Ordinance Update and Local Limits Evaluation

Sewer Use Ordinance Informative Meeting

January 21, 2010

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Agenda

- Ordinance process update.
- The need for change.
- Example of calculation.
- Conclusion.

Ordinance Process Update

- Develop modified language.
- Receive DNR approval of modified language.
- Provide copy of modified language to stakeholders.
- Publish Ordinance changes three times in the Green Bay Press-Gazette. This begins the 30-day written comment period.

Ordinance Process Update *(cont.)*

- During the 30-day comment period, GBMSD holds informative meetings with Significant Industrial Users (SIUs), municipalities, and waste haulers.
- Provide copies of written comments to the GBMSD Commission and DNR.
- Schedule a public hearing for oral comments.

Ordinance Process Update *(cont.)*

- Commission approval contingent upon final DNR approval.
- DNR approval.
- Final publication of the Ordinance changes in the Green Bay Press-Gazette.

Local Limits Evaluation

The need to develop, enforce, and revise Local Limits is specified in Section 6.4.2.1 of the Wisconsin Pollutant Discharge Elimination System (WPDES) permit for both the Green Bay and the De Pere Facility.

Local Limits Evaluation *(cont.)*

To protect operations and ensure its discharges comply with State and federal requirements, a Publicly Owned Treatment Works (POTW) will design its Local Limits based on site-specific conditions.

Why Should GBMSD Review Local Limits Now?

- Last review was 1991.
- Modification to the POTW.
- Addition of a new treatment plant.
- New water quality standards.
- New or increased discharges to the POTW.

Copper

- Current mass Local Limit (LL): 2.0 pounds/day
- Current SIUs: 52
- 52 SIUs x 2.0 pounds/day = 104 pounds/day
- Maximum Allowable Industrial Load (MAIL) for the Green Bay Facility: 50.33 pounds/day

EPA Approved Allocation Methods

Contributory Flow Method*

Concentration LL = MAIL / (Flow from contributing industrial users x 8.34)

* Provides the same concentration Local Limit to those SIUs who actually discharge the pollutant in question in concentrations above the background.

*The SIUs that discharge below the background will not be regulated for the pollutant in question.

Local Limits Criteria

- Local Limits Development Guidance (July 2004)
- Example: copper (Cu), Green Bay Facility
- WPDES effluent limit: none
- Water Quality Criteria:
  - Acute Toxicity: 45.65 ug/L
  - Chronic Toxicity Criteria: 19.71 ug/L

Local Limits Criteria *(cont.)*

- Wisconsin Surface Water Quality Criteria
  - Acute Toxicity: 91.3 ug/L
  - Chronic Criteria: 204.34 ug/L
  - Human Threshold Criteria: none

Local Limits Criteria *(cont.)*

- Solids Disposal Standards: none
- Process Inhibition*:
  - Activated Sludge: 1 mg/L
  - Nitrification: 0.05-0.48 mg/L

  * Mid to upper range values have been selected. Some influent metals concentrations have been much higher than minimum values without the occurrence of toxic inhibition.

Local Limits Criteria *(cont.)*

- Air Emissions Criteria: 0.324 pounds/year
- Incinerator Feed Solids
  - Threshold Emission Rate: 0.324 pounds/year
  - Allowable Solids Concentration: 77,768 mg/kg

Sample Calculation (Cu)

- POTW Removal Efficiency: 92%
  - Based on plant data
- Primary Treatment Removal Rate: 22%
- Background Concentrations
  - 0.115 mg/L
  - Based on Meter Stations 4, 5, and 8, which have no SIUs contributing copper

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Sample Calculation (Cu)

- Plant Influent Flow: 32.9 MGD
- Total SIU Flow: 10.8 MGD
- Safety Factor (SF): 15% of the Maximum Allowable Headworks Load (MAHL)
- Hauled Waste Load (HW): 0.316 pounds/day
- SIU Flow for Copper Only: 1.26 MGD

Sample Calculation (Cu)
MAHL

- MAHL = $\frac{\text{Flow x Inhibition Value x 8.34}}{\text{1.00-Primary Removal Efficiency}}$
- MAHL = $\frac{\text{32.9 MGD x 0.24 mg/L x 8.34}}{\text{1.00-0.22}}$
- MAHL = 84.42 pounds/day

Sample Calculation (Cu)
Background (BG)

- BG = Flow x Concentration x 8.34
- BG = 22.1 MGD x 0.115 mg/L x 8.34
- BG = 21.12 pounds/day

Sample Calculation (Cu)

- MAIL = MAHL - SF - BG - HW
- MAIL = 84.43 – 12.66 - 21.12 – 0.316
- MAIL = 50.33 pounds/day

Sample Calculation (Cu)

- Local Limit = MAIL / (SIU Flow for Cu x 8.34)
- Local Limit = $\frac{\text{50.33 pounds Cu/day}}{\text{1.26 MGD x 8.34}}$
- Local Limit = 4.79 mg/L Cu

Conclusion

- Local Limits are necessary to protect POTW processes and ultimately our local environment.
- Local Limits ensure POTW effluent complies with State and federal rules.
- Local Limits are technically based and unique to each POTW and its SIU dischargers.

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Local Limits

	Current	Proposed
Arsenic	0.5 mg/L, 0.2 lbs/day	0.56 mg/L
Cadmium	2.0 mg/L, 0.8 lbs/day	0.23 mg/L
Chromium	10.0 mg/L, 4.0 lbs/day	3.76 mg/L
Copper	5.0 mg/L, 2.0 lbs/day	2.78 mg/L
Lead	0.5 mg/L, 0.2 lbs/day	1.80 mg/L
Mercury	0.02 mg/L	0.0004 mg/L
Nickel	10.0 mg/L, 4.0 lbs/day	3.24 mg/L
Zinc	15.0 mg/L, 6.3 lbs/day	3.21 mg/L
Cyanide	5.0 mg/L, 2.0 lbs/day	Eliminated
Acrylonitrile	1.0 mg/L	1.0 mg/L
pH	10.0 s.u. (upper limit)	11.0 s.u.


QUESTIONS?