

Southern Clinton County Municipal Utilities Authority (SCCMUA) AMMONIA SAL

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Annual IPP Seminar
September 18, 2014

Granger Grand River Avenue Landfill

- ▶ 180-acre sanitary landfill; established in 1973
- ▶ Handles ~425,000 cubic yards per year of residential and commercial trash
- ▶ Source of renewable energy (gas, electricity)
- ▶ Significant Industrial User
 - 33,000 gal/day leachate
 - Ammonia pretreatment via onsite air stripper



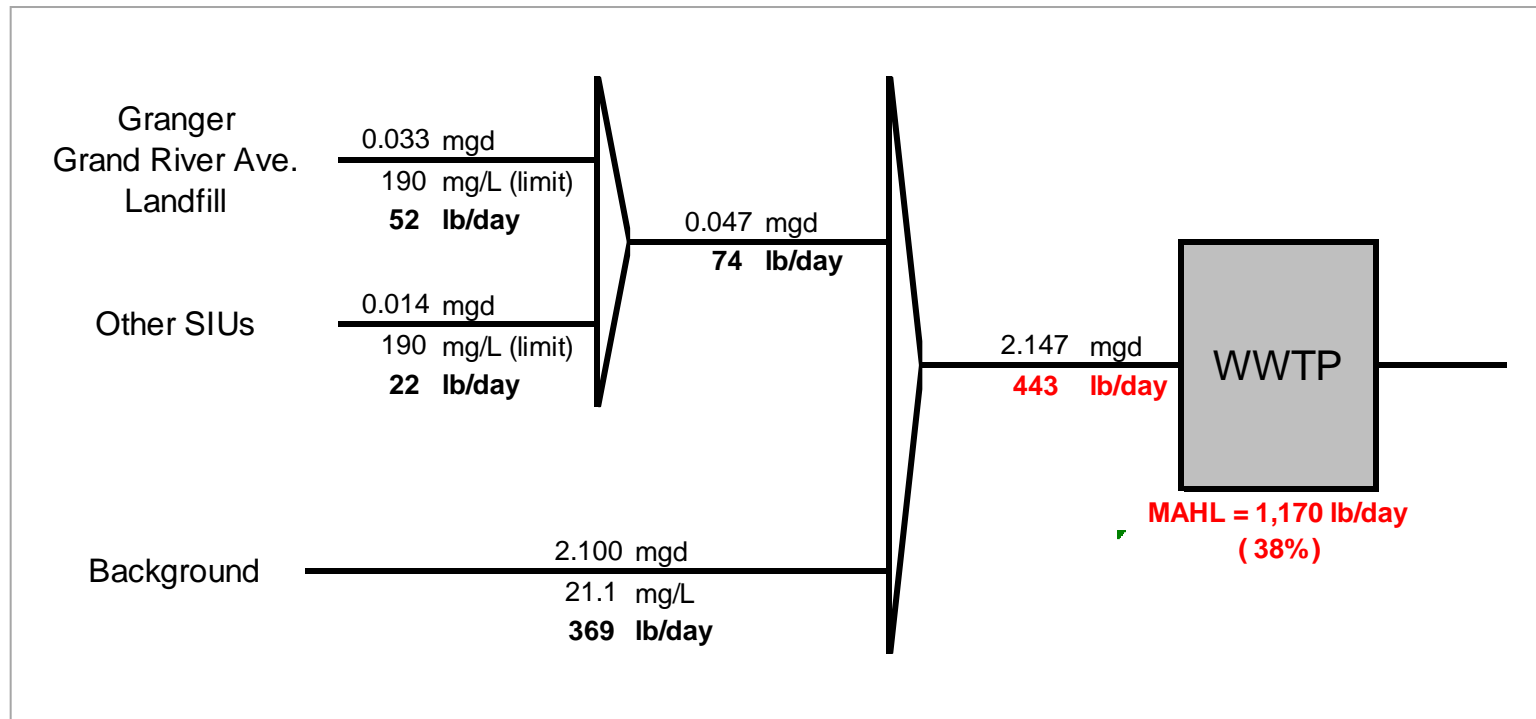
The Challenge

- ▶ Landfill to reach capacity in ~25 years
- ▶ Considering expansion
- ▶ Seeks alternative to ammonia pretreatment
 - Would require significant capital investment
 - Air stripper has O&M issues (weather, plugging)



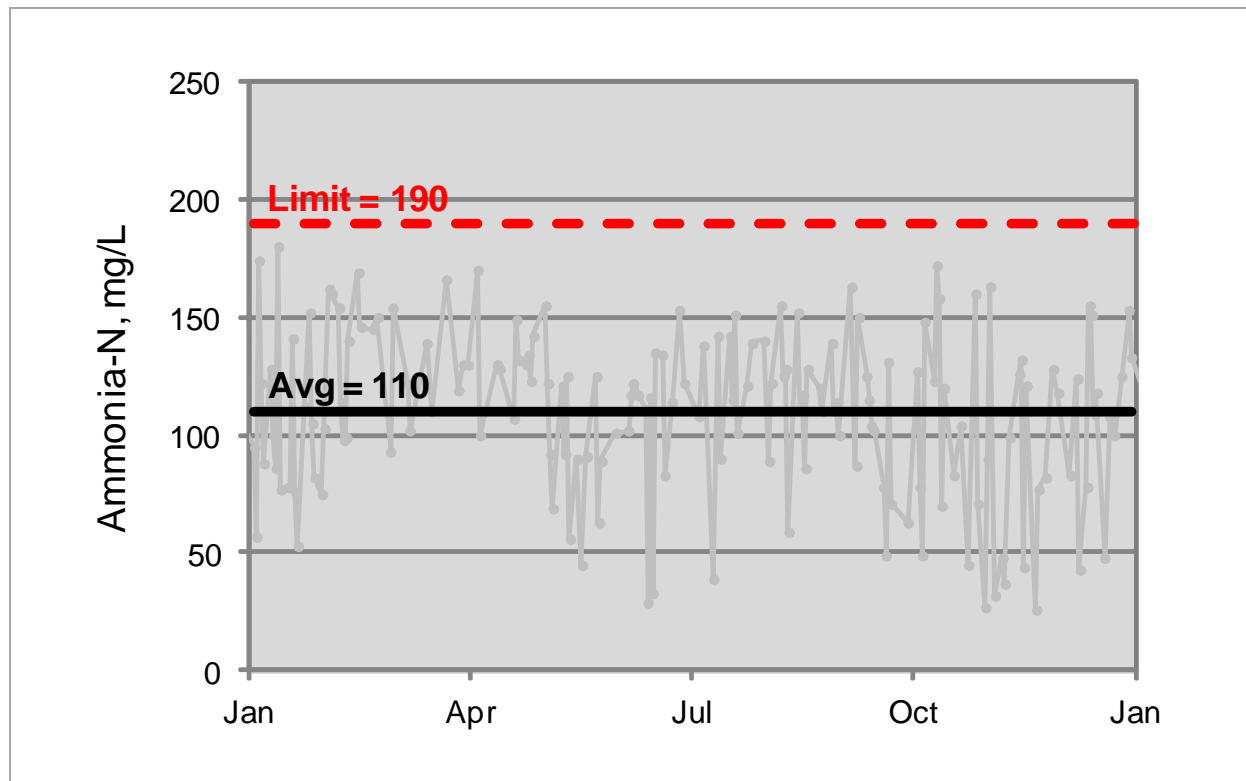
Current Status – WWTP

▶ Ammonia Loading



Current Status – SIU

▶ Ammonia Compliance



Ammonia SAL

$$\begin{array}{r} \text{SIU} \\ \text{Special} \\ \text{Need} \end{array} + \begin{array}{r} \text{Available} \\ \text{WWTP} \\ \text{Capacity} \end{array} = \begin{array}{r} \text{SAL} \\ \text{Opportunity} \end{array}$$

▶ SCCMUA Implementation Plan

1. Establish SAL policy/procedures
2. Reevaluate MAHL, MAIL, and local limit*
3. Reevaluate surcharge rate*
4. Negotiate appropriate SAL
5. Revise IPP permit

*Cost to be paid by Granger

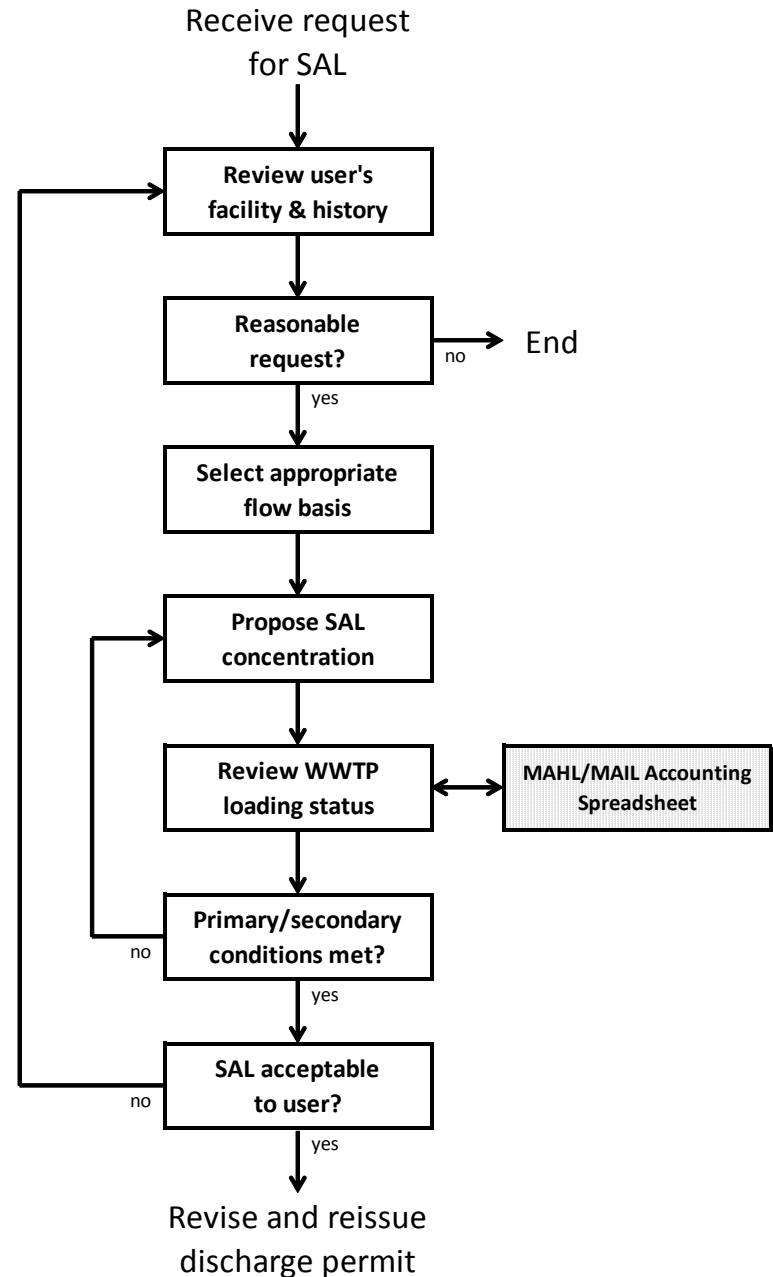


SAL Policy

- ▶ For economic development, not avoiding enforcement
- ▶ Surchargeable compatibles only
 - Assigned on a first-come/first-served basis
 - Phase in where appropriate
 - Monthly surcharge using SAL, not discharge samples
- ▶ Legal authority via Sewer Use Ordinance
- ▶ Administered by permit
 - Mass limit based on maximum flow
 - Flow proportional composites
- ▶ Annual review; may be modified or terminated at any time for any reason

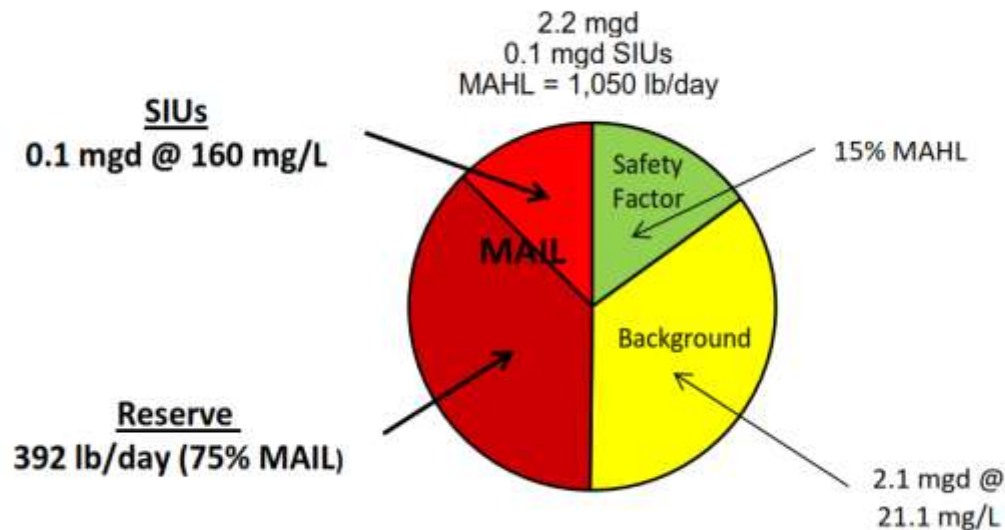
SAL Procedures

- ▶ Primary condition
 - Not exceed approved MAHL or MAIL
- ▶ Secondary conditions
 - Support compliance with MDEQ and USEPA rules/regulations
 - May be more restrictive than categorical standards, but not less restrictive
 - Protect collection system
 - Protect worker health and safety



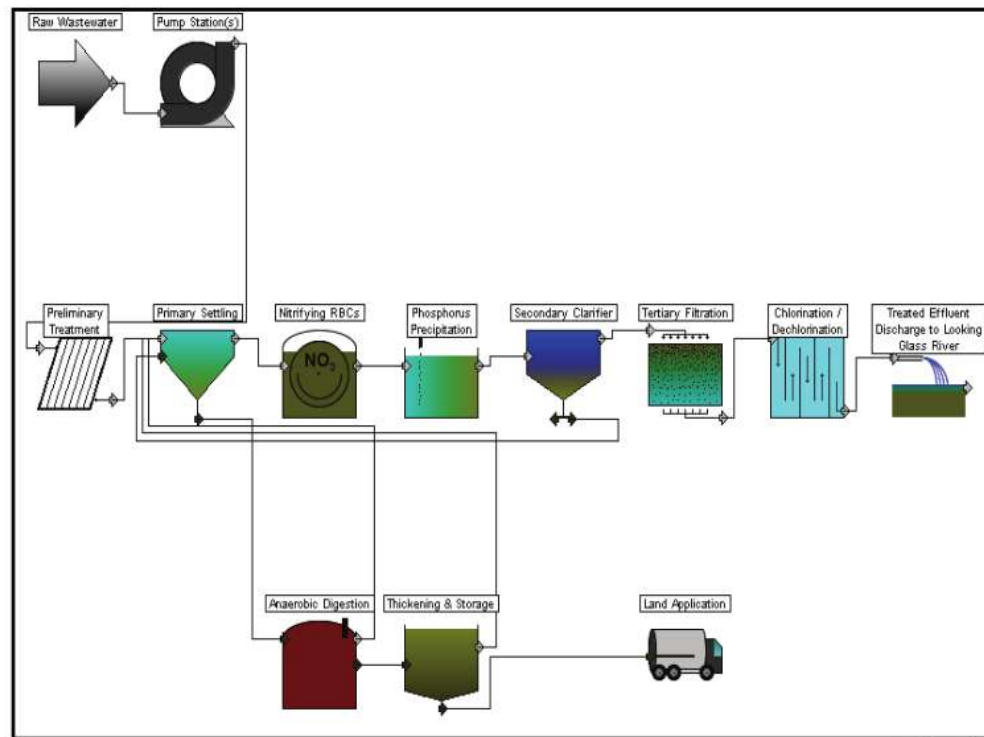
MAHL/MAIL & Local Limit

- ▶ Uniform allocation with reserve
 - MAHL controlled by Basis of Design (1,170 lb/day)
 - Design load reduced by ~10% to protect effluent alkalinity/pH during nitrification

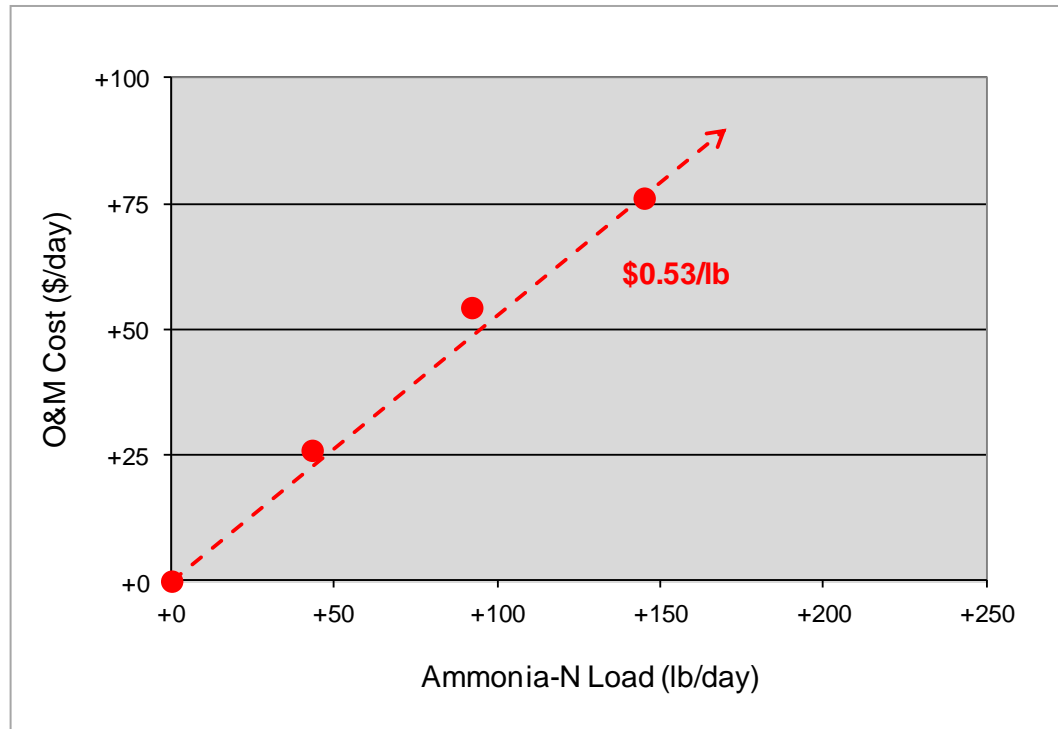


Surcharge Rate for Ammonia

- ▶ Applied WWTP cost estimating software to assign value of treatment



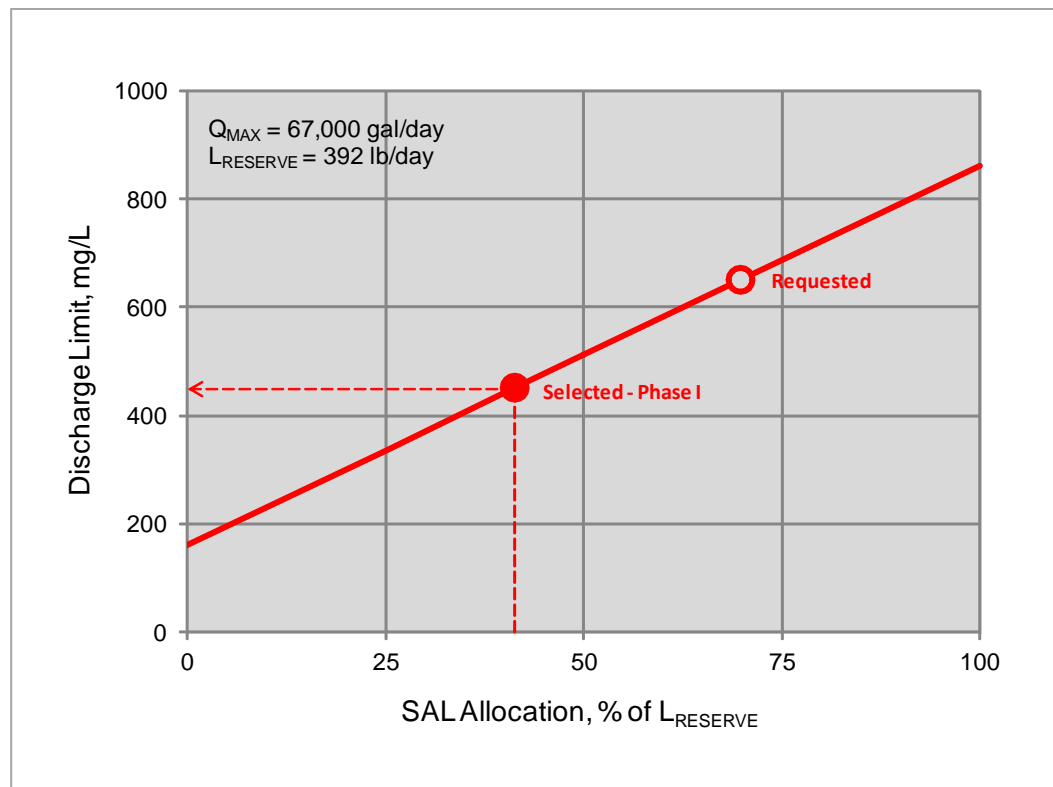
Unit Treatment Cost



Current surcharge rate (~1995) = \$0.34/lb

SAL Negotiation

- ▶ Phased approach to be conservative



Mass Accounting Spreadsheet

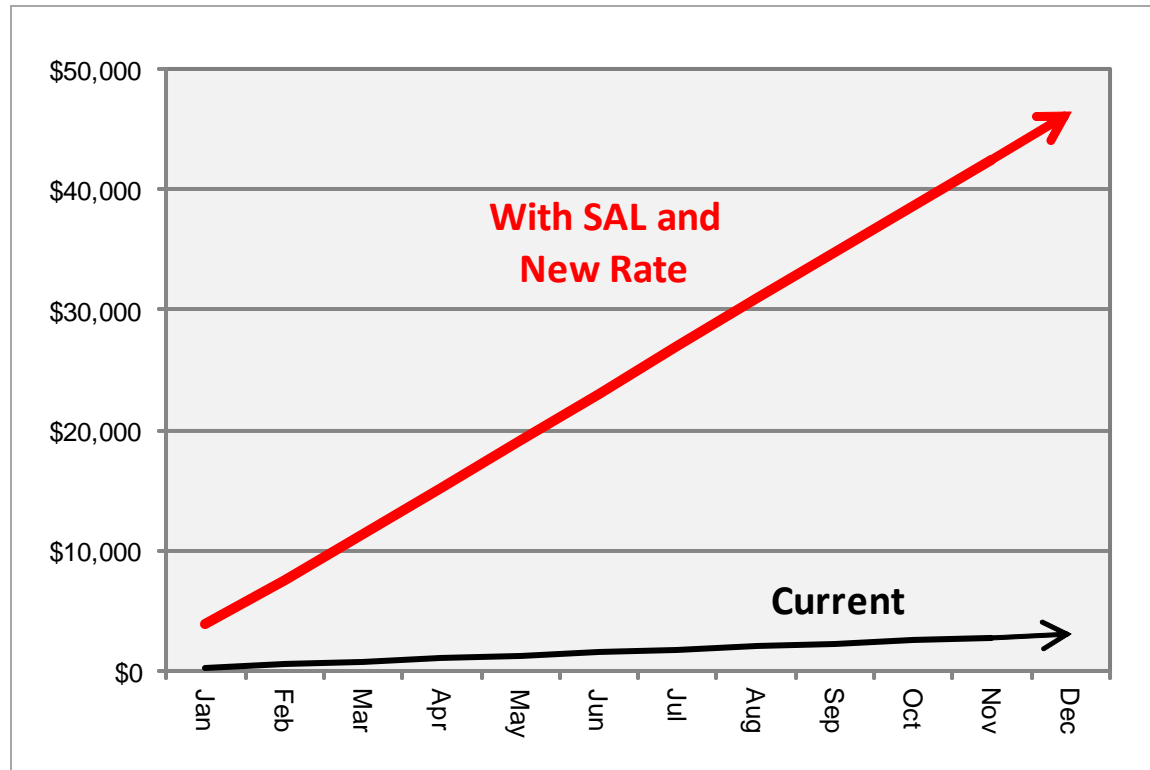
SOUTHERN CLINTON COUNTY MUNICIPAL UTILITIES AUTHORITY

POLLUTANT MASS ACCOUNTING FOR **Ammonia Nitrogen**

	Approved-MAHL Basis	Approved-MAIL Basis	
Maximum Allowable Headworks Loading (MAHL) :	1,050		lb./day
- Background 2.153 mgd @ 21.1 mg/L :	379		lb./day
- Safety Factor @ 10% MAHL :	<u>105</u>		lb./day
Maximum Allowable Industrial Loading (MAIL) :	566	523	lb./day
- Allocated to Significant Industrial Users :	<u>269</u>	<u>269</u>	lb./day
Remaining :	297	254	lb./day
	28%	49%	

Allocation Basis	Significant Industrial User	Allocated Flow	Allocated Concentration	Allocated Mass
SAL	Granger Grand Rive Ave Landfill	0.067 mgd @	450 mg/L	= 251 lb./day
Local Limit	Other	0.014 mgd @	160 mg/L	= 18 lb./day
			Allocated to SIUs :	269 lb./day

SAL Surcharge



251 lb/day SAL (240 lb/day surchargeable)
\$0.53/lb surcharge rate
\$46,500/year

30 lb/day avg (25 lb/day surchargeable)
\$0.34/lb surcharge rate
\$3,100/year

Perspective

- ▶ SALs are emerging as effective method to accommodate special needs of industrial users
- ▶ Straightforward to apply
 - Uncomplicated – assign reserve load when calculating local limits
 - Optional – apply uniform local limits in absence of SAL
 - Accurate – monitor status via mass accounting spreadsheets
 - Flexible – select appropriate fraction of available MAHL/MAIL
- ▶ Improve utilization and enhance revenue by combining with surchargeable compatibles



Thank You

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Acronyms

IPP – Industrial Pretreatment Program

MAHL – Maximum Allowable Headworks Loading

MAIL – Maximum Allowable Industrial Loading

MDEQ – Michigan Department of Environmental Quality

O&M – Operating and Maintenance

SAL – Special Alternative Limit

SIU – Significant Industrial User

USEPA – U.S. Environmental Protection Agency

WWTP – Wastewater Treatment Plant