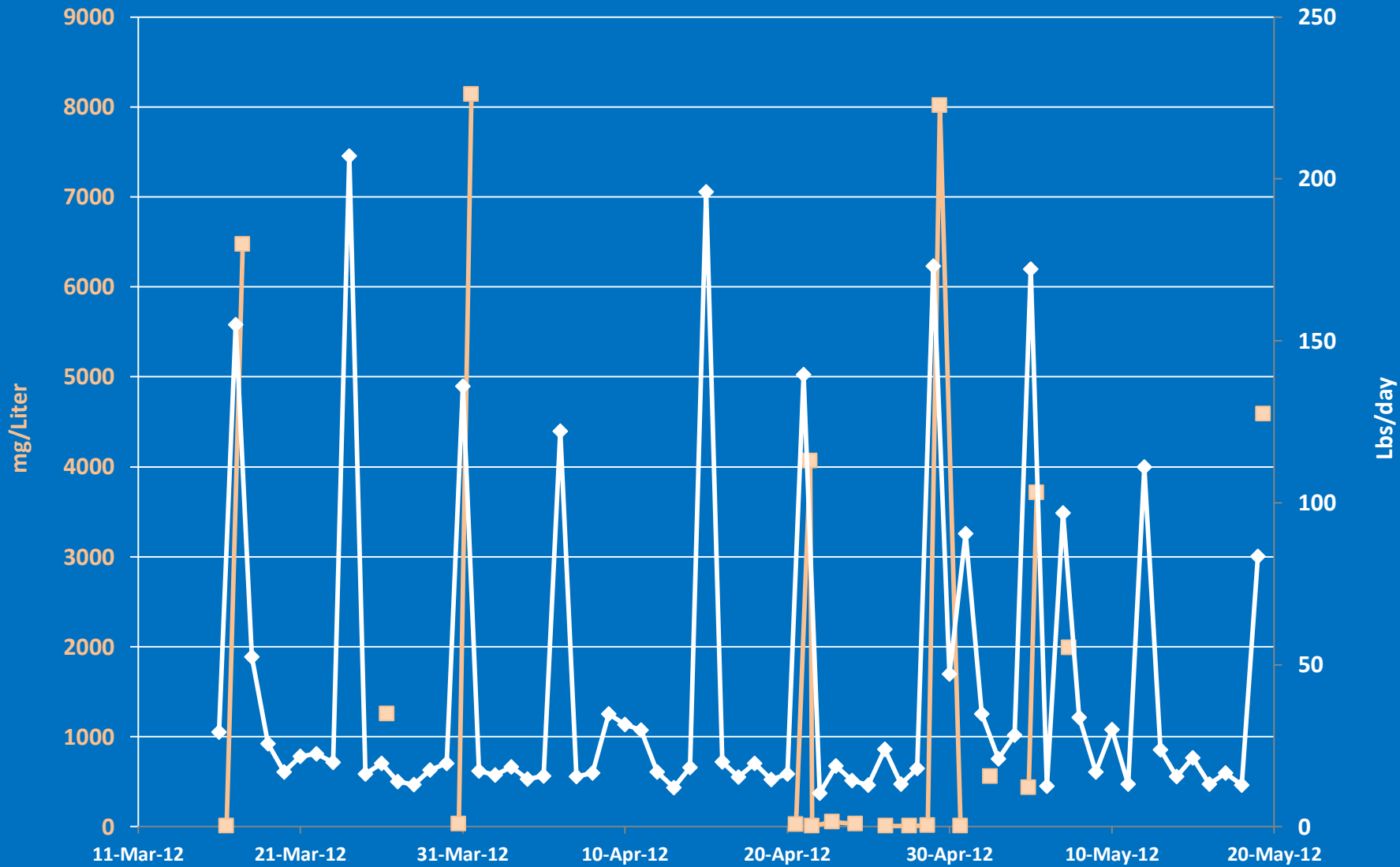




Kelly Plating Company
100% Manhole
Collection Date: 3/17/2012 11:00:00 AM
Sampling Frequency: Time Composite ASAPH
Start Date/Time: 3/17/12 11:00
Stop Date/Time: 3/17/12 11:00
Temperature: _____ °C
Designated Oxygen: _____ mg/L
Bottle ID: _____
mg/L
mg/L

Barcode: 151 #49
1 1 0 5 1 9 0 0 5





■ zinc dumped mg/L
 ◆ WWTP zinc lbs/day











Timeline of Events

- May 19, 2012 – Emergency Termination of Service Order issued
- June 8, 2012 - Sewer Service restored
- June 24, 2014 – Kelly Plating and Thomas E. White indicted in a federal court
for discharging plating waste to sewer
- January 27, 2015 – Kelly Plating sentenced to two years of probation and fined
\$50,000 and make a community service payment of
\$25,000 to the Cleveland Foundation.
- May 5, 2015 – Thomas E. White sentenced to two years of probation and
fined \$2000.

Thank-you

contact information:

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