



# INDUSTRIAL WASTE CONTROL PROGRAM

Re-evaluation of Local Pollutant Discharge Limitations

Appendix A - Tabs A - F

Revised: January 13, 2022

TAB A – Pollutant of Concern and  
Calculations for MAHL

The following pages present the revised Pollutant Calculations used to determine the 2021 MAHL and the respective pollutant limitations using the Uniform Allocation Method and Industrial User Allocation Methods for the following metals:

Arsenic (As)

Cadmium (Cd)

Chromium (Cr)

Copper (Cu)

Lead (Pb)

Mercury (Hg)

Nickel (Ni)

Sliver (Ag)

Zinc (Zn)

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter: **Arsenic**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$	<b>0.170</b>	mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$	<b>0.680</b>	mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$	<b>150</b>	ug/l
			$C_{FAV}$	<b>680</b>	ug/l
			$C_{INHIB}$	<b>0.1</b>	mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>45</b>	%
$F_{SORP}$	<b>1</b>		$R_{MIN}$	<b>31</b>	%
$F_{GAS}$	<b>1</b>		$R_{PRIM}$	<b>0</b>	%
			$R_{SCRUB}$	<b>98.07</b>	%
$M_{AIR}$	<b>8.38E+03</b>	gms/day	$C_{BACKGROUND}$	<b>2.93E-03</b>	mg/l
$T_{INCIN}$	<b>7.00E+00</b>	days/wk	ASF	<b>10</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>12.894</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG} * F_{NONVOL}]$$

$$L_{MAVG} = 1,420.38$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN} * F_{NONVOL}]$$

$$L_{DMAX} = 4,528.76 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAVG}, L_{DMAX})$$

$$L_{MAX1} = 1,420.38 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter:           **Arsenic**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 3,538.31 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 2,040.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 29,563.22$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 13,586.27$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 29,563.22 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = 459.53544 \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = 2125.3 \quad \text{lbs/day}$$

$$L_{\text{MAHL}} = \text{minimum} (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 459.54 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter:           **Arsenic**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = \quad 12.84 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} * (1-\text{ASF})) - L_{\text{BKGD}} \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = \quad 400.74 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = \quad 1.83 \quad \text{mg/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = \quad 13.16 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} * (1-\text{ASF})) - L_{\text{BKGD}}$$

$$L_{\text{AVAILABLE}} = \quad 400 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND2}} * 8.337)$$

$$C_{\text{MAHL}} = \quad 3.72 \quad \text{mg/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter: **Cadmium**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$	<b>2.29</b>	ug/l
			$C_{FAV}$	<b>8.81</b>	ug/l
			$C_{INHIB}$	<b>1</b>	mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>67.0</b>	%
$F_{SORP}$	<b>1</b>		$R_{MIN}$	<b>33.0</b>	%
$F_{GAS}$	<b>1</b>		$R_{PRIM}$	<b>15</b>	%
			$R_{SCRUB}$	<b>94.05</b>	%
$M_{AIR}$	<b>2.08E+04</b>	gms/day	$C_{BACKGROUND}$	<b>1.54E-04</b>	mg/l
$T_{INCIN}$	<b>7.00E+00</b>	days/wk	ASF	<b>10</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>11.807</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$L_{MAVG} =$  n/a

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$L_{DMAX} =$  n/a lbs/day

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$L_{MAX1} =$  N/A lbs/day

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter: **Cadmium**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + Q_{\text{DIL}}]/Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 29.27 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 26.43 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}}/1000]/[1-R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 407.6302 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}}/1000]/[1-R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 181.28 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 181.28 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}}/[1-R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = 5406.299294 \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}}/7)]/[R_{\text{AVG}} * F_{\text{SORP}} * (1-R_{\text{DIG}}) * F_{\text{GAS}} * (1-R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = 1149.3 \quad \text{lbs/day}$$

$$L_{\text{MAHL}} = \text{minimum} (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 181.28 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter: **Cadmium**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.67 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} * (1-\text{ASF})) - L_{\text{BKGD}} \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = 162 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = 0.74 \quad \text{mg/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.69 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} * (1-\text{ASF})) - L_{\text{BKGD}}$$

$$L_{\text{AVAILABLE}} = 162 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND2}} * 8.337)$$

$$C_{\text{MAHL}} = 1.65 \quad \text{mg/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter: **Chromium**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$	<b>1.30</b>	mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$	<b>1.70</b>	mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$	<b>75.93</b>	ug/l
			$C_{FAV}$	<b>1167.45</b>	ug/l
			$C_{INHIB}$	<b>1</b>	mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>77.4</b>	%
$F_{SORP}$	<b>1</b>		$R_{MIN}$	<b>47.2</b>	%
$F_{GAS}$	<b>1</b>		$R_{PRIM}$	<b>27</b>	%
			$R_{SCRUB}$	<b>99.84</b>	%
$M_{AIR}$	<b>2.33E+04</b>	gms/day	$C_{BACKGROUND}$	<b>1.70E-02</b>	mg/l
$T_{INCIN}$	<b>7.00E+00</b>	days/wk	ASF	<b>10</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>22.128</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 26,433.45$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 14,795.65 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAVG}, L_{DMAX})$$

$$L_{MAX1} = 14,795.65 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter: **Chromium**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + Q_{\text{DIL}}]/Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 970.60 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 3,502.35 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}}/1000]/[1-R_{\text{AVG}}*F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 19,735.58 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}}/1000]/[1-R_{\text{MIN}}*F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 30,482.08 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 19,735.58 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}}/[1-R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = 6,295.01 \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}}/7)]/[R_{\text{AVG}}*F_{\text{SORP}} * (1-R_{\text{DIG}})*F_{\text{GAS}} * (1-R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = 41,441.85 \quad \text{lbs/day}$$

$$L_{\text{MAHL}} = \text{minimum} (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 6,295.01 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter:           **Chromium**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = \quad 74 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} * (1-\text{ASF})) - L_{\text{BKGD}} \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = \quad 5,591 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = \quad 25.57 \quad \text{mg/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = \quad 75 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} - L_{\text{BKGD}}) * (1-\text{ASF})$$

$$L_{\text{AVAILABLE}} = \quad 5,598 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND2}} * 8.337)$$

$$C_{\text{MAHL}} = \quad 30.34 \quad \text{mg/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter: **Copper**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l	
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$	<b>0.04</b>	mg/l	WQBEL
$Q_{95EX}$	<b>84030</b>	MGD				
$Q_{DIL}$	<b>10958</b>	MGD				
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$	<b>9.18</b>	ug/l	
			$C_{FAV}$	<b>27.64</b>	ug/l	
			$C_{INHIB}$	<b>1</b>	mg/l	
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>52</b>	%	
$F_{SORP}$			$R_{MIN}$	<b>22.9</b>	%	
$F_{GAS}$			$R_{PRIM}$	<b>22</b>	%	
			$R_{SCRUB}$		%	
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>1.58E-02</b>	mg/l	
$T_{INCIN}$		days/wk	ASF	<b>10</b>	%	
			$Q_{IND}$	<b>26.229</b>	MGD	
			$Q_{IND2}$	<b>24.291</b>	MGD	

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} =$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = \quad 238.41 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = \quad 238.41 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter: **Copper**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + Q_{\text{DIL}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 117.35 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 82.92 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 1,123.43 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 494.22 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 494.22 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = 5891.48 \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A} \quad \text{lbs/day}$$

$$L_{\text{MAHL}} = \text{minimum} (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 238.41 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter: **Copper**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = \quad 69 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} - L_{\text{BKGD}}) * (1 - \text{ASF}) \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = \quad 145 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = \quad 0.66 \quad \text{mg/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = \quad 69 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} - L_{\text{BKGD}}) * (1 - \text{ASF})$$

$$L_{\text{AVAILABLE}} = \quad 145 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND2}} * 8.337)$$

$$C_{\text{MAHL}} = \quad 0.72 \quad \text{mg/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter: **Lead**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$	<b>0.220</b>	mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$	<b>1.100</b>	mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$	<b>25.35</b>	ug/l
			$C_{FAV}$	<b>247.59</b>	ug/l
			$C_{INHIB}$	<b>1</b>	mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>61</b>	%
$F_{SORP}$	<b>1</b>		$R_{MIN}$	<b>39.0</b>	%
$F_{GAS}$	<b>1</b>		$R_{PRIM}$	<b>57</b>	%
			$R_{SCRUB}$	<b>98.62</b>	%
$M_{AIR}$	<b>5.47E+04</b>	gms/day	$C_{BACKGROUND}$	<b>4.20E-03</b>	mg/l
$T_{INCIN}$	<b>7.00E+00</b>	days/wk	ASF	<b>10</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>24.981</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 2,592.25$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 8,286.70 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = 2,592.25 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter:           **Lead**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + Q_{\text{DIL}}]/Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = \quad 324.04 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = \quad 742.77 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}}/1000]/[1-R_{\text{AVG}}*F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = \quad 3,818.20 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}}/1000]/[1-R_{\text{MIN}}*F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = \quad 5,595.56 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = \quad 3,818.20 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}}/[1-R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = \quad 10,686.87 \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}}/7)]/[R_{\text{AVG}}*F_{\text{SORP}} * (1-R_{\text{DIG}})*F_{\text{GAS}} * (1-R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \quad 679.46 \quad \text{lbs/day}$$

$$L_{\text{MAHL}} = \text{minimum} (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = \quad 679.46 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter:           **Lead**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = \quad 18 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} * (1-\text{ASF})) - L_{\text{BKGD}} \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = \quad 593 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = \quad 2.71 \quad \text{mg/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = \quad 18 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} * (1-\text{ASF})) - L_{\text{BKGD}}$$

$$L_{\text{AVAILABLE}} = \quad 593 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND2}} * 8.337)$$

$$C_{\text{MAHL}} = \quad 2.85 \quad \text{mg/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter: **Mercury**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$	<b>3.00E-06</b>	mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$	<b>0.77</b>	ug/l
			$C_{FAV}$	<b>2.8</b>	ug/l
			$C_{INHIB}$	<b>0.1</b>	mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>94.5</b>	%
$F_{SORP}$	<b>1</b>		$R_{MIN}$	<b>93.1</b>	%
$F_{GAS}$	<b>1</b>		$R_{PRIM}$	<b>10</b>	%
			$R_{SCRUB}$	<b>90</b>	%
$M_{AIR}$	<b>3.20E+03</b>	gms/day	$C_{BACKGROUND}$	<b>4.07E-05</b>	mg/l
$T_{INCIN}$	<b>7.00E+00</b>	days/wk	ASF	<b>10</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>25.36</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 0.25$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = \text{n/a} \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAVG}, L_{DMAX})$$

$$L_{MAX1} = 0.25 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter: **Mercury**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 18.16 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 8.40 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 1,517.58 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 559.43 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 559.43 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = 510.5949333 \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = 74.6 \quad \text{lbs/day}$$

$$L_{\text{MAHL}} = \text{minimum} (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 0.25 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter: **Mercury**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.1780 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} * (1-\text{ASF})) - L_{\text{BKGD}} \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = 0.05 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = 0.0002 \quad \text{mg/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.1783 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} * (1-\text{ASF})) - L_{\text{BKGD}}$$

$$L_{\text{AVAILABLE}} = 0.05 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND2}} * 8.337)$$

$$C_{\text{MAHL}} = 0.00022 \quad \text{mg/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter: **Nickel**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$	<b>53.32</b>	ug/l
			$C_{FAV}$	<b>960.18</b>	ug/l
			$C_{INHIB}$	<b>1</b>	mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>55.4</b>	%
$F_{SORP}$	<b>1</b>		$R_{MIN}$	<b>3.7</b>	%
$F_{GAS}$	<b>1</b>		$R_{PRIM}$	<b>14</b>	%
			$R_{SCRUB}$	<b>99.84</b>	%
$M_{AIR}$	<b>7.29E+05</b>	gms/day	$C_{BACKGROUND}$	<b>5.80E-03</b>	mg/l
$T_{INCIN}$	<b>7.00E+00</b>	days/wk	ASF	<b>10</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>21.182</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 0.00$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 0.00 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = \text{N/A} \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter: **Nickel**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + Q_{\text{DIL}}]/Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 681.58 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 2,880.54 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}}/1000]/[1-R_{\text{AVG}}*F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 7,022.64 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}}/1000]/[1-R_{\text{MIN}}*F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 13,745.69 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 7,022.64 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}}/[1-R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = 5,343.44 \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}}/7)]/[R_{\text{AVG}}*F_{\text{SORP}} * (1-R_{\text{DIG}})*F_{\text{GAS}} * (1-R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = 1,811,514.97 \quad \text{lbs/day}$$

$$L_{\text{MAHL}} = \text{minimum} (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 5,343.44 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter: **Nickel**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 25 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} - L_{\text{BKGD}}) * (1 - \text{ASF}) \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = 4,786 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = 21.89 \quad \text{mg/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 26 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} - L_{\text{BKGD}}) * (1 - \text{ASF})$$

$$L_{\text{AVAILABLE}} = 4,786 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = 27.10 \quad \text{mg/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter: **Silver**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$	<b>0.015</b>	mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$	<b>0.022</b>	mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$	<b>0.06</b>	ug/l
			$C_{FAV}$	<b>1.1</b>	ug/l
			$C_{INHIB}$		mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>75.0</b>	%
$F_{SORP}$			$R_{MIN}$	<b>50.0</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>20.0</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>1.03E-02</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>10</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>14.736</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 275.72$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 202.20 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = 202.20 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter: **Silver**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + Q_{\text{DIL}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 0.77 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 3.30 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 14.10 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 30.33 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 14.10 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = \text{N/A} \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A} \quad \text{lbs/day}$$

$$L_{\text{MAHL}} = \text{minimum} (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 14.10 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter: **Silver**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 45 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} * (1-\text{ASF})) - L_{\text{BKGD}} \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = -32 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = -0.15 \quad \text{mg/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 46 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} * (1-\text{ASF})) - L_{\text{BKGD}}$$

$$L_{\text{AVAILABLE}} = -33 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND2}} * 8.337)$$

$$C_{\text{MAHL}} = -0.27 \quad \text{mg/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter: **Zinc**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$	<b>0.490</b>	mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$	<b>118.14</b>	ug/l
			$C_{FAV}$	<b>234.36</b>	ug/l
			$C_{INHIB}$	<b>0.5</b>	mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>82.9</b>	%
$F_{SORP}$			$R_{MIN}$	<b>68.7</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>27</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>5.87E-02</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>10</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>24.668</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} =$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = \quad 7,194.01 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = \quad 7,194.01 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter:           **Zinc**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + Q_{\text{DIL}}]/Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 1,510.16 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 703.08 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}}/1000]/[1-R_{\text{AVG}}*F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 40,583.15 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}}/1000]/[1-R_{\text{MIN}}*F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 10,322.37 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 10,322.37 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}}/[1-R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = 3,147.50 \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}}/7)]/[R_{\text{AVG}}*F_{\text{SORP}} * (1-R_{\text{DIG}})*F_{\text{GAS}} * (1-R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A}$$

$$L_{\text{MAHL}} = \text{minimum} (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 3,147.50 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter:           **Zinc**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = \quad 257 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} * (1-\text{ASF})) - L_{\text{BKGD}} \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = \quad 2,576 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = \quad 11.78 \quad \text{mg/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = \quad 258 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} * (1-\text{ASF})) - L_{\text{BKGD}}$$

$$L_{\text{AVAILABLE}} = \quad 2,575 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = \quad 12.52 \quad \text{mg/l}$$

The following pages present the revised Pollutant Calculations used to determine the 2021 MAHL and the respective pollutant limitations using the Uniform Allocation Method and Industrial User Allocation Method for Available Cyanide based upon the April 2021 EGLE memorandum received in September 2021.

Parameter: Avail CN

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$	<b>4.40E-02</b>	mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$	<b>5.2</b>	ug/l
			$C_{FAV}$	<b>44</b>	ug/l
			$C_{INHIB}$	<b>2</b>	mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>69.0</b>	%
$F_{SORP}$			$R_{MIN}$	<b>41.0</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>27.0</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>1.72E-03</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>10</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>24.302</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} =$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 342.70 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = 342.70 \quad \text{lbs/day}$$

### Aquatic Toxicity Pass-Through

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + Q_{\text{DIL}}]/Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 66.47 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 132.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}}/1000]/[1-R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 985.34 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}}/1000]/[1-R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 1,028.11 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 985.34 \quad \text{lbs/day}$$

### Secondary Treatment Inhibition

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}}/[1-R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = 12,590.01 \quad \text{lbs/day}$$

### Sludge Quality for Incineration

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}}/7)]/[R_{\text{AVG}} * F_{\text{SORP}} * (1-R_{\text{DIG}}) * F_{\text{GAS}} * (1-R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A} \quad \text{lbs/day}$$

$$L_{\text{MAHL}} = \text{minimum } (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 342.70 \quad \text{lbs/day}$$

### Uniform Allocation Method

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = \quad 8 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} * (1-\text{ASF})) - L_{\text{BKGD}} \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = \quad 301 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = \quad 1.38 \quad \text{mg/l}$$

### Industrial Method

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = \quad 8 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} * (1-\text{ASF})) - L_{\text{BKGD}}$$

$$L_{\text{AVAILABLE}} = \quad 301 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = \quad 1.49 \quad \text{mg/l}$$

The following pages present the input values and results of the Pollutant calculations to determine the MAHL and the respective pollutant limitations using the Uniform Allocation Method and Industrial user Allocation Method

Two groups of organic chemicals have been evaluated, namely Total PCBs and Total Phenols. Total PCBs has been defined locally as the summation of the following PCB aroclors 1016, 1221, 1232, 1242, 1254, and 1260. Although these compounds have been banned since 1972, they represent persistent chemicals which are still detected occasionally at the wastewater plant's headworks and from User discharges.

The second group evaluates seven (7) phenolic compounds which have industrial applications and can have toxic effects on a wastewater treatment plant's discharge. The phenolic compounds include the following:

2-Chlorophenol

4-Chlorophenol

4 Chloro—3 Methylphenol

2,4 Dinitrophenol

2,4 Dichlorophenol

4 Methylphenol

Phenol

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter: **Total PCB**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$	<b>2.60E-05</b>	mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10,958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$		ug/l
			$C_{FAV}$		ug/l
			$C_{INHIB}$		mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>0</b>	%
$F_{SORP}$			$R_{MIN}$	<b>0</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>0</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>0.00E+00</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>10</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>0.91788</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 1.19E-01$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = 0.12 \text{ lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 0.00 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 0.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = \text{N/A} \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = \text{N/A} \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = \text{N/A} \quad \text{lbs/day}$$

---

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = \text{N/A} \quad \text{lbs/day}$$

---

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A}$$

---

$$L_{\text{MAHL}} = \text{minimum}(L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 0.12 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.00\text{E}+00 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} * (1-\text{ASF})) - L_{\text{BKGD}} \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = 0.107531 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = \quad \mathbf{0.00049} \quad \text{mg/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.00\text{E}+00$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} * (1-\text{ASF})) - L_{\text{BKGD}}$$

$$L_{\text{AVAILABLE}} = 0.107531$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND2}} * 8.337)$$

$$C_{\text{MAHL}} = \quad \mathbf{1.41\text{E}-02} \quad \text{mg/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter: **Total Phenols**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10,958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$	<b>90</b>	ug/l
			$C_{FAV}$	<b>75</b>	ug/l
			$C_{INHIB}$		mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>59.8</b>	%
$F_{SORP}$			$R_{MIN}$	<b>35.9</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>8</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>7.20E-02</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>10</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>20.302</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 0.00$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 0.00 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter: **Total Phenols**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 2,122.98 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 225.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 24,268.3 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 1,613.0 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 1,613.0 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = \text{N/A} \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A}$$

$$L_{\text{MAHL}} = \text{minimum} (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 1,613.03 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter: **Total Phenols**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 315 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - L_{\text{BKGD}} \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = 1,137 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = 5.20 \quad \text{mg/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 319$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - L_{\text{BKGD}}$$

$$L_{\text{AVAILABLE}} = 1,133$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND2}} * 8.337)$$

$$C_{\text{MAHL}} = 6.69 \quad \text{mg/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter: 2-Chlorophenol

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10,958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$	<b>18</b>	ug/l
			$C_{FAV}$	<b>320</b>	ug/l
			$C_{INHIB}$	<b>5</b>	mg/l
$F_{NONVOL}$			$R_{AVG}$	<b>90.0</b>	%
$F_{SORP}$			$R_{MIN}$	<b>75.0</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>0</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>0.00E+00</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>10</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>26.229</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 0.00$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 0.00 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = \text{N/A} \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 424.60 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 960.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 1,951.17 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 4,411.54 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 1,951.17 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = 22,976.8 \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A}$$

$$L_{\text{MAHL}} = \text{minimum } (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 1,951.17 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUN}} = 0 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - L_{\text{BKGD}} \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = 1,756 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = 8.03 \quad \text{mg/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUN}} = 0$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - L_{\text{BKGD}}$$

$$L_{\text{AVAILABLE}} = 1,756$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND2}} * 8.337)$$

$$C_{\text{MAHL}} = 8.03 \quad \text{mg/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter: 4-Chlorophenol

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10,958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$	<b>30</b>	ug/l
			$C_{FAV}$	<b>530</b>	ug/l
			$C_{INHIB}$		mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>90.0</b>	%
$F_{SORP}$			$R_{MIN}$	<b>75.0</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>0</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>0.00E+00</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>10</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>26.229</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 0.00$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 0.00 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = \text{N/A} \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 707.66 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 1,590.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 32,519.54 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 29,226.45 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 29,226.45 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = \text{n/a} \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A}$$

$$L_{\text{MAHL}} = \text{minimum} (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 29,226.45 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUN}} = 0 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} * (1-\text{ASF})) - L_{\text{BKGD}} \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = 26,304 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = 120.29 \quad \text{mg/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUN}} = 0$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - L_{\text{BKGD}}$$

$$L_{\text{AVAILABLE}} = 26,304$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND2}} * 8.337)$$

$$C_{\text{MAHL}} = 120.29 \quad \text{mg/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter: 4-Chloro-3-Methylphenol

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10,958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$	<b>7.4</b>	ug/l
			$C_{FAV}$	<b>130</b>	ug/l
			$C_{INHIB}$		mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>90.0</b>	%
$F_{SORP}$			$R_{MIN}$	<b>75.0</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>0</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>0.00E+00</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>10</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>26.229</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 0.00$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 0.00 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = \text{N/A} \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 174.56 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 390.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 8,021.49 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 7,168.75 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 7,168.75 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} =$$

$$L_{\text{MAHL}} = \text{minimum} (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 7,168.75 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUN}} = 0 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} * (1-\text{ASF})) - L_{\text{BKGD}} \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = 6,452 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = 29.50 \quad \text{mg/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUN}} = 0$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} * (1-\text{ASF})) - L_{\text{BKGD}}$$

$$L_{\text{AVAILABLE}} = 6,452$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND2}} * 8.337)$$

$$C_{\text{MAHL}} = 29.50 \quad \text{mg/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter: 2,4-Dichlorophenol

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10,958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$	<b>11</b>	ug/l
			$C_{FAV}$	<b>180</b>	ug/l
			$C_{INHIB}$	<b>64</b>	mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>90.0</b>	%
$F_{SORP}$			$R_{MIN}$	<b>75.0</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>0</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>0.00E+00</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>10</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>26.229</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 0.00$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 0.00 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = \text{N/A} \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 259.48 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 540.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 11,923.83 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 9,925.97 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 9,925.97 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = 294,102.7 \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A}$$

$$L_{\text{MAHL}} = \text{minimum } (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 9,925.97 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUN}} = 0 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - \text{LBKGD} \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = 8,933 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = 40.85 \quad \text{mg/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUN}} = 0$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - \text{LBKGD}$$

$$L_{\text{AVAILABLE}} = 8,933$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND2}} * 8.337)$$

$$C_{\text{MAHL}} = 40.85 \quad \text{mg/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter: 2,4-Dinitrophenol

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10,958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$	<b>19</b>	ug/l
			$C_{FAV}$	<b>270</b>	ug/l
			$C_{INHIB}$		mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>90.0</b>	%
$F_{SORP}$			$R_{MIN}$	<b>75.0</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>0</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>0.00E+00</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>10</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>26.229</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 0.00$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 0.00 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = \text{N/A} \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 448.19 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 810.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 20,595.71 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 14,888.95 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 14,888.95 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \quad \text{N/A}$$

$$L_{\text{MAHL}} = \text{minimum} (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 14,888.95 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUN}} = 0 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - \text{LBKGD} \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = 13,400 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = 61.28 \quad \text{mg/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUN}} = 0$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - \text{LBKGD}$$

$$L_{\text{AVAILABLE}} = 13,400$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND2}} * 8.337)$$

$$C_{\text{MAHL}} = 61.28 \quad \text{mg/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter: 4-Methylphenol

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10,958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$	<b>25</b>	ug/l
			$C_{FAV}$	<b>450</b>	ug/l
			$C_{INHIB}$		mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>90.0</b>	%
$F_{SORP}$			$R_{MIN}$	<b>75.0</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>0</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>0.00E+00</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>10</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>26.229</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 0.00$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 0.00 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = \quad \quad \quad \text{N/A} \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 589.72 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 1,350.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 27,099.62 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 24,814.91 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 24,814.91 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = \text{N/A} \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A}$$

$$L_{\text{MAHL}} = \text{minimum}(L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 24,814.91 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUN}} = 0 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} * (1-\text{ASF})) - L_{\text{BKGD}} \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = 22,333 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = 102.13 \quad \text{mg/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUN}} = 0$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} * (1-\text{ASF})) - L_{\text{BKGD}}$$

$$L_{\text{AVAILABLE}} = 22,333$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND2}} * 8.337)$$

$$C_{\text{MAHL}} = 102.13 \quad \text{mg/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter: Phenol

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10,958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$	<b>450</b>	ug/l
			$C_{FAV}$	<b>6800</b>	ug/l
			$C_{INHIB}$	<b>4</b>	mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>59.8</b>	%
$F_{SORP}$			$R_{MIN}$	<b>35.9</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>8</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>0.00E+00</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>10</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>26.229</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 0.00$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 0.00 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = \text{N/A} \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 10,614.92 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 20,400.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 121,341.58 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 146,248.41 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 121,341.58 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = 19,979.8 \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A}$$

$$L_{\text{MAHL}} = \text{minimum}(L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 19,979.80 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUN}} = 0 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} * (1-\text{ASF})) - L_{\text{BKGD}} \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = 17,982 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = 82.23 \quad \text{mg/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUN}} = 0$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} * (1-\text{ASF})) - L_{\text{BKGD}}$$

$$L_{\text{AVAILABLE}} = 17,982$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND2}} * 8.337)$$

$$C_{\text{MAHL}} = 82.23 \quad \text{mg/l}$$

The following pages present the input values and results of the Pollutant calculations to determine the MAHL and the respective pollutant limitations using the Uniform Allocation Method and Industrial user Allocation Method for the Compatible Pollutants, i.e.

Biochemical Oxygen Demand (BOD)

Total Suspended Solids (TSS)

Phosphorus (P)

Fats, Oils & Grease (FOG)

*Note: There are two sets of phosphorus calculations provided to represent the seasonal limitations included in the NPDES permit. However the more restrictive NPDES limit will be used as the basis of establishing the Local Pollutant Discharge Limitation.*

**2020 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter:                    **BOD**                    **Uniform Method**

Input Values:

Q <sub>WWTP</sub>	551.2	MGD
C <sub>30AVG</sub>	25	mg/l
C <sub>7AVG</sub>	40	
R <sub>AVG</sub>	94.7	%
R <sub>MIN</sub>	90.3	%
L <sub>DESIGN</sub>	1.69E+06	lbs/day
C <sub>BACKGROUND</sub>	55.7	mg/l
ASF	10	%
Q <sub>IND</sub>	26.229	MGD

$$L_{30AVG} = Q_{WWTP} * 8.337 * C_{30AVG} / [1 - R_{AVG}]$$

$$L_{30AVG} = \quad 2,167,620.00 \quad \text{lbs/day}$$

$$L_{7AVG} = Q_{WWTP} * 8.337 * C_{7AVG} / [1 - R_{MIN}]$$

$$L_{7AVG} = \quad 1,894,991.51 \quad \text{lbs/day}$$

$$L_{DESIGN} = \quad 1,690,000.00 \quad \text{lbs/day}$$

$$L_{MAHL} = \text{minimum} (L_{30AVG}, L_{7AVG}, L_{DESIGN})$$

$$L_{MAHL} = \quad \mathbf{1,690,000.00} \quad \text{lbs/day}$$

Uniform Allocation Method

$$L_{BACKGROUND} = Q_{BKGD} * C_{BKGD} * 8.337 \quad \text{lbs/day}$$

$$L_{BACKGROUND} = \quad 243,781 \quad \text{lbs/day}$$

$$L_{AVAILABLE} = (L_{MAHL}) * (1 - ASF) - L_{BKGD} \quad \text{lbs/day}$$

$$L_{AVAILABLE} = \quad 1,277,219 \quad \text{lbs/day}$$

$$C_{MAX} = L_{AVAIL} / (Q_{IND} * 8.337)$$

$$C_{MAX} = \quad \mathbf{5,840.8} \quad \text{mg/l}$$

**2020 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter:                    **BOD**                    **Industrial User Method**

Input Values:

$Q_{WWTP}$	551.2	MGD
$C_{30AVG}$	25	mg/l
$C_{7AVG}$	40	
$R_{AVG}$	94.7	%
$R_{MIN}$	90.3	%
$L_{DESIGN}$	1.69E+06	lbs/day
$C_{BACKGROUND}$	55.7	mg/l
ASF	10	%
$Q_{IND}$	12.34	MGD

$$L_{30AVG} = Q_{WWTP} * 8.337 * C_{30AVG} / [1 - R_{AVG}]$$

$$L_{30AVG} = \quad \quad \quad 2,167,620.00 \quad \text{lbs/day}$$

$$L_{7AVG} = Q_{WWTP} * 8.337 * C_{7AVG} / [1 - R_{MIN}]$$

$$L_{7AVG} = \quad \quad \quad 1,894,991.51 \quad \text{lbs/day}$$

$$L_{DESIGN} = \quad \quad \quad 1,690,000.00 \quad \text{lbs/day}$$

$$L_{MAHL} = \text{minimum} (L_{30AVG}, L_{7AVG}, L_{DESIGN})$$

$$L_{MAHL} = \quad \quad \quad \mathbf{1,690,000.00} \quad \text{lbs/day}$$

Industrial Contribution Method

$$L_{BACKGROUND} = Q_{BKGD} * C_{BKGD} * 8.337 \quad \quad \quad \text{lbs/day}$$

$$L_{BACKGROUND} = \quad \quad \quad 250,231 \quad \text{lbs/day}$$

$$L_{AVAILABLE} = (L_{MAHL}) * (1 - ASF) - L_{BKGD} \quad \quad \quad \text{lbs/day}$$

$$L_{AVAILABLE} = \quad \quad \quad 1,270,769 \quad \text{lbs/day}$$

$$C_{MAX} = L_{AVAIL} / (Q_{IND} * 8.337)$$

$$C_{MAX} = \quad \quad \quad \mathbf{12,352} \quad \text{mg/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter:                    **TSS**                    **Uniform Method**

Input Values:

$Q_{WWTP}$	551.2	MGD
$C_{30AVG}$	30	mg/l
$C_{7AVG}$	45	
$R_{AVG}$	95.1	%
$R_{MIN}$	92.4	%
$L_{DESIGN}$	2.23E+06	lbs/day
$C_{BACKGROUND}$	54.9	mg/l
ASF	10	%
$Q_{IND}$	26.229	MGD

$$L_{30AVG} = Q_{WWTP} * 8.337 * C_{30AVG} / [1 - R_{AVG}]$$

$$L_{30AVG} = \quad 2,813,482.29 \quad \text{lbs/day}$$

$$L_{7AVG} = Q_{WWTP} * 8.337 * C_{7AVG} / [1 - R_{MIN}]$$

$$L_{7AVG} = \quad 2,720,933.53 \quad \text{lbs/day}$$

$$L_{DESIGN} = \quad 2,230,000.00 \quad \text{lbs/day}$$

$$L_{MAHL} = \text{minimum} (L_{30AVG}, L_{7AVG}, L_{DESIGN})$$

$$L_{MAHL} = \quad \mathbf{2,230,000.00} \quad \text{lbs/day}$$

Uniform Allocation Method

$$L_{BACKGROUND} = Q_{BKGD} * C_{BKGD} * 8.337 \quad \text{lbs/day}$$

$$L_{BACKGROUND} = \quad 240,280 \quad \text{lbs/day}$$

$$L_{AVAILABLE} = (L_{MAHL}) * (1 - ASF) - L_{BKGD} \quad \text{lbs/day}$$

$$L_{AVAILABLE} = \quad 1,766,720 \quad \text{lbs/day}$$

$$C_{MAX} = L_{AVAIL} / (Q_{IND} * 8.337)$$

$$C_{MAX} = \quad \mathbf{8,079} \quad \text{mg/l}$$

2021 Local Limitations Re-evaluation  
Pollutant Calculation

Parameter: **TSS** Industrial Contribution Method

Input Values:

$Q_{WWTP}$	551.2	MGD
$C_{30AVG}$	30	mg/l
$C_{7AVG}$	45	
$R_{AVG}$	95.1	%
$R_{MIN}$	92.4	%
$L_{DESIGN}$	2,230,000	lbs/day
$C_{BACKGROUND}$	54.9	mg/l
ASF	10	%
$Q_{IND}$	10.81	MGD

$$L_{30AVG} = Q_{WWTP} * 8.337 * C_{30AVG} / [1 - R_{AVG}]$$

$$L_{30AVG} = \quad \quad \quad 2,813,482.29 \quad \quad \quad \text{lbs/day}$$

$$L_{7AVG} = Q_{WWTP} * 8.337 * C_{7AVG} / [1 - R_{MIN}]$$

$$L_{7AVG} = \quad \quad \quad 2,720,933.53 \quad \quad \quad \text{lbs/day}$$

$$L_{DESIGN} = \quad \quad \quad 2,230,000.00 \quad \quad \quad \text{lbs/day}$$

$$L_{MAHL} = \text{minimum} (L_{30AVG}, L_{7AVG}, L_{DESIGN})$$

$$L_{MAHL} = \quad \quad \quad \mathbf{2,230,000.00} \quad \quad \quad \text{lbs/day}$$

Industrial Contribution Method

$$L_{BACKGROUND} = Q_{BKGD} * C_{BKGD} * 8.337 \quad \quad \quad \text{lbs/day}$$

$$L_{BACKGROUND} = \quad \quad \quad 247,337 \quad \quad \quad \text{lbs/day}$$

$$L_{AVAILABLE} = (L_{MAHL}) * (1 - ASF) - L_{BKGD} \quad \quad \quad \text{lbs/day}$$

$$L_{AVAILABLE} = \quad \quad \quad 1,759,663 \quad \quad \quad \text{lbs/day}$$

$$C_{MAX} = L_{AVAIL} / (Q_{IND} * 8.337)$$

$$C_{MAX} = \quad \quad \quad \mathbf{19,525} \quad \quad \quad \text{mg/l}$$

Parameter:            **Phosphorus**                            Uniform Method

Input Values:

$Q_{WWTP}$	551.2	MGD
$C_{30AVG}$	0.6	mg/l
$R_{AVG}$	84.2	%
$R_{MIN}$	77.80	%
$L_{DESIGN}$	210,000.0	lbs/day
$C_{BACKGROUND}$	1.592	mg/l
ASF	10	%
$Q_{IND}$	26.229	MGD

$$L_{30AVG} = Q_{WWTP} * 8.337 * C_{30AVG} / [1 - R_{AVG}]$$

$$L_{30AVG} = 17,450.71 \quad \text{lbs/day}$$

$$L_{7AVG} = Q_{WWTP} * 8.337 * C_{7AVG} / [1 - R_{MIN}]$$

$$L_{7AVG} = \text{n/a} \quad \text{lbs/day}$$

$$L_{DESIGN} = 210,000.00 \quad \text{lbs/day}$$

$$L_{MAHL} = \text{minimum} (L_{30AVG}, L_{7AVG}, L_{DESIGN})$$

$$L_{MAHL} = 17,450.71 \quad \text{lbs/day}$$

**Uniform Allocation Method**

$$L_{BACKGROUND} = Q_{BKGD} * C_{BKGD} * 8.337 \quad \text{lbs/day}$$

$$L_{BACKGROUND} = 6,968 \quad \text{lbs/day}$$

$$L_{AVAILABLE} = (L_{MAHL}) * (1 - ASF) - LBKGD \quad \text{lbs/day}$$

$$L_{AVAILABLE} = 8,738 \quad \text{lbs/day}$$

$$C_{MAX} = L_{AVAIL} / (Q_{IND} * 8.337)$$

$$C_{MAX} = 40 \quad \text{mg/l}$$

Parameter:            **Phosphorus**                            **Industrial Contribution Method**

Input Values:

$Q_{WWTP}$	551.2	MGD
$C_{30AVG}$	0.6	mg/l
$R_{AVG}$	84.2	%
$R_{MIN}$	77.80	%
$L_{DESIGN}$	210,000.0	lbs/day
$C_{BACKGROUND}$	1.592	mg/l
ASF	10	%
$Q_{IND}$	8.02	MGD

$$L_{30AVG} = Q_{WWTP} * 8.337 * C_{30AVG} / [1 - R_{AVG}]$$

$$L_{30AVG} = \quad 17,450.71 \quad \text{lbs/day}$$

$$L_{7AVG} = Q_{WWTP} * 8.337 * C_{7AVG} / [1 - R_{MIN}]$$

$$L_{7AVG} = \quad \text{N/A} \quad \text{lbs/day}$$

$$L_{DESIGN} = \quad 210,000.00 \quad \text{lbs/day}$$

$$L_{MAHL} = \text{minimum} (L_{30AVG}, L_{7AVG}, L_{DESIGN})$$

$$L_{MAHL} = \quad \mathbf{17,450.71} \quad \text{lbs/day}$$

Industrial Contribution Method

$$L_{BACKGROUND} = Q_{BKGD} * C_{BKGD} * 8.337 \quad \text{lbs/day}$$

$$L_{BACKGROUND} = \quad 7,209 \quad \text{lbs/day}$$

$$L_{AVAILABLE} = (L_{MAHL}) * (1 - ASF) - L_{BKGD} \quad \text{lbs/day}$$

$$L_{AVAILABLE} = \quad 8,496 \quad \text{lbs/day}$$

$$C_{MAX} = L_{AVAIL} / (Q_{IND} * 8.337)$$

$$C_{MAX} = \quad \mathbf{127} \quad \text{mg/l}$$

**2020 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter:           **Phosphorus**                            **Uniform Method**

Input Values:

Q <sub>WWTP</sub>	551.2	MGD
C <sub>30AVG</sub>	0.7	mg/l
R <sub>AVG</sub>	84.2	%
R <sub>MIN</sub>	77.80	%
L <sub>DESIGN</sub>	210,000.0	lbs/day
C <sub>BACKGROUND</sub>	1.592	mg/l
ASF	10	%
Q <sub>IND</sub>	26.229	MGD

$$L_{30AVG} = Q_{WWTP} * 8.337 * C_{30AVG} / [1 - R_{AVG}]$$

$$L_{30AVG} = \quad 20,359.17 \quad \text{lbs/day}$$

$$L_{7AVG} = Q_{WWTP} * 8.337 * C_{7AVG} / [1 - R_{MIN}]$$

$$L_{7AVG} = \quad \text{n/a} \quad \text{lbs/day}$$

$$L_{DESIGN} = \quad 210,000.00 \quad \text{lbs/day}$$

$$L_{MAHL} = \text{minimum} (L_{30AVG}, L_{7AVG}, L_{DESIGN})$$

$$L_{MAHL} = \quad \mathbf{20,359.17} \quad \text{lbs/day}$$

**Uniform Allocation Method**

$$L_{BACKGROUND} = Q_{BKGD} * C_{BKGD} * 8.337 \quad \text{lbs/day}$$

$$L_{BACKGROUND} = \quad 6,968 \quad \text{lbs/day}$$

$$L_{AVAILABLE} = (L_{MAHL}) * (1 - ASF) - L_{BKGD} \quad \text{lbs/day}$$

$$L_{AVAILABLE} = \quad 11,356 \quad \text{lbs/day}$$

$$C_{MAX} = L_{AVAIL} / (Q_{IND} * 8.337)$$

$$C_{MAX} = \quad \mathbf{52} \quad \text{mg/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter:            **Phosphorus**                            **Industrial Contribution Method**

Input Values:

Q <sub>WWTP</sub>	551.2	MGD
C <sub>30AVG</sub>	0.7	mg/l
R <sub>AVG</sub>	84.2	%
R <sub>MIN</sub>	77.80	%
L <sub>DESIGN</sub>	210,000.0	lbs/day
C <sub>BACKGROUND</sub>	1.592	mg/l
ASF	10	%
Q <sub>IND</sub>	8.02	MGD

$$L_{30AVG} = Q_{WWTP} * 8.337 * C_{30AVG} / [1 - R_{AVG}]$$

$$L_{30AVG} = \quad 20,359.17 \quad \text{lbs/day}$$

$$L_{7AVG} = Q_{WWTP} * 8.337 * C_{7AVG} / [1 - R_{MIN}]$$

$$L_{7AVG} = \quad \text{N/A} \quad \text{lbs/day}$$

$$L_{DESIGN} = \quad 210,000.00 \quad \text{lbs/day}$$

$$L_{MAHL} = \text{minimum} (L_{30AVG}, L_{7AVG}, L_{DESIGN})$$

$$L_{MAHL} = \quad \mathbf{20,359.17} \quad \text{lbs/day}$$

Industrial Contribution Method

$$L_{BACKGROUND} = Q_{BKGD} * C_{BKGD} * 8.337 \quad \text{lbs/day}$$

$$L_{BACKGROUND} = \quad 7,209 \quad \text{lbs/day}$$

$$L_{AVAILABLE} = (L_{MAHL}) * (1 - ASF) - L_{BKGD} \quad \text{lbs/day}$$

$$L_{AVAILABLE} = \quad 11,114 \quad \text{lbs/day}$$

$$C_{MAX} = L_{AVAIL} / (Q_{IND} * 8.337)$$

$$C_{MAX} = \quad \mathbf{166} \quad \text{mg/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter:	<b>FOG</b>	<u><b>Uniform Method</b></u>	
Input Values:			
	$Q_{WWTP}$	551.2	MGD
	$C_{30AVG}$		mg/l
	$C_{7AVG}$	15	
	$R_{AVG}$	65.3	%
	$R_{MIN}$	53.9	%
	$L_{DESIGN}$		lbs/day
	$C_{BACKGROUND}$	14.447	mg/l
	ASF	10	%
	$Q_{IND}$	26.229	MGD

$$L_{30AVG} = Q_{WWTP} * 8.337 * C_{30AVG} / [1 - R_{AVG}]$$

$$L_{30AVG} = \quad \quad \quad n/a \quad \quad \quad lbs/day$$

$$L_{7AVG} = Q_{WWTP} * 8.337 * C_{7AVG} / [1 - R_{MIN}]$$

$$L_{7AVG} = \quad \quad \quad 149,523.46 \quad \quad \quad lbs/day$$

$$L_{DESIGN} = \quad \quad \quad n/a \quad \quad \quad lbs/day$$

$$L_{MAHL} = \text{minimum} (L_{30AVG}, L_{7AVG}, L_{DESIGN})$$

$$L_{MAHL} = \quad \quad \quad \mathbf{149,523.46} \quad \quad \quad lbs/day$$

**Uniform Allocation Method**

$$L_{BACKGROUND} = Q_{BKGD} * C_{BKGD} * 8.337 \quad \quad \quad lbs/day$$

$$L_{BACKGROUND} = \quad \quad \quad 63,230 \quad \quad \quad lbs/day$$

$$L_{AVAILABLE} = (L_{MAHL}) * (1 - ASF) - LBKGD \quad \quad \quad lbs/day$$

$$L_{AVAILABLE} = \quad \quad \quad 71,341 \quad \quad \quad lbs/day$$

$$C_{MAX} = L_{AVAIL} / (Q_{IND} * 8.337)$$

$$C_{MAX} = \quad \quad \quad \mathbf{326} \quad \quad \quad mg/l$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

Parameter:                    **FOG**                                    **Industrial Contribution Method**

Input Values:

$Q_{WWTP}$	551.2	MGD
$C_{30AVG}$		mg/l
$C_{7AVG}$	15	
$R_{AVG}$	65.3	%
$R_{MIN}$	53.9	%
$L_{DESIGN}$		lbs/day
$C_{BACKGROUND}$	14.447	mg/l
ASF	10	%
$Q_{IND}$	7.56	MGD

$$L_{30AVG} = Q_{WWTP} * 8.337 * C_{30AVG} / [1 - R_{AVG}]$$

$$L_{30AVG} = \quad \quad \quad n/a \quad \quad \quad lbs/day$$

$$L_{7AVG} = Q_{WWTP} * 8.337 * C_{7AVG} / [1 - R_{MIN}]$$

$$L_{7AVG} = \quad \quad \quad 149,523.46 \quad \quad \quad lbs/day$$

$$L_{DESIGN} = \quad \quad \quad n/a \quad \quad \quad lbs/day$$

$$L_{MAHL} = \text{minimum} (L_{30AVG}, L_{7AVG}, L_{DESIGN})$$

$$L_{MAHL} = \quad \quad \quad \mathbf{149,523.46} \quad \quad \quad lbs/day$$

Industrial Contribution Method

$$L_{BACKGROUND} = Q_{BKGD} * C_{BKGD} * 8.337 \quad \quad \quad lbs/day$$

$$L_{BACKGROUND} = \quad \quad \quad 65,479 \quad \quad \quad lbs/day$$

$$L_{AVAILABLE} = (L_{MAHL}) * (1 - ASF) - L_{BKGD} \quad \quad \quad lbs/day$$

$$L_{AVAILABLE} = \quad \quad \quad 69,093 \quad \quad \quad lbs/day$$

$$C_{MAX} = L_{AVAIL} / (Q_{IND} * 8.337)$$

$$C_{MAX} = \quad \quad \quad \mathbf{1,096} \quad \quad \quad mg/l$$

The following pages present the input values and results of the Pollutant calculations to determine the MAHL and the respective pollutant limitations using the Uniform Allocation Method and Industrial user Allocation Method for Per- and Poly- Fluoroalkyl Substances.

The study used the Michigan EGLE PFAS list (originally 24 then 28 parameters). Additionally,

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Parameter: PFOS**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$	<b>0.000011</b>	mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10,958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$	<b>140</b>	ug/l
			$C_{FAV}$	<b>1600</b>	ug/l
			$C_{INHIB}$		mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>0</b>	%
$F_{SORP}$			$R_{MIN}$	<b>0</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>0</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>9.18333E-06</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>10</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>4.89</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} =$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 5.05E-02 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = 5.05E-02 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 3,302.42 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 4,800.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 15,175.79 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 22,057.70 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 15,175.79 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = \text{N/A} \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A}$$

$$L_{\text{MAHL}} = \text{minimum}(L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 0.0505 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.04019 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - L_{\text{BKGD}} \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = 0.00530 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = 0.0000242 \quad \text{mg/l}$$

<b>24.24 ngm/l</b>
--------------------

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.04183$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - L_{\text{BKGD}}$$

$$L_{\text{AVAILABLE}} = 0.00266 \quad \text{lbs}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

<b>65.167519 ng/l</b>
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$$C_{\text{MAHL}} = 0.0000652 \quad \text{mg/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Parameter: PFOA**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$	<b>8.04E-03</b>	mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$	<b>15</b>	mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10,958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$	<b>880</b>	ug/l
			$C_{FAV}$	<b>15000</b>	ug/l
			$C_{INHIB}$		mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>0</b>	%
$F_{SORP}$			$R_{MIN}$	<b>0</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>0</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>0.00000433</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>12</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>4.89</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 36.9466$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 68,930.3160 \text{ lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = 36.9466 \text{ lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 20,758.06 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 45,000.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 95,390.66 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 206,790.95 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 95,390.66 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = \text{N/A} \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A}$$

$$L_{\text{MAHL}} = \text{minimum} (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 36.95 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.01895 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1 - \text{ASF}) - L_{\text{BKGD}} \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = 32.49410 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = 0.14859801 \quad \text{mg/l}$$

<b>148,598.01 ngm/l</b>
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**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.01972$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1 - \text{ASF}) - L_{\text{BKGD}}$$

$$L_{\text{AVAILABLE}} = 32.4933 \quad \text{lbs}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND2}} * 8.337)$$

<b>797,031.64 ng/l</b>
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$$C_{\text{MAHL}} = 0.7970316 \quad \text{mg/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Parameter: PFPeA**

**Input Values:**

Q <sub>WWTP</sub>	<b>551.2</b>	MGD	C <sub>MAVG</sub>		mg/l
Q <sub>MAX</sub>	<b>930</b>	MGD	C <sub>DMAX</sub>		mg/l
Q <sub>95EX</sub>	<b>84030</b>	MGD			
Q <sub>DIL</sub>	<b>10,958</b>	MGD			
Q <sub>BKGD</sub>	<b>524.971</b>		C <sub>ACV</sub>		ug/l
			C <sub>FAV</sub>		ug/l
			C <sub>INHIB</sub>		mg/l
F <sub>NONVOL</sub>	<b>1</b>		R <sub>AVG</sub>	<b>0</b>	%
F <sub>SORP</sub>			R <sub>MIN</sub>	<b>0</b>	%
F <sub>GAS</sub>			R <sub>PRIM</sub>	<b>0</b>	%
			R <sub>SCRUB</sub>		%
M <sub>AIR</sub>		gms/day	C <sub>BACKGROUND</sub>	<b>9.18333E-06</b>	mg/l
T <sub>INCIN</sub>		days/wk	ASF	<b>12</b>	%
			Q <sub>IND</sub>	<b>26.229</b>	MGD
			Q <sub>IND2</sub>	<b>4.89</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 0.0000$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 0.0000 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = 0.0000 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 0.00 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 0.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 0.00 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = \text{N/A} \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A}$$

$$L_{\text{MAHL}} = \text{minimum} (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 0.0000 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.04019 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - L_{\text{BKGD}} \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = -0.04019 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = -0.0001838 \quad \text{mg/l} \quad (183.80) \quad \text{ngm/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.04183$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - L_{\text{BKGD}}$$

$$L_{\text{AVAILABLE}} = -0.0418 \quad \text{lbs}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND2}} * 8.337) \quad -1025.9605 \quad \text{ng/l}$$

$$C_{\text{MAHL}} = -0.0010260 \quad \text{mg/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Parameter: PFPeS**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10,958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$		ug/l
			$C_{FAV}$		ug/l
			$C_{INHIB}$		mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>0</b>	%
$F_{SORP}$			$R_{MIN}$	<b>0</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>0</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>0</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>12</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>4.89</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 0.0000$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 0.0000 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = 0.0000 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 0.00 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 0.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 0.00 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = \text{N/A} \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A}$$

$$L_{\text{MAHL}} = \text{minimum} (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 0.00 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.00000 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - L_{\text{BKGD}} \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = 0.00000 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = 0.00000000 \quad \text{mg/l} \quad \text{ngm/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.00000$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - L_{\text{BKGD}}$$

$$L_{\text{AVAILABLE}} = 0.0000 \quad \text{lbs}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND2}} * 8.337) \quad \text{ng/l}$$

$$C_{\text{MAHL}} = 0.0000000 \quad \text{mg/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Parameter: N-MeFOSAA**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10,958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$		ug/l
			$C_{FAV}$		ug/l
			$C_{INHIB}$		mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>0</b>	%
$F_{SORP}$			$R_{MIN}$	<b>0</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>0</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>0</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>12</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>4.89</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 0.0000$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 0.0000 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = 0.0000 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 0.00 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 0.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = \text{n/a} \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = \text{N/A} \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A}$$

$$L_{\text{MAHL}} = \text{minimum} (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 0.0000 \quad \text{lbs/day} \quad 0.00 \quad \text{gms}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.00000 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} - L_{\text{BKGD}}) * (1 - \text{ASF}) \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = 0.00000 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = 0.0000000 \quad \text{mg/l} \quad - \quad \text{ngm/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} - L_{\text{BKGD}}) * (1 - \text{ASF})$$

$$L_{\text{AVAILABLE}} = 0.000 \quad \text{lbs}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = 0.0000000 \quad \text{ug/l} \quad \text{ng/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Parameter: N-EtFOSAA**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10,958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$	<b>140</b>	ug/l
			$C_{FAV}$	<b>1600</b>	ug/l
			$C_{INHIB}$		mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>0</b>	%
$F_{SORP}$			$R_{MIN}$	<b>0</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>0</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>0</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>12</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>4.89</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 0.0000$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 0.0000 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = 0.0000 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 3,302.42 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 4,800.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 15,175.79 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 22,057.70 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 15,175.79 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = \text{N/A} \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A}$$

$$L_{\text{MAHL}} = \text{minimum}(L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 0.00\text{E}+00 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.00000 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - L_{\text{BKGD}} \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = 0.00000 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = 0.0000000 \quad \text{mg/l} \quad - \quad \text{ngm/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.00000$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - L_{\text{BKGD}}$$

$$L_{\text{AVAILABLE}} = 0.00000 \quad \text{lbs}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND2}} * 8.337) \quad \text{ng/l}$$

$$C_{\text{MAHL}} = 0.0000000 \quad \text{mg/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Parameter: PFOSA**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10,958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$		ug/l
			$C_{FAV}$		ug/l
			$C_{INHIB}$		mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>0</b>	%
$F_{SORP}$			$R_{MIN}$	<b>0</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>0</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>0</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>12</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>4.89</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 0.0000$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 0.0000 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = 0.0000 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 0.00 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 0.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 0.00 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = \text{N/A} \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A}$$

$$L_{\text{MAHL}} = \text{minimum} (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 0.00\text{E}+00 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.00000 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - L_{\text{BKGD}} \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = 0.00000 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = 0.00000000 \quad \text{mg/l} \quad - \quad \text{ngm/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.00000$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - L_{\text{BKGD}}$$

$$L_{\text{AVAILABLE}} = 0.0000 \quad \text{lbs}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND2}} * 8.337) \quad - \quad \text{ng/l}$$

$$C_{\text{MAHL}} = 0.00000000 \quad \text{mg/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Parameter: PFTeDoA**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10,958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$		ug/l
			$C_{FAV}$		ug/l
			$C_{INHIB}$		mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>0</b>	%
$F_{SORP}$			$R_{MIN}$	<b>0</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>0</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>0</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>12</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>4.89</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 0.0000$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 0.0000 \text{ lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = 0.0000 \text{ lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 0.00 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 0.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = \text{n/a} \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = \text{N/A} \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A}$$

$$L_{\text{MAHL}} = \text{minimum} (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 0.0000 \quad \text{lbs/day} \quad 0.00 \quad \text{gms}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.00000 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - L_{\text{BKGD}} \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = 0.00000 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = 0.0000000 \quad \text{mg/l} \quad - \quad \text{ngm/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - L_{\text{BKGD}}$$

$$L_{\text{AVAILABLE}} = 0.000 \quad \text{lbs}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND2}} * 8.337) \quad \text{ng/l}$$

$$C_{\text{MAHL}} = 0.0000000 \quad \text{ug/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Parameter: PFUnDA**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10,958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$		ug/l
			$C_{FAV}$		ug/l
			$C_{INHIB}$		mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>0</b>	%
$F_{SORP}$			$R_{MIN}$	<b>0</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>0</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>0</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>12</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>4.89</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 0.0000$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 0.0000 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = 0.0000 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 0.00 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 0.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 0.00 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = \text{N/A} \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A}$$

$$L_{\text{MAHL}} = \text{minimum}(L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 0.0000 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.00000 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} - L_{\text{BKGD}}) * (1 - \text{ASF}) \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = 0.00000 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = 0.0000000 \quad \text{mg/l} \quad - \quad \text{ngm/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.00000$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1 - \text{ASF}) - L_{\text{BKGD}}$$

$$L_{\text{AVAILABLE}} = 0.00000 \quad \text{lbs}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND2}} * 8.337) \quad \text{ng/l}$$

$$C_{\text{MAHL}} = 0.0000000 \quad \text{mg/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Parameter: PFDODA**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10,958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$		ug/l
			$C_{FAV}$		ug/l
			$C_{INHIB}$		mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>0</b>	%
$F_{SORP}$			$R_{MIN}$	<b>0</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>0</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>0</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>12</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>4.89</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 0.0000$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 0.0000 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = 0.0000 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 0.00 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 0.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 0.00 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = \text{N/A} \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A}$$

$$L_{\text{MAHL}} = \text{minimum} (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 0.00 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.00000 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} - L_{\text{BKGD}}) * (1 - \text{ASF}) \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = 0.00000 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = 0.00000000 \quad \text{mg/l} \quad - \quad \text{ngm/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.00000$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} - L_{\text{BKGD}}) * (1 - \text{ASF})$$

$$L_{\text{AVAILABLE}} = 0.0000 \quad \text{lbs}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = 0.00000000 \quad \text{mg/l} \quad - \quad \text{ng/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Parameter: PFTriDA**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10,958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$		ug/l
			$C_{FAV}$		ug/l
			$C_{INHIB}$		mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>0</b>	%
$F_{SORP}$			$R_{MIN}$	<b>0</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>0</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>0</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>12</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>4.89</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 0.0000$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 0.0000 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = 0.0000 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 0.00 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 0.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = \text{n/a} \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = \text{N/A} \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A}$$

$$L_{\text{MAHL}} = \text{minimum} (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 0.0000 \quad \text{lbs/day} \quad 0.00 \quad \text{gms}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.00000 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} - L_{\text{BKGD}}) * (1 - \text{ASF}) \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = 0.00000 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = 0.0000000 \quad \text{mg/l} \quad \text{ngm/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} - L_{\text{BKGD}}) * (1 - \text{ASF})$$

$$L_{\text{AVAILABLE}} = 0.000 \quad \text{lbs}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = 0.0000000 \quad \text{ug/l} \quad \text{ng/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Parameter: PFHxA**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10,958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$		ug/l
			$C_{FAV}$		ug/l
			$C_{INHIB}$		mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>0</b>	%
$F_{SORP}$			$R_{MIN}$	<b>0</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>0</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>6.31E-06</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>12</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>4.89</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 0.0000$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 0.0000 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = 0.0000 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 0.00 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 0.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 0.00 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = \text{N/A} \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A}$$

$$L_{\text{MAHL}} = \text{minimum}(L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 0.0000 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.02762 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} - L_{\text{BKGD}}) * (1 - \text{ASF}) \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = \quad \mathbf{0.0000000} \quad \text{mg/l} \quad - \quad \mathbf{ngm/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.02874$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} - L_{\text{BKGD}}) * (1 - \text{ASF})$$

$$L_{\text{AVAILABLE}} = \quad \text{lbs}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337) \quad \mathbf{0} \quad \text{ng/l}$$

$$C_{\text{MAHL}} = \quad \mathbf{0.0000000} \quad \text{mg/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Parameter: PFHpA**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10,958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$		ug/l
			$C_{FAV}$		ug/l
			$C_{INHIB}$		mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>0</b>	%
$F_{SORP}$			$R_{MIN}$	<b>0</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>0</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>1.62E-06</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>12</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>4.89</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 0.0000$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 0.0000 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = 0.0000 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 0.00 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 0.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 0.00 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = \text{N/A} \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A}$$

$$L_{\text{MAHL}} = \text{minimum} (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 0.00 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.00709 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} - L_{\text{BKGD}}) * (1 - \text{ASF}) \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = \quad \mathbf{0.00000000} \quad \text{mg/l} \quad - \quad \mathbf{\text{ngm/l}}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.00738$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} - L_{\text{BKGD}}) * (1 - \text{ASF})$$

$$L_{\text{AVAILABLE}} = \quad \text{lbs}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = \quad \mathbf{0.00000000} \quad \text{mg/l} \quad - \quad \text{ng/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Parameter: PFHxS**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10,958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$		ug/l
			$C_{FAV}$		ug/l
			$C_{INHIB}$		mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>0</b>	%
$F_{SORP}$			$R_{MIN}$	<b>0</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>0</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>4.80E-06</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>12</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>4.89</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 0.0000$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 0.0000 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = 0.0000 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 0.00 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 0.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = \text{n/a} \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = \text{N/A} \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A}$$

$$L_{\text{MAHL}} = \text{minimum} (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 0.0000 \quad \text{lbs/day} \quad 0.00 \quad \text{gms}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.02101 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} - L_{\text{BKGD}}) * (1 - \text{ASF}) \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = -0.01849 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = -0.0000845 \quad \text{mg/l} \quad (84.54) \quad \text{ngm/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} - L_{\text{BKGD}}) * (1 - \text{ASF})$$

$$L_{\text{AVAILABLE}} = -0.019 \quad \text{lbs}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337) \quad \# \text{REF!} \quad \text{ng/l}$$

$$C_{\text{MAHL}} = -0.4719046 \quad \text{ug/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Parameter: PFHpS**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10,958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$		ug/l
			$C_{FAV}$		ug/l
			$C_{INHIB}$		mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>0</b>	%
$F_{SORP}$			$R_{MIN}$	<b>0</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>0</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>0</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>12</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>4.89</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 0.0000$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 0.0000 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = 0.0000 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 0.00 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 0.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 0.00 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = \text{N/A} \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A}$$

$$L_{\text{MAHL}} = \text{minimum}(L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 0.0000 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.00000 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} - L_{\text{BKGD}}) * (1 - \text{ASF}) \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = 0.00000 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = 0.0000000 \quad \text{mg/l} \quad - \quad \text{ngm/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.00000$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} - L_{\text{BKGD}}) * (1 - \text{ASF})$$

$$L_{\text{AVAILABLE}} = 0.00000 \quad \text{lbs}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337) \quad 0 \quad \text{ng/l}$$

$$C_{\text{MAHL}} = 0.0000000 \quad \text{mg/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Parameter: 11CI-PF3OUdS**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10,958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$		ug/l
			$C_{FAV}$		ug/l
			$C_{INHIB}$		mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>0</b>	%
$F_{SORP}$			$R_{MIN}$	<b>0</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>0</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>0</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>12</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>4.89</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 0.0000$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 0.0000 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = 0.0000 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 0.00 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 0.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 0.00 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = \text{N/A} \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A}$$

$$L_{\text{MAHL}} = \text{minimum} (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 0.00 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.00000 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} - L_{\text{BKGD}}) * (1 - \text{ASF}) \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = 0.00000 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = 0.00000000 \quad \text{mg/l} \quad - \quad \text{ngm/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.00000$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} - L_{\text{BKGD}}) * (1 - \text{ASF})$$

$$L_{\text{AVAILABLE}} = 0.0000 \quad \text{lbs}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = 0.00000000 \quad \text{mg/l} \quad - \quad \text{ng/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Parameter: 9CI-PF3ONS**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10,958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$		ug/l
			$C_{FAV}$		ug/l
			$C_{INHIB}$		mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>0</b>	%
$F_{SORP}$			$R_{MIN}$	<b>0</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>0</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>0</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>12</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>4.89</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 0.0000$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 0.0000 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = 0.0000 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 0.00 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 0.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = \text{n/a} \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = \text{N/A} \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A}$$

$$L_{\text{MAHL}} = \text{minimum} (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 0.0000 \quad \text{lbs/day} \quad 0.00 \quad \text{gms}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.00000 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} - L_{\text{BKGD}}) * (1 - \text{ASF}) \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = 0.00000 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = 0.0000000 \quad \text{mg/l} \quad - \quad \text{ngm/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} - L_{\text{BKGD}}) * (1 - \text{ASF})$$

$$L_{\text{AVAILABLE}} = 0.000 \quad \text{lbs}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337) \quad \# \text{REF!} \quad \text{ng/l}$$

$$C_{\text{MAHL}} = 0.0000000 \quad \text{ug/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Parameter: ADONA**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10,958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$		ug/l
			$C_{FAV}$		ug/l
			$C_{INHIB}$		mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>0</b>	%
$F_{SORP}$			$R_{MIN}$	<b>0</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>0</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>0</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>12</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>4.89</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 0.0000$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 0.0000 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = 0.0000 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 0.00 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 0.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 0.00 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = \text{N/A} \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A}$$

$$L_{\text{MAHL}} = \text{minimum} (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 0.0000 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.00000 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} - L_{\text{BKGD}}) * (1 - \text{ASF}) \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = 0.00000 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = 0.0000000 \quad \text{mg/l} \quad - \quad \text{ngm/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.00000$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} - L_{\text{BKGD}}) * (1 - \text{ASF})$$

$$L_{\text{AVAILABLE}} = 0.00000 \quad \text{lbs}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337) \quad 0 \quad \text{ng/l}$$

$$C_{\text{MAHL}} = 0.0000000 \quad \text{mg/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Parameter: HFPO-DA**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10,958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$		ug/l
			$C_{FAV}$		ug/l
			$C_{INHIB}$		mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>0</b>	%
$F_{SORP}$			$R_{MIN}$	<b>0</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>0</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>0</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>12</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>4.89</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 0.0000$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 0.0000 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = 0.0000 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 0.00 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 0.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 0.00 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = \text{N/A} \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A}$$

$$L_{\text{MAHL}} = \text{minimum}(L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 0.00 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.00000 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - L_{\text{BKGD}} \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = 0.00000 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = 0.00000000 \quad \text{mg/l} \quad - \quad \text{ngm/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.00000$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - L_{\text{BKGD}}$$

$$L_{\text{AVAILABLE}} = 0.0000 \quad \text{lbs}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND2}} * 8.337) \quad - \quad \text{ng/l}$$

$$C_{\text{MAHL}} = 0.00000000 \quad \text{mg/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Parameter: 4:2 FTSA**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10,958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$		ug/l
			$C_{FAV}$		ug/l
			$C_{INHIB}$		mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>0</b>	%
$F_{SORP}$			$R_{MIN}$	<b>0</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>0</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>0</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>12</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>4.89</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 0.0000$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 0.0000 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = 0.0000 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 0.00 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 0.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = \text{n/a} \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = \text{N/A} \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A}$$

$$L_{\text{MAHL}} = \text{minimum} (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 0.0000 \quad \text{lbs/day} \quad 0.00 \quad \text{gms}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.00000 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - \text{LBKGD} \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = 0.00000 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = 0.0000000 \quad \text{mg/l} \quad - \quad \text{ngm/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - \text{LBKGD}$$

$$L_{\text{AVAILABLE}} = 0.0000 \quad \text{lbs}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND2}} * 8.337) \quad \text{ng/l}$$

$$C_{\text{MAHL}} = 0.0000000 \quad \text{ug/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Parameter: 6:2 FTSA**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10,958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$		ug/l
			$C_{FAV}$		ug/l
			$C_{INHIB}$		mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>0</b>	%
$F_{SORP}$			$R_{MIN}$	<b>0</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>0</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>1.51E-04</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>12</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>4.89</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 0.0000$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 0.0000 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = 0.0000 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 0.00 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 0.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 0.00 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = \text{N/A} \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A}$$

$$L_{\text{MAHL}} = \text{minimum} (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 0.0000 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.66088 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - L_{\text{BKGD}} \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = -0.66088 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = \quad \text{mg/l} \quad - \quad \text{ngm/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.68774$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}} - L_{\text{BKGD}}) * (1-\text{ASF}) - L_{\text{BKGD}}$$

$$L_{\text{AVAILABLE}} = -0.6877 \quad \text{lbs}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND2}} * 8.337) \quad \text{-16869.695 ng/l}$$

$$C_{\text{MAHL}} = \text{-0.0168697 mg/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Parameter: 8:2 FTSA**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10,958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$		ug/l
			$C_{FAV}$		ug/l
			$C_{INHIB}$		mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>0</b>	%
$F_{SORP}$			$R_{MIN}$	<b>0</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>0</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>3.30E-08</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>12</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>4.89</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 0.0000$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 0.0000 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = 0.0000 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 0.00 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 0.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 0.00 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = \text{N/A} \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A}$$

$$L_{\text{MAHL}} = \text{minimum} (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 0.00 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.00014 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - L_{\text{BKGD}} \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = -0.00014 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = -0.00000066 \quad \text{mg/l} \quad (0.66) \text{ ngm/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.00015$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - L_{\text{BKGD}}$$

$$L_{\text{AVAILABLE}} = -0.0002 \quad \text{lbs}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND2}} * 8.337)$$

$$C_{\text{MAHL}} = -0.00000037 \quad \text{mg/l} \quad (3.69) \text{ ng/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Parameter: PFBS**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10,958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$		ug/l
			$C_{FAV}$		ug/l
			$C_{INHIB}$		mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>0</b>	%
$F_{SORP}$			$R_{MIN}$	<b>0</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>0</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>1.06E-05</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>12</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>4.89</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 0.0000$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 0.0000 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = 0.0000 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 0.00 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 0.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = \text{n/a} \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = \text{N/A} \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A}$$

$$L_{\text{MAHL}} = \text{minimum} (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 0.0000 \quad \text{lbs/day} \quad 0.00 \quad \text{gms}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.04639 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - L_{\text{BKGD}} \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = -0.04639 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = -0.0002122 \quad \text{mg/l} \quad (212.16) \quad \text{ngm/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - L_{\text{BKGD}}$$

$$L_{\text{AVAILABLE}} = -0.0483 \quad \text{lbs}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND2}} * 8.337) \quad \# \text{REF!} \quad \text{ng/l}$$

$$C_{\text{MAHL}} = -1.1842303 \quad \text{ug/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Parameter: PFNA**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10,958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$		ug/l
			$C_{FAV}$		ug/l
			$C_{INHIB}$		mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>0</b>	%
$F_{SORP}$			$R_{MIN}$	<b>0</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>0</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>0</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>12</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>4.89</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 0.0000$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 0.0000 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = 0.0000 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 0.00 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 0.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 0.00 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = \text{N/A} \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A}$$

$$L_{\text{MAHL}} = \text{minimum} (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 0.0000 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.00000 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - L_{\text{BKGD}} \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = 0.00000 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = 0.0000000 \quad \text{mg/l} \quad - \quad \text{ngm/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.00000$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - L_{\text{BKGD}}$$

$$L_{\text{AVAILABLE}} = 0.00000 \quad \text{lbs}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND2}} * 8.337) \quad 0 \quad \text{ng/l}$$

$$C_{\text{MAHL}} = 0.0000000 \quad \text{mg/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Parameter: PFDA**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10,958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$		ug/l
			$C_{FAV}$		ug/l
			$C_{INHIB}$		mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>0</b>	%
$F_{SORP}$			$R_{MIN}$	<b>0</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>0</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>0</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>12</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>4.89</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 0.0000$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 0.0000 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = 0.0000 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 0.00 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 0.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 0.00 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = \text{N/A} \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A}$$

$$L_{\text{MAHL}} = \text{minimum} (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 0.00 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.00000 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - L_{\text{BKGD}} \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = 0.00000 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = 0.00000000 \quad \text{mg/l} \quad - \quad \text{ngm/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.00000$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - L_{\text{BKGD}}$$

$$L_{\text{AVAILABLE}} = 0.0000 \quad \text{lbs}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND2}} * 8.337)$$

$$C_{\text{MAHL}} = 0.00000000 \quad \text{mg/l} \quad - \quad \text{ng/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Parameter: PFNS**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10,958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$		ug/l
			$C_{FAV}$		ug/l
			$C_{INHIB}$		mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>0</b>	%
$F_{SORP}$			$R_{MIN}$	<b>0</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>0</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>0</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>12</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>4.89</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 0.0000$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 0.0000 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = 0.0000 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 0.00 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 0.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = \text{n/a} \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = \text{N/A} \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A}$$

$$L_{\text{MAHL}} = \text{minimum} (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 0.0000 \quad \text{lbs/day} \quad 0.00 \quad \text{gms}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.00000 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - L_{\text{BKGD}} \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = 0.00000 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = 0.0000000 \quad \text{mg/l} \quad - \quad \text{ngm/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - L_{\text{BKGD}}$$

$$L_{\text{AVAILABLE}} = 0.000 \quad \text{lbs}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND2}} * 8.337) \quad \text{ng/l}$$

$$C_{\text{MAHL}} = 0.0000000 \quad \text{ug/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Parameter: PFDS**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10,958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$		ug/l
			$C_{FAV}$		ug/l
			$C_{INHIB}$		mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>0</b>	%
$F_{SORP}$			$R_{MIN}$	<b>0</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>0</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>0</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>12</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>4.89</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 0.0000$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 0.0000 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = 0.0000 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 0.00 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 0.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 0.00 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = \text{N/A} \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A}$$

$$L_{\text{MAHL}} = \text{minimum}(L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 0.0000 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.00000 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - L_{\text{BKGD}} \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = 0.00000 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = 0.0000000 \quad \text{mg/l} \quad - \quad \text{ngm/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.00000$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - L_{\text{BKGD}}$$

$$L_{\text{AVAILABLE}} = 0.00000 \quad \text{lbs}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND2}} * 8.337) \quad 0 \quad \text{ng/l}$$

$$C_{\text{MAHL}} = 0.0000000 \quad \text{mg/l}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Parameter: PFBA**

**Input Values:**

$Q_{WWTP}$	<b>551.2</b>	MGD	$C_{MAVG}$		mg/l
$Q_{MAX}$	<b>930</b>	MGD	$C_{DMAX}$		mg/l
$Q_{95EX}$	<b>84030</b>	MGD			
$Q_{DIL}$	<b>10,958</b>	MGD			
$Q_{BKGD}$	<b>524.971</b>		$C_{ACV}$		ug/l
			$C_{FAV}$		ug/l
			$C_{INHIB}$		mg/l
$F_{NONVOL}$	<b>1</b>		$R_{AVG}$	<b>0</b>	%
$F_{SORP}$			$R_{MIN}$	<b>0</b>	%
$F_{GAS}$			$R_{PRIM}$	<b>0</b>	%
			$R_{SCRUB}$		%
$M_{AIR}$		gms/day	$C_{BACKGROUND}$	<b>1.74E-05</b>	mg/l
$T_{INCIN}$		days/wk	ASF	<b>12</b>	%
			$Q_{IND}$	<b>26.229</b>	MGD
			$Q_{IND2}$	<b>4.89</b>	MGD

**NPDES Limit Pass-Through**

$$L_{MAVG} = Q_{WWTP} * 8.337 * [C_{MAVG}/1000]/[1-R_{AVG}*F_{NONVOL}]$$

$$L_{MAVG} = 0.0000$$

$$L_{DMAX} = Q_{WWTP} * 8.337 * [C_{DMAX}/1000]/[1-R_{MIN}*F_{NONVOL}]$$

$$L_{DMAX} = 0.0000 \quad \text{lbs/day}$$

$$L_{MAX1} = \min(L_{MAV}, L_{DMAX})$$

$$L_{MAX1} = 0.0000 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Aquatic Toxicity Pass-Through**

$$C_{\text{CHRONIC}} = C_{\text{ACV}} * [Q_{\text{MAX}} + 25\% * Q_{95\text{EX}}] / Q_{\text{MAX}}$$

$$C_{\text{CHRONIC}} = 0.00 \quad \text{ugms/l}$$

$$C_{\text{ACUTE}} = C_{\text{FAV}} * 3.0$$

$$C_{\text{ACUTE}} = 0.00 \quad \text{ugms/l}$$

$$L_{\text{CHRONIC}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{CHRONIC}} / 1000] / [1 - R_{\text{AVG}} * F_{\text{NONVOL}}]$$

$$L_{\text{CHRONIC}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{ACUTE}} = Q_{\text{WWTP}} * 8.337 * [C_{\text{ACUTE}} / 1000] / [1 - R_{\text{MIN}} * F_{\text{NONVOL}}]$$

$$L_{\text{ACUTE}} = 0.00 \quad \text{lbs/day}$$

$$L_{\text{MAX2}} = \min(L_{\text{CHRONIC}}, L_{\text{ACUTE}})$$

$$L_{\text{MAX2}} = 0.00 \quad \text{lbs/day}$$

**Secondary Treatment Inhibition**

$$L_{\text{MAX3}} = Q_{\text{WWTP}} * 8.337 * C_{\text{INHIB}} / [1 - R_{\text{PRIM}}]$$

$$L_{\text{MAX3}} = \text{N/A} \quad \text{lbs/day}$$

**Sludge Quality for Incineration**

$$L_{\text{MAX4}} = [(M_{\text{AIR}} / 454) * (T_{\text{INCIN}} / 7)] / [R_{\text{AVG}} * F_{\text{SORP}} * (1 - R_{\text{DIG}}) * F_{\text{GAS}} * (1 - R_{\text{SCRUB}})]$$

$$L_{\text{MAX4}} = \text{N/A}$$

$$L_{\text{MAHL}} = \text{minimum} (L_{\text{MAX1}}, L_{\text{MAX2}}, L_{\text{MAX3}}, L_{\text{MAX4}})$$

$$L_{\text{MAHL}} = 0.00 \quad \text{lbs/day}$$

**2021 Local Limitations Re-evaluation  
Pollutant Calculation**

**Uniform Allocation Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.07615 \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - L_{\text{BKGD}} \quad \text{lbs/day}$$

$$L_{\text{AVAILABLE}} = -0.07615 \quad \text{lbs/day}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND}} * 8.337)$$

$$C_{\text{MAHL}} = -0.00034826 \quad \text{mg/l} \quad (348.26) \quad \text{ngm/l}$$

**Industrial Method**

$$L_{\text{BACKGROUND}} = Q_{\text{BKGD}} * C_{\text{BKGD}} * 8.337 \quad \text{lbs/day}$$

$$L_{\text{BACKGROUND}} = 0.07925$$

$$L_{\text{AVAILABLE}} = (L_{\text{MAHL}}) * (1-\text{ASF}) - L_{\text{BKGD}}$$

$$L_{\text{AVAILABLE}} = -0.07925 \quad \text{lbs}$$

$$C_{\text{MAHL}} = L_{\text{AVAIL}} / (Q_{\text{IND2}} * 8.337)$$

$$C_{\text{MAHL}} = -0.0019439 \quad \text{mg/l} \quad (1,943.93) \quad \text{ng/l}$$

TAB B – Collection System Data and  
Calculations for MAHL

## Collection System Limitations

Substance	Molecular Weight	Background Concentration (ugm/l)	Henry's Law Constants	Lower Explosive Limits (%)	IDLH Fume Toxicity (mg/m <sup>3</sup> )	TF	LF
Total PCB	3331.5	0	0.141	n/a	n/a	7.50E-01	0.1
2-Chlorophenol	128.56		4.28E-04	n/a	n/a	7.50E-01	0.1
4-Chlorophenol	128.56		2.55E-05	n/a	n/a	7.50E-01	0.1
4-Chloro-3-Methylphenol	142.59		1.02E-04	n/a	n/a	7.50E-01	0.1
2,4-Dichlorophenol	163.01		1.16E-04	n/a	n/a	7.50E-01	0.1
2,4-Dinitrophenol	184.11		2.70E-08	n/a	n/a	7.50E-01	0.1
4-Methylphenol	108.15		4.50E-05	1.06	1110	7.50E-01	0.1
3-Methylphenol	108.15		4.50E-05	1.06	1110	7.50E-01	0.1
4-Nitrophenol	139.12		2.50E-05	n/a	n/a	7.50E-01	0.1
Phenol	94.11		1.62E-05	1.8	964	7.50E-01	0.1

Fire/Explosion Max Allowable Conc =  $C_{\text{Fire/Ex}} = \text{LF} * [(\text{LEL}/100) * (1000 / (\text{R} * \text{T}_k)) * 1000] / (\text{H}/\text{MW})$

Fume Toxicity Max Allowable Conc =  $C_{\text{FT}} = \text{TF} * C_{\text{Tox}}/\text{H}$

## Collection System Limitations

	Concentration Fire/Explosion (ug/l)	Concentration Fume Toxicity (ug/l)	MAHL	Controlling MAHL
Total PCB	n/a	n/a	-	
2-Chlorophenol	n/a	n/a	2,035.4	2,035.4
4-Chlorophenol	n/a	n/a	3,392.4	3,392.4
4-Chloro-3-Methylphenol	n/a	n/a	836.8	836.8
2,4-Dichlorophenol	n/a	n/a	4,289.2	4,289.2
2,4-Dinitrophenol	n/a	n/a	7,408.6	7,408.6
4-Methylphenol	1.04E+08	1.85E+07	9,748.2	9,748.2
3-Methylphenol	1.04E+08	1.85E+07	27,684.9	27,684.9
4-Nitrophenol	n/a	n/a	719,066.3	719,066.3
Phenol	4.28E+08	4.46E+07	19,175.1	19,175.1

TAB C – Wastewater Treatment Plant  
Criteria and Removal Rates; and April  
2021 EGLE Memo

**EGLE Criteria NPDES Rule 57**

Substance	CAS No.	2019 NPDES Permit Discharge Limits			NPDES Permit - Other	State Water Quality Criteria		Rule 57 Water Quality Values			Insert Actual Plant or Literature Values						Secondary Treatment Inhibition Concentration (mg/l)****		
		Daily Maximum (mg/l)	7-Day (mg/l)	30-day Average (mg/l)		PFAS Pass-through Value - WQS (NPDES Permit)	PFAS Pass-through Value - WQBEL (NPDES Permit)	Daily Maximum (mg/l)	30-day Average (mg/l)	ACV (mg/l)***	FAV (mg/l)***	Sludge Incinerator Emission Limit (g/day)	Average Primary (%)**	Literature (L) or Actual (A)	Min. Overall (%)	Avg. Overall (%)		Min. Overall (%)	Avg. Overall (%)
						(mg/l)	(mg/l)			*** - Rule 57 DB 2/1/2020				Literature	Actual				
<b>Inorganics</b>																			
Arsenic	7440-38-2	n/a		n/a				150	680	8380	N/A		31	45				0.1	
Cadmium	7440-43-9	n/a		n/a				2.29	8.81	20800	15	L	33	67				1	
Chromium	7440-47-3	n/a		n/a				75.93	1167.45	23300	27	L	68	82	47.2	77.4		1	
Copper	7440-50-8	n/a		n/a				9.18	27.64		22	L	67	86	22.9	52		1	
Cyanide	57-12-5	n/a		n/a				5.2	44		27	L	41	69	15.6	71.1		2	
Lead	7439-92-1	n/a		n/a				25.35	247.59	54700	57	L	39	61	27.9			1	
Mercury	7439-97-6	n/a		3.00E-06	049B			0.77	2.8	3200	10	L	50	60	93.1	94.5		0.1	
Nickel	7440-02-0	n/a		n/a				53.32	960.18	729000	14	L	25	42	3.7	55.4		1	
Silver	7440-22-4	n/a		n/a				0.06	1.1		20	L	50	75				n/a	
Zinc	7440-66-6	n/a		n/a				121.14	240.3		27	L	64	79	68.7	82.9		0.5	
<b>Organics</b>																			
Total Phenol		n/a		n/a							8	L	75	90					
Total PCB	1336-36-3	n/a		1.00E-04	049F						N/A	L							
2-Chlorophenol	95-57-8	n/a		n/a				18	320		0%		75	90	35.9%	59.8%		5	
4-Chlorophenol	106-48-9	n/a		n/a				30	530		0%		75	90	35.9%	59.8%		n/a	
4-Chloro-3-Methylphenol	59-50-7	n/a		n/a				7.4	130		0%		75	90	35.9%	59.8%		n/a	
2,4-Dichlorophenol	120-83-2	n/a		n/a				11	180		0%		75	90	35.9%	59.8%		64	
2,4-Dinitrophenol	51-28-5	n/a		n/a				19	270		0%		75	90	35.9%	59.8%		n/a	
4-Methylphenol	106-44-5	n/a		n/a				25	450		0%		75	90	35.9%	59.8%		n/a	
Phenol	108-95-2	n/a		n/a				450	6800		8%		75	90	35.9%	59.8%		4	
<b>Compatibles</b>																			
CBOD			40	25	049B										90.3%	94.7%		n/a	
TSS			45	30	049B										92.4%	95.1%		n/a	
P				0.6	049B										77.8%	84.2%		n/a	
FOG			15		049F										53.9%	65.3%		n/a	

**EGLE Criteria NPDES Rule 57**

Substance	2019 NPDES Permit Discharge Limits			NPDES Permit - Other		State Water Quality Criteria		Rule 57 Water Quality Values			Insert Actual Plant or Literature Values							
	CAS No.	Daily Maximum (mg/l)	7-Day (mg/l)	30-day Average (mg/l)	PFAS Pass- through Value - WQS (NPDES Permit)	PFAS Pass- through Value - WQBEL (NPDES Permit)	Daily Maximum (mg/l)	30-day Average (mg/l)	ACV (mg/l)***	FAV (mg/l)***	Sludge Incinerator Emission Limit (g/day)	Average Primary (%)**	Literature (L) or Actual (A)	Min. Overall (%)	Avg. Overall (%)	Min. Overall (%)	Avg. Overall (%)	Secondary Treatment Inhibition Concentration (mg/l)****
					(mg/l)	(mg/l)												
PFPeA	2706903	n/a		n/a			n/a	n/a	n/a	n/a	n/a	0%				0%	0%	n/a
PFPeS	2706914	n/a		n/a			n/a	n/a	n/a	n/a	n/a	0%				0%	0%	n/a
N-MeFOSAA	2355319	n/a		n/a			n/a	n/a	n/a	n/a	n/a	0%				0%	0%	n/a
N-EtFOSAA	2991506	n/a		n/a			n/a	n/a	n/a	n/a	n/a	0%				0%	0%	n/a
PFOSA	754916	n/a		n/a			n/a	n/a	n/a	n/a	n/a	0%				0%	0%	n/a
PFTeDoA	376067	n/a		n/a			n/a	n/a	n/a	n/a	n/a	0%				0%	0%	n/a
PFUnDA	2058948	n/a		n/a			n/a	n/a	n/a	n/a	n/a	0%				0%	0%	n/a
PFDoDA	307551	n/a		n/a			n/a	n/a	n/a	n/a	n/a	0%				0%	0%	n/a
PFTriDA	72629948	n/a		n/a			n/a	n/a	n/a	n/a	n/a	0%				0%	0%	n/a
PFHxA	307244	n/a		n/a			n/a	n/a	n/a	n/a	n/a	0%				0%	0%	n/a
PFHpA	375859	n/a		n/a			n/a	n/a	n/a	n/a	n/a	0%				0%	0%	n/a
PFHxS	355464	n/a		n/a			n/a	n/a	n/a	n/a	n/a	0%				0%	0%	n/a
PFHpS	375928	n/a		n/a			n/a	n/a	n/a	n/a	n/a	0%				0%	0%	n/a
11Cl-PF3OUdS	763051929	n/a		n/a			n/a	n/a	n/a	n/a	n/a	0%				0%	0%	n/a
9Cl-PF3ONS	756426581	n/a		n/a			n/a	n/a	n/a	n/a	n/a	0%				0%	0%	n/a
ADONA	919005144	n/a		n/a			n/a	n/a	n/a	n/a	n/a	0%				0%	0%	n/a
HFPO-DA	13252136	n/a		n/a			n/a	n/a	n/a	n/a	n/a	0%				0%	0%	n/a
4:2 FTSA	757124724	n/a		n/a			n/a	n/a	n/a	n/a	n/a	0%				0%	0%	n/a
6:2 FTSA	27619972	n/a		n/a			n/a	n/a	n/a	n/a	n/a	0%				0%	0%	n/a
8:2 FTSA	39108344	n/a		n/a			n/a	n/a	n/a	n/a	n/a	0%				0%	0%	n/a
PFBS	375735	n/a		n/a			n/a	n/a	n/a	n/a	n/a	0%				0%	0%	n/a
PFNA	375951	n/a		n/a			n/a	n/a	n/a	n/a	n/a	0%				0%	0%	n/a
PFDA	335762	n/a		n/a			n/a	n/a	n/a	n/a	n/a	0%				0%	0%	n/a
PFNS	68259121	n/a		n/a			n/a	n/a	n/a	n/a	n/a	0%				0%	0%	n/a
PFOA	630206	n/a		n/a	0.42	8.04	0.42	n/a	880	15000	n/a	0%				0%	0%	n/a
PFOS	1763231	n/a		n/a	0.011	n/a	0.011	n/a	140	1600	n/a	0%				0%	0%	n/a
PFDS	335773	n/a		n/a			n/a	n/a	n/a	n/a	n/a	0%				0%	0%	n/a
PFBA	375224	n/a		n/a			n/a	n/a	n/a	n/a	n/a	0%				0%	0%	n/a
Total PFAS							0.42	n/a	n/a	n/a	n/a	0%				0%	0%	n/a

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

INTEROFFICE COMMUNICATION

TO: James Dykstra, Warren District Office, Water Resources Division  
FROM: Darrin McCullough, Permits Section, Water Resources Division  
DATE: April 5, 2021  
SUBJECT: GLWA WRRF  
Local Limits Review  
National Pollutant Discharge Elimination System (NPDES) Permit No. MI0022802

Pursuant to your request, we have reviewed the theoretical discharge concentrations for the Great Lakes Water Authority Water Resource Recovery Facility (GLWA WRRF). The current NPDES permit authorizes to discharge 930 million gallons per day (MGD) of treated municipal wastewater from Monitoring Point 049F through Outfall 049 (DRO). Outfall 049 discharges to the Detroit River, in Wayne County. The current NPDES permit beginning on the effective date of the permit and lasting until the initiation of operation of the RRO Disinfection Project, also authorizes the facility to discharge treated municipal wastewater and treated storm water runoff through Outfall 050A to the Rouge River (RRO). Prior to initiation of the RRO Disinfection Project, no discharge from Outfall 050A shall take place unless the discharge from Monitoring Point 049B exceeds a peak hourly flow of 930 MGD or in accordance with an approved WRRF Wet Weather Operational Plan. Discharge from Outfall 050 (RRO) is not allowed unless hydraulically or structurally necessary. Upon initiation of the RRO Disinfection Project, the facility is approved to discharge secondary treated municipal wastewater through Outfall 050 to the Rouge River during wet weather events. Consistent with the waste load allocation developed for the Detroit River dated March 17, 1993, allocated flows within the Detroit River for the Detroit WWTP are 65,000 cubic feet per second (cfs), 104,500 cfs, and 92,500 cfs for the 95 percent exceedance, harmonic mean, and 90dQ10 flow, respectively. [EGLE Low Flow File No.7950]. The low flows upstream of Outfall 050 is a combination of the natural flow of the Rouge River and the authorized flow for facilities upstream including the Ford Rouge River Complex (AK Steel-Dearborn Works: MI0043524, Ford Rouge Mfg Complex: MI0059218, Double Eagle Steel Coating Co: MI0044415, Dearborn Ind Generation Plt: MI0056235), St. Mary's Cement Co (MI0004243), and Carmeuse Lime-River Rouge (MI0057126). The natural low flow in the Rouge River upstream of The Detroit WWTP RRO is 17 cfs, 100 cfs, and 36 cfs for the 95% exceedance, harmonic mean, and 90dQ10, respectively (Low Flow File No. 9044). With the addition of all facility outfalls to the Rouge River (listed in the table below), the 95 percent exceedance, harmonic mean, and 90dQ10 low flows are 1229.9 cfs, 1312.9 cfs, and 1248.9 cfs, respectively.

The hardness value used for this review was 100 mg/l for Outfall 049 and 155 mg/l for Outfall 050. These values are consistent with the previous WQBEL review, dated August 21, 2017.

Permits Section, Toxicology Unit does not currently have Rule 57 values for Iron. The theoretical water quality-based effluent limits (WQBELs) in micrograms per liter (µg/L) for the parameters you have requested for the 930 MGD discharge from Outfall 049 are as follows:

**Outfall 049**

Parameter	Daily Maximum	Daily Maximum	Monthly Average	Monthly Average
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	WQBEL (µg/L)	Load (lbs/day)	WQBEL (µg/L)	Load (lbs/day)
Arsenic	680	5,300	170	1,300
Cadmium	18	140	---	---
Chromium	1,700	13,000	1,300	10,000
Copper	40	310	---	---
Cyanide	44	340	---	---
Lead	1,100	8,400	220	1,700
Mercury	#	#	0.0013	0.010
Nickel	1,000	8,000	670	5,200
Silver	22	170	15	110
Zinc	490	3,800	---	---
Total PCB	#	#	0.000026	0.0002
2-Chlorophenol	320*	2,500	220*	1,700
4-Chlorophenol	530*	4,100	370*	2,900
4-Chloro-3-methylphenol	130*	1,000	90*	710
2,4-Dichlorophenol	180*	1,400	140*	1,000
2,4-Dinitrophenol	270*	2,100	230*	1,800
4-Methylphenol	450*	3,500	310*	2,400
4-Nitrophenol	1,900*	15,000	---	---
Phenol	6,800	53,000	5,500*	43,000
Perfluorooctanoic acid	15,000*	120,000	8.0	62
Perfluorooctane sulfonate	#	#	0.011	0.085

# Bioaccumulative Chemical of Concern-Only the monthly average Water Quality Standard (WQS) applies

---Daily maximum value is protective of the monthly average WQS.

\* Tier 2 WQS

Permits Section, Toxicology Unit does not currently have Rule 57 values for Iron. The theoretical water quality-based effluent limits (WQBELs) in micrograms per liter (µg/L) for the parameters you have requested for the 930 MGD discharge from Outfall 050 are as follows:

#### Outfall 050

Parameter	Daily Maximum WQBEL (µg/L)	Daily Maximum Load (lbs/day)	Monthly Average WQBEL (µg/L)	Monthly Average Load (lbs/day)
Arsenic	680	5,300	12	93
Cadmium	29	220	3.1	24
Chromium	2,500	19,000	150	1,100
Copper	61	470	23	180
Cyanide	44	340	6.3	49
Lead	1,500	12,000	17	130
Mercury	#	#	0.0013	0.010
Nickel	1,500	12,000	100	780
Silver	22	170	1.5	11
Zinc	710	5,500	430	3,400
Total PCB	#	#	0.000026	0.0002
2-Chlorophenol	320*	2,500	22*	170
4-Chlorophenol	530*	4,100	37*	280
4-Chloro-3-methylphenol	130*	1,000	9.0*	70
2,4-Dichlorophenol	180*	1,400	13*	100
2,4-Dinitrophenol	270*	2,100	23*	180
4-Methylphenol	450*	3,500	30*	240
4-Nitrophenol	1,900*	15,000	240*	1,900

Phenol	6,800	53,000	550*	4,200
Perfluorooctanoic acid	15,000*	120,000	0.52	4.0
Perfluorooctane sulfonate	#	#	0.011	0.085

# Bioaccumulative Chemical of Concern-Only the monthly average Water Quality Standard (WQS) applies

---Daily maximum value is protective of the monthly average WQS.

\* Tier 2 WQS

#### Option to Provide Additional Toxicity Data for Tier 2 WQS

The acute and chronic water quality-based effluent limits denoted by (\*) are Tier 2 water quality values. The responsible party may provide additional aquatic toxicity data to develop Tier 1 water quality criteria. The permittee may submit additional mammalian or aquatic toxicity data to reduce the uncertainty factor used in the development of Tier 2 values or to allow for calculation of Tier 1 values. Prior to conducting any additional toxicity testing, the permittee should contact the Department to determine the appropriate test organism(s).

Please contact me at (517) 242-8647 if you should have any questions regarding the recommendations above.

TAB D – WRRF REMOVALS & WRRF  
Background Data

**GLWA Local Limits Study  
WRRF Removal Rates**

**Arsenic (As)**

Date	Jefferson 36% ugms/l	Oakwood 35% ugms/l	NIEA 29% ugms/l	Combined Influent	Effluent	Overall Removal
02/11/20	4	6	2	4.12	3	27.2%
03/18/20	20	10	13	14.47	10	30.9%
04/14/20	0	1	1	0.64	0	100.0%
05/05/20	0	0	0	0	4	N/D
06/09/20	3	6	0	3.18	14	-340.3%
07/12/20	7	5	1	4.56	0	100.0%
08/11/20	4	2	3	3.01	2	33.6%
09/15/20	9	14	9	10.75	9	16.3%
10/06/20	9	11	6	8.83	15	-69.9%
11/10/20	2	12	14	8.98	2	77.7%
12/08/20	3	2	3	2.65	2	24.5%

EPA Removal Rate

Mean	5.56	5.55	
N	11		11
Std Dev.	4.56	5.48	129.3%
Min.	0	0	-340.3%
Max.	14.47	7	100.0%
Median			29.0%
2nd Decile			-1.0%

Actual Load                      25.59      lbs/day

**GLWA Local Limits Study  
WRRF Removal Rates**

**Cadmium (Cd)**

Date	Jefferson 36% ugms/l	Oakwood 35% ugms/l	NIEA 29% ugms/l	Combined Influent	Effluent	Overall Removal
02/11/20	0	0	0	0	0	ND
03/18/20	1	0	0	0.36	0	100.0%
04/14/20	1	1	1	1	0	100.0%
05/05/20	0	0	0	0	0	ND
06/09/20	0	0	1	0.29	1	-244.8%
07/12/20	0	0	1	0.29	0	100.0%
08/11/20	0	1	0	0.35	0	100.0%
09/15/20	0	0	0	0	0	ND
10/06/20	0	0	0	0	0	ND
11/10/20	0	0	0	0	0	ND
12/08/20	1	0	0	0.36	0	100.0%

EPA Removal Rate

Mean	0.24	0.09	42.5%
N	11		11
Std Dev.	0.30	0.30	140.8%
Min.	0	0	-244.8%
Max.	1	1	100.0%
Median			100.0%
2nd Decile			100.0%

67%  
33%

Actual Load                      1.11      lbs/day

**GLWA Local Limits Study  
WRRF Removal Rates**

**Chromium (Cr)**

Date	Jefferson 36% ugms/l	Oakwood 35% ugms/l	NIEA 29% ugms/l	Combined Influent	Effluent	Overall Removal
02/11/20	8	6	8	7.3	1	86.3%
03/18/20	15	6	7	9.53	1	89.5%
04/14/20	4	3	6	4.23	1	76.4%
05/05/20	9	2	5	5.39	1	81.4%
06/09/20	10	4	7	7.03	4	43.1%
07/12/20	2	5	9	5.08	0	100.0%
08/11/20	10	6	13	9.47	5	47.2%
09/15/20	12	4	6	7.46	2	73.2%
10/06/20	17	8	15	13.27	3	77.4%
11/10/20	4	3	11	5.68	26	-357.7%
12/08/20	3	3	8	4.45	1	77.5%

EPA Removal Rate

Mean	7.17	4.09	35.8%	
N	11		11	
Std Dev.	2.72	1.45	131.6%	
Min.	4.23	2	-357.7%	
Max.	13.27	7	100.0%	
Median			77.4%	82%
2nd Decile			47.2%	68%
Load		32.99	lbs/day	

**GLWA Local Limits Study  
WRRF Removal Rates**

**Copper (Cu)**

Date	Jefferson 36% ugms/l	Oakwood 35% ugms/l	NIEA 29% ugms/l	Combined Influent	Effluent	Overall Removal
02/11/20	18	13	45	24.08	21	12.8%
03/18/20	44	48	46	45.98	11	76.1%
04/14/20	33	33	55	39.38	28	28.9%
05/05/20	22	28	31	26.71	11	58.8%
06/09/20	11	21	37	22.04	17	22.9%
07/12/20	28	32	51	36.07	23	36.2%
08/11/20	24	69	67	52.22	14	73.2%
09/15/20	31	9	40	25.91	10	61.4%
10/06/20	43	33	65	45.88	22	52.0%
11/10/20	12	22	28	20.14	18	10.6%
12/08/20	37	14	42	30.4	14	53.9%

EPA Removal Rate

Mean	33.53	5.45	44.3%	
N	11		11	
Std Dev.	11.01	1.81	23.2%	
Min.	20.14	3	10.6%	
Max.	52.22	9	76.1%	
Median			52.0%	86%
2nd Decile			22.9%	67%
Load		154.21	lbs/day	

**GLWA Local Limits Study  
WRRF Removal Rates**

**Lead (Pb)**

Date	Jefferson 36% ugms/l	Oakwood 35% ugms/l	NIEA 29% ugms/l	Combined Influent	Effluent	Overall Removal
02/11/20	17	12	14	14.38	26.3	-82.9%
03/18/20	24	8	12	14.92	7	53.1%
04/14/20	14	12	6	10.98	9	18.0%
05/05/20	13	0	3	5.55	4	27.9%
06/09/20	11	8	2	7.34	102	-1289.6%
07/12/20	6	28	3	12.83	7	45.4%
08/11/20	0	45	20	21.55	0	100.0%
09/15/20	10	2	0	4.3	5	-16.3%
10/06/20	12	3	3	6.24	4	35.9%
11/10/20	7	0	0	2.52	1	60.3%
12/08/20	4	3	0	2.49	2	19.7%

EPA Removal Rate

Mean	9.37	1.82	-93.5%	
N	11		11	
Std Dev.	6.06	2.09	399.4%	
Min.	2.49	0	-1289.6%	
Max.	21.55	7	100.0%	
Median			27.9%	61%
2nd Decile			-16.3%	39%
Load		43.11	lbs/day	

**GLWA Local Limits Study  
WRRF Removal Rates**

**Mercury (Hg)**

Date	Jefferson 36% ngms/l	Oakwood 35% ngms/l	NIEA 29% ngms/l	Combined Influent ngms/l	Effluent ngms/l	Overall Removal
02/11/20	18	5.5	5.5	10	1.4	86.0%
03/10/02	23	57	36	38.67	1.8	95.3%
04/15/20	110	6.7	4.6	43.279	0.96	97.8%
05/05/20	8.3	8.9	30	14.803	0.85	94.3%
06/09/20	13	17	81	34.12	1.1	96.8%
07/12/20	6.8	47	16	23.538	1.3	94.5%
08/11/20	23	18	22	20.96	1.1	94.8%
09/15/20	14	25	17	18.72	1.3	93.1%
10/06/20	180	100	78	122.42	1.5	98.8%
11/10/20	9.1	24	42	23.856	1.6	93.3%
12/08/20	11	22	18	16.88	2.3	86.4%

EPA Removal Rate

Mean	33.39	0.85	93.7%	
N	11		11	
Std Dev.	31.27	0.19	4.1%	
Min.	10	0.61	86.0%	
Max.	122.42	1.3	98.8%	
Median			94.5%	60%
2nd Decile			93.1%	50%
Load		0.154	lbs/day	

**GLWA Local Limits Study  
WRRF Removal Rates**

**Nickel (Ni)**

Date	Jefferson 36% ugms/l	Oakwood 35% ugms/l	NIEA 29% ugms/l	Combined Influent	Effluent	Overall Removal
02/11/20	9	4	8	6.96	4	42.5%
03/18/20	32	3	8	14.89	5	66.4%
04/14/20	2	2	13	5.19	5	3.7%
05/05/20	2	3	2	2.35	3	-27.7%
06/09/20	44	5	5	19.04	6	68.5%
07/12/20	3	1	1	1.72	0	100.0%
08/11/20	36	4	4	15.52	5	67.8%
09/15/20	27	4	8	13.44	6	55.4%
10/06/20	25	2	28	17.82	3	83.2%
11/10/20	30	7	11	16.44	18	-9.5%
12/08/20	4	4	9	5.45	5	8.3%

EPA Removal Rate

Mean	10.80	19.73	41.7%	
N	11		11	
Std Dev.	6.51	5.27	41.6%	
Min.	1.72	13	-27.7%	
Max.	19.04	31	100.0%	
Median			55.4%	42%
2nd Decile			3.7%	25%
Load		49.68	lbs/day	

**GLWA Local Limits Study  
WRRF Removal Rates**

**Silver (Ag)**

Date	Jefferson 36% ugms/l	Oakwood 35% ugms/l	NIEA 29% ugms/l	Combined Influent	Effluent	Overall Removal
02/11/20	0	0	0	0	0	ND
03/18/20	1	0	0	0.36	0	100.0%
04/14/20	1	0	1	0.65	2	-207.7%
05/05/20	0	0	52	15.08	0	100.0%
06/09/20	0	0	1	0.29	3	-934.5%
07/12/20	0	2	0	0.0875	0	100.0%
08/11/20	0	1	0	0.44	0	100.0%
09/15/20	0	0	0	0	1	ND
10/06/20	0	0	0	0	0	ND
11/10/20	0	0	0	0	0	ND
12/08/20	0	0	1	0.38	2	-426.3%

EPA Removal Rate

Mean	1.57	0.91	-166.9%
N	11		11
Std Dev.	4.49	0.70	396.5%
Min.	0	0	-934.5%
Max.	15.08	2	100.0%
Median			100.0%
2nd Decile			-382.6%
Load		7.23	lbs/day

75%  
50%

**GLWA Local Limits Study  
WRRF Removal Rates**

**Zinc (Zn)**

Date	Jefferson 36% ugms/l	Oakwood 35% ugms/l	NIEA 29% ugms/l	Combined Influent	Effluent	Overall Removal
02/11/20	175	117	160	150.35	47	68.7%
03/18/20	211	139	355	227.56	38	83.3%
04/14/20	124	74	172	120.42	35	70.9%
05/05/20	83	77	201	115.12	18	84.4%
06/09/20	178	107	154	146.19	89	39.1%
07/12/20	71	132	139	112.07	3	97.3%
08/11/20	215	188	326	237.74	56	76.4%
09/15/20	192	131	271	193.56	27	86.1%
10/06/20	286	89	303	221.98	24	89.2%
11/10/20	130	106	194	140.16	24	82.9%
12/08/20	96	119	258	151.03	51	66.2%

EPA Removal Rate

Mean	165.11	34.09	76.8%	
N	11		11	
Std Dev.	46.82	11.07	15.6%	
Min.	112.07	22	39.1%	
Max.	237.74	60	97.3%	
Median			82.9%	79%
2nd Decile			68.7%	64%
Load		759.39	lbs/day	



**GLWA Local Limits Study  
WRRF Removal Rates**

**Available Cyanide (CN-AV)**

Date	Jefferson 36% ugms/l	Oakwood 35% ugms/l	NIEA 29% ugms/l	Combined Influent	Effluent	Overall Removal
02/11/20	0.61	1.11	1.27	0.9764	5.29	-441.8%
03/18/20	2.45	1.94	1.56	2.0134	4.56	-126.5%
04/14/20	1.63	5.67	0	2.5713	2.73	-6.2%
05/05/20	2.41	3.54	1.13	2.4343	2.61	-7.2%
06/09/20	0.86	1.8	1.23	1.2963	0.26	79.9%
07/12/20	0	0.14	0	0.049	0	100.0%
08/11/20	0	0.35	0.37	0.2298	0	100.0%
09/15/20	0.93	2.2	1.36	1.4992	0.75	50.0%
10/06/20	0.44	2.21	1.18	1.2741	0	100.0%
11/10/20	0.65	2.23	2.1	1.6235	2.57	-58.3%
12/08/20	1.16	3.35	2.31	2.26	3.13	-38.5%

EPA Removal Rate

Mean	1.48	2.32	-22.6%	
N	11		11	
Std Dev.	0.83	2.41	157.9%	
Min.	0.049	0	-441.8%	
Max.	2.5713	8.06	100.0%	
Median			-6.2%	69%
2nd Decile			-58.3%	41%
Load		6.79	lbs/day	



**GLWA Local Limits Study  
WRRF Removal Rates**

Date	Total PCB			Combined Influent	Effluent	Overall Removal
	Jefferson 36% ugms/l	Oakwood 35% ugms/l	NIEA 29% ugms/l			
02/09/20	ND	ND	ND	ND	0	ND
03/08/20	0.11	ND	ND	0.040	0	100.0%
04/12/20	ND	ND	ND	ND	0	ND
05/03/20	ND	ND	ND	ND	0	ND
06/07/20	ND	ND	ND	ND	0	ND
07/12/20	ND	ND	ND	ND	0	ND
08/09/20	ND	ND	ND	ND	0	ND
09/13/20	ND	ND	ND	ND	0	ND
10/04/20	ND	ND	ND	ND	0	ND
11/08/20	ND	ND	ND	ND	0	ND
12/06/20	ND	ND	ND	ND	0	ND
			Mean	0.04	0.00	100.0%
			N	1		11
			Std Dev.	ND	ND	ND
			Min.	0.0396	0	100.0%
			Max.	0.0396	0	100.0%
			Median			100.0%
			2nd Decile			100.0%
			Load		0.18	lbs/day

**GLWA Local Limits Study  
WRRF Removal Rates**

**Total Phenol**

Date	Jefferson 36% ugms/l	Oakwood 35% ugms/l	NIEA 29% ugms/l	Combined Influent	Effluent	Overall Removal
02/11/20	55.9	46.9	182	89.319	7.96	91.1%
03/18/20	41	65.2	77.4	60.026	59.2	1.4%
04/14/20	38.9	50.3	84.4	56.085	4.8	91.4%
05/05/20	35.6	41.5	97.4	55.587	17.9	67.8%
06/09/20	21.9	128	125	88.934	43.1	51.5%
07/12/20	64.8	83.3	95.6	80.207	34	57.6%
08/11/20	68	154.2	194.2	134.768	86.4	35.9%
09/15/20	108.2	197.8	129.1	145.621	93.3	35.9%
10/06/20	4.57	41.1	56.3	32.3572	7.6	76.5%
11/10/20	108	105	236	144.07	23.6	83.6%
12/08/20	77.9	132	283	156.314	62.8	59.8%

EPA Removal Rate

Mean	94.84	80.64	59.3%	
N	11		11	
Std Dev.	43.38	45.52	27.4%	
Min.	32.3572	20	1.4%	
Max.	156.314	157	91.4%	
Median			59.8%	90%
2nd Decile			35.9%	75%
Load		436.23	lbs/day	

**GLWA Local Limits Study  
WRRF Removal Rates**

**4-Chloro-3-methylphenol**

Date	Jefferson	Oakwood	NIEA	Combined Influent	Effluent	Effluent	Overall Removal
	36% ugms/l	35% ugms/l	29% ugms/l				
2/11/2020	ND	ND	ND	ND	ND		ND
3/11/2020	ND	ND	ND	ND	ND		ND
4/15/2020	ND	ND	ND	ND	ND		ND
5/12/2020	ND	ND	ND	ND	ND		ND
6/16/2020	ND	ND	ND	ND	ND		ND
7/13/2020	ND	ND	ND	ND	ND		ND
8/14/2020	ND	ND	ND	ND	ND		ND
9/16/2020	ND	ND	ND	ND	ND		ND
10/7/2020	ND	ND	ND	ND	ND		ND
12/9/2020	ND	ND	ND	ND	ND		ND
			Mean	ND	ND		ND
			N	0			11
			Std Dev.	ND	ND		ND
			Min.	0	0		0.0%
			Max.	0	0		0.0%
			Median				ND
			2nd Decile				ND
			Load				lbs/day

**GLWA Local Limits Study  
WRRF Removal Rates**

**Phenol Alcohol**

Date	Jefferson	Oakwood	NIEA	Combined Influent	Effluent	Effluent	Overall Removal
	36% ugms/l	35% ugms/l	29% ugms/l				
2/11/2020	ND	ND	ND	ND			ND
3/11/2020	ND	4.6	ND	1.61			100.0%
4/15/2020	ND	ND	ND	ND			ND
5/12/2020	ND	ND	ND	ND			ND
6/16/2020	ND	10	7.6	5.704			100.0%
7/13/2020	ND	ND	ND	ND			ND
8/14/2020	ND	6.6	ND	2.31		20	-765.8%
9/16/2020	ND	6.2	ND	2.17			100.0%
10/7/2020	ND	ND	ND	ND			ND
12/9/2020	ND	6.5	3.6	3.319			100.0%
			Mean	3.02	20.00		-73.2%
			N	5			11
			Std Dev.	1.62	ND		387.2%
			Min.	1.61	20		-765.8%
			Max.	5.704	20		100.0%
			Median				100.0%
			2nd Decile				-73.2%
			Load		13.90		lbs/day

**GLWA Local Limits Study  
WRRF Removal Rates**

**2-Chlorophenol**

Date	Jefferson	Oakwood	NIEA	Combined Influent	Effluent	Effluent	Overall Removal
	36% ugms/l	35% ugms/l	29% ugms/l				
2/11/2020	ND	ND	ND	ND	ND		ND
3/11/2020	ND	ND	ND	ND	ND		ND
4/15/2020	ND	ND	ND	ND	ND		ND
5/12/2020	ND	ND	ND	ND	ND		ND
6/16/2020	ND	ND	ND	ND	ND		ND
7/13/2020	ND	ND	ND	ND	ND		ND
8/14/2020	ND	ND	ND	ND	ND		ND
9/16/2020	ND	ND	ND	ND	ND		ND
10/7/2020	ND	ND	ND	ND	ND		ND
12/9/2020	ND	ND	ND	ND	ND		ND
			Mean	ND	ND		ND
			N	0			11
			Std Dev.	ND	ND		ND
			Min.	0	0		0.0%
			Max.	0	0		0.0%
			Median				ND
			2nd Decile				ND
			Load				lbs/day

**GLWA Local Limits Study  
WRRF Removal Rates**

**4-Chlorophenol**

Date	Jefferson	Oakwood	NIEA	Combined Influent	Effluent	Effluent	Overall Removal
	36% ugms/l	35% ugms/l	29% ugms/l				
2/11/2020	ND	ND	ND	ND	ND		ND
3/11/2020	ND	ND	ND	ND	ND		ND
4/15/2020	ND	ND	ND	ND	ND		ND
5/12/2020	ND	ND	ND	ND	ND		ND
6/16/2020	ND	ND	ND	ND	ND		ND
7/13/2020	ND	ND	ND	ND	ND		ND
8/14/2020	ND	ND	ND	ND	ND		ND
9/16/2020	ND	ND	ND	ND	ND		ND
10/7/2020	ND	ND	ND	ND	ND		ND
12/9/2020	ND	ND	ND	ND	ND		ND
			Mean	ND	ND		ND
			N	0			11
			Std Dev.	ND	ND		ND
			Min.	0	0		0.0%
			Max.	0	0		0.0%
			Median				ND
			2nd Decile				ND
			Load				lbs/day

**GLWA Local Limits Study  
WRRF Removal Rates**

**2,4-Dichlorophenol**

Date	Jefferson	Oakwood	NIEA	Combined Influent	Effluent	Effluent	Overall Removal
	36% ugms/l	35% ugms/l	29% ugms/l				
2/11/2020	ND	ND	ND	ND	ND		ND
3/11/2020	ND	ND	ND	ND	ND		ND
4/15/2020	ND	ND	ND	ND	ND		ND
5/12/2020	ND	ND	ND	ND	ND		ND
6/16/2020	ND	ND	ND	ND	ND		ND
7/13/2020	ND	ND	ND	ND	ND		ND
8/14/2020	ND	ND	ND	ND	ND		ND
9/16/2020	ND	ND	ND	ND	ND		ND
10/7/2020	ND	ND	ND	ND	ND		ND
12/9/2020	ND	ND	ND	ND	ND		ND
			Mean	ND	ND		ND
			N	0			11
			Std Dev.	ND	ND		ND
			Min.	0	0		0.0%
			Max.	0	0		0.0%
			Median				ND
			2nd Decile				ND
			Load				lbs/day

**GLWA Local Limits Study  
WRRF Removal Rates**

## 2,4-Dinitrophenol

Date	Jefferson	Oakwood	NIEA	Combined Influent	Effluent	Effluent	Overall Removal
	36% ugms/l	35% ugms/l	29% ugms/l				
2/11/2020	ND	2.21	ND	0.7735	ND		ND
3/11/2020	ND	ND	ND	ND	ND		ND
4/15/2020	ND	ND	ND	ND	ND		ND
5/12/2020	ND	ND	ND	ND	ND		ND
6/16/2020	ND	ND	ND	ND	ND		ND
7/13/2020	ND	ND	ND	ND	ND		ND
8/14/2020	ND	ND	ND	ND	ND		ND
9/16/2020	ND	ND	ND	ND	ND		ND
10/7/2020	ND	ND	ND	ND	ND		ND
12/9/2020	ND	ND	ND	ND	ND		ND
			Mean	0.77	ND		ND
			N	1			11
			Std Dev.	ND	ND		ND
			Min.	0.7735	0		0.0%
			Max.	0.7735	0		0.0%
			Median				ND
			2nd Decile				ND
			Load		3.56		lbs/day

**GLWA Local Limits Study  
WRRF Removal Rates**

**4-Methylphenol**

Date	Jefferson	Oakwood	NIEA	Combined Influent	Effluent	Effluent	Overall Removal
	36% ugms/l	35% ugms/l	29% ugms/l				
2/11/2020	ND	ND	ND	ND	ND		ND
3/11/2020	ND	9.7	6.2	5.193	ND		100.0%
4/15/2020	ND	ND	ND	ND	ND		ND
5/12/2020	ND	ND	ND	ND	ND		ND
6/16/2020	ND	12	ND	4.2	ND		100.0%
7/13/2020	ND	ND	ND	ND	ND		ND
8/14/2020	16	ND	ND	5.76	28	28	-386.1%
9/16/2020	ND	11	ND	3.85	ND		100.0%
10/7/2020	ND	ND	ND	ND	ND		ND
12/9/2020	ND	ND	ND	ND	ND		ND
			Mean	4.75	28.00		-21.5%
			N	4			11
			Std Dev.	0.88	ND		243.1%
			Min.	3.85	28		-386.1%
			Max.	5.76	28		100.0%
			Median				100.0%
			2nd Decile				-94.4%
			Load		21.85		lbs/day

**GLWA Local Limits Study  
WRRF Removal Rates**

**4-Nitrophenol**

Date	Jefferson	Oakwood	NIEA	Combined Influent	Effluent	Effluent	Overall Removal
	36% ugms/l	35% ugms/l	29% ugms/l				
2/11/2020	ND	ND	ND	ND	ND		ND
3/11/2020	ND	ND	ND	ND	ND		ND
4/15/2020	ND	ND	ND	ND	ND		ND
5/12/2020	ND	ND	ND	ND	ND		ND
6/16/2020	ND	ND	ND	ND	ND		ND
7/13/2020	ND	ND	ND	ND	ND		ND
8/14/2020	ND	ND	ND	ND	ND		ND
9/16/2020	ND	ND	ND	ND	ND		ND
10/7/2020	ND	ND	ND	ND	ND		ND
12/9/2020	ND	ND	ND	ND	ND		ND
			Mean	ND	ND		ND
			N	0			11
			Std Dev.	ND	ND		ND
			Min.	0	0		0.0%
			Max.	0	0		0.0%
			Median				ND
			2nd Decile				ND
			Load				lbs/day



**GLWA Local Limits Study  
WRRF Removal Rates**

**Carbonaceous BOD (CBOD)**

	<b>Jeff</b> mg/l	<b>Oak</b> mg/l	<b>NIEA</b> mg/l	<b>Calc_Influent</b>		<b>Zug</b> mg/l	
<b>collect_date</b>	<b>cbod</b>	<b>cbod</b>	<b>cbod</b>			<b>cbod</b>	
1/1/2020	32.5	83	141	81.64		9.46	88.4%
1/2/2020	65.1	115	136	103.126		8.19	92.1%
1/3/2020	89.1	106	194	125.436		6.76	94.6%
1/4/2020	77.1	102	115	96.806	<	5	94.8%
1/5/2020	54.8	92.9	128	89.363		5	94.4%
1/6/2020	81.1	111	250	140.546		5.5	96.1%
1/7/2020	132	131	175	144.12		8.21	94.3%
1/8/2020	70.3	68.7	121	84.443		6	92.9%
1/9/2020	105	135	159	131.16		7.42	94.3%
1/10/2020	128	120	149	131.29		6	95.4%
1/11/2020	65.3	101	124	94.818		24.5	74.2%
1/12/2020	34.5	41.7	59.8	44.357		19.1	56.9%
1/13/2020	39.4	35.7	88.8	52.431		12.9	75.4%
1/14/2020	33.1	38.6	74.8	47.118		8.85	81.2%
1/15/2020	52.8	56	127	75.438		7	90.7%
1/16/2020	61.8	68.3	169	95.163		7	92.6%
1/17/2020	53.9	94.8	124	88.544	<	6.67	92.5%
1/18/2020	47.4	79.6	119	79.434		6.67	91.6%
1/19/2020	54	63.4	111	73.82	<	6.67	91.0%
1/20/2020	47.9	70.3	91.2	68.297		8.33	87.8%
1/21/2020	71.1	81	126	90.486		10.2	88.7%
1/22/2020	55.3	80.6	114	81.178		8.92	89.0%
1/23/2020	95	91.9	96.9	94.466		9.96	89.5%
1/24/2020	51.9	116	77.8	81.846		11.9	85.5%
1/25/2020	45.5	56.2	96.9	64.151		21.8	66.0%
1/26/2020	< 33.3	52.8	104	60.628		15.6	74.3%
1/27/2020	47.2	80	< 33.3	54.649		7.75	85.8%
1/28/2020	< 28.6	42.6	62.4	43.302		5.25	87.9%
1/29/2020	75.9	76.5	118	88.319		6.12	93.1%
1/30/2020	70.7	57.8	149	88.892		7.15	92.0%
1/31/2020	55.6	53.3	122	74.051	<	5	93.2%
2/1/2020	64.4	70.6	115	81.244	<	5	93.8%
2/2/2020	49.1	68.7	168	90.441	<	5	94.5%
2/3/2020	54.8	63.9	99.6	70.977		5.08	92.8%
2/4/2020	57.5	74.4	119	81.25		7.25	91.1%
2/5/2020	75.5	95.4	104	90.73		7.44	91.8%
2/6/2020	87.8	91.2	138	103.548		10.1	90.2%
2/7/2020	77.6	98.5	153	106.781		15.9	85.1%
2/8/2020	40.8	64	127	73.918		8.23	88.9%
2/9/2020	60	66.5	113	77.645		7.83	89.9%

**GLWA Local Limits Study  
WRRF Removal Rates**

	<b>Jeff</b> mg/l	<b>Oak</b> mg/l	<b>NIEA</b> mg/l	<b>Calc_Influent</b>		<b>Zug</b> mg/l	
2/10/2020	96.7	100	184	123.172		9.71	92.1%
2/11/2020	73.9	102	129	99.714		9.58	90.4%
2/12/2020	130	144	161	143.89		14.7	89.8%
2/13/2020	128	660	320	369.88	<	10	97.3%
2/14/2020	72.6	110	160	111.036		18.8	83.1%
2/15/2020	60.5	116	169	111.39		7	93.7%
2/16/2020	72.2	94.4	187	113.262		8.23	92.7%
2/17/2020	61.4	97.9	123	92.039		6.25	93.2%
2/18/2020	80	128	158	119.42		7.38	93.8%
2/19/2020	96.3	122	189	132.178		5.75	95.6%
2/20/2020	108	147	212	151.81		5.75	96.2%
2/21/2020	101	178	172	148.54		13	91.2%
2/22/2020	57.1	113	116	93.746		5.5	94.1%
2/23/2020	72.7	111	180	117.222		5.79	95.1%
2/24/2020	104	145	237	156.92	<	6.67	95.7%
2/25/2020	106	142	194	144.12		8.88	93.8%
2/26/2020	75.5	119	118	103.05	<	6.67	93.5%
2/27/2020	77	102	122	98.8		8.52	91.4%
2/28/2020	69.4	115	125	101.484		9.88	90.3%
2/29/2020	85.1	105	> 228	133.506		5.88	95.6%
3/1/2020	82.9	109	235	136.144		5.38	96.0%
3/2/2020	137	179	298	198.39		8.94	95.5%
3/3/2020	122	132	245	161.17		7.35	95.4%
3/4/2020	94.2	205	196	162.502		10.8	93.4%
3/5/2020	113	135	225	153.18		6.69	95.6%
3/6/2020	104	128	186	136.18		12	91.2%
3/7/2020	108	142	> 232	155.86		6.46	95.9%
3/8/2020	85.7	155	> 232	152.382		7.02	95.4%
3/9/2020	70.8	142	167	123.618		7.04	94.3%
3/10/2020	134	146	236	167.78		6.92	95.9%
3/11/2020	71.4	102	137	101.134	<	5	95.1%
3/12/2020	67	124	133	106.09	<	5	95.3%
3/13/2020	105	158	302	180.68	<	5	97.2%
3/14/2020	58.6	131	178	118.566		30.2	74.5%
3/15/2020	82.8	119	194	127.718		27.1	78.8%
3/16/2020	84.6	114	215	132.706		5.38	95.9%
3/17/2020	94.1	127	195	134.876		7.29	94.6%
3/18/2020	113	161	216	159.67		37	76.8%
3/19/2020	85.3	142	220	144.208	>	35.5	75.4%
3/20/2020	49.8	67.5	135	80.703		6	92.6%
3/21/2020	< 33.3	95.6	86.7	70.591	<	5	92.9%
3/22/2020	63.5	110	143	102.83	<	5	95.1%
3/23/2020	64	87.9	168	102.525	<	5	95.1%

**GLWA Local Limits Study  
WRRF Removal Rates**

	<b>Jeff</b> mg/l	<b>Oak</b> mg/l	<b>NIEA</b> mg/l	<b>Calc_Influent</b>		<b>Zug</b> mg/l	
3/24/2020	50.5	118	188	114	<	5	95.6%
3/25/2020	121	146	244	165.42	<	5	97.0%
3/26/2020	78.6	117	171	118.836	<	5	95.8%
3/27/2020	101	119	198	135.43		5.62	95.9%
3/28/2020	119	112	151	125.83		27.9	77.8%
3/29/2020	47.1	35	72.9	50.347		21.9	56.5%
3/30/2020	34.7	88.3	99.7	72.31		12.5	82.7%
3/31/2020	68.8	59.6	91	72.018		6.12	91.5%
4/1/2020	36.4	52.8	210	92.484		5.38	94.2%
4/2/2020	97.1	92.5	272	146.211	<	5	96.6%
4/3/2020	52.8	80.4	148	90.068		7.38	91.8%
4/4/2020	39.6	92.8	169	95.746	<	5	94.8%
4/5/2020	51.4	91.2	246	121.764		7	94.3%
4/6/2020	50.8	101	197	110.768		25.5	77.0%
4/7/2020	125	190	159	157.61		29	81.6%
4/8/2020	41.4	46.7	123	66.919		26	61.1%
4/9/2020	45.8	62.7	140	79.033		15.2	80.8%
4/10/2020	48.7	76.2	115	77.552	<	5	93.6%
4/11/2020	104	80.7	156	110.925		14.5	86.9%
4/12/2020	54.5	81.4	175	98.86		13.5	86.3%
4/13/2020	78.7	99.9	200	121.297		9.33	92.3%
4/14/2020	46.7	97.1	150	94.297		9	90.5%
4/15/2020	62.1	90.4	102	83.576		21.8	73.9%
4/16/2020	59.1	90.1	131	90.801		18	80.2%
4/17/2020	63.1	72.9	151	92.021		5.88	93.6%
4/18/2020	66.2	61.8	121	80.552		5.71	92.9%
4/19/2020	55.5	79.5	134	86.665	<	5.71	93.4%
4/20/2020	63.6	94.8	154	100.736	<	5	95.0%
4/21/2020	69.2	98.1	160	105.647	<	5	95.3%
4/22/2020	53.1	79.6	133	85.546		5.2	93.9%
4/23/2020	45.2	56.2	177	87.272		5.25	94.0%
4/24/2020	35.8	81.1	132	79.553	<	5	93.7%
4/25/2020	61.4	105	146	101.194		20.1	80.1%
4/26/2020	56.4	91.9	178	104.089		15.4	85.2%
4/27/2020	56.2	103	220	120.082		3.83	96.8%
4/28/2020	81.5	87.3	164	107.455		5.15	95.2%
4/29/2020	94.6	80.8	142	103.516	<	5	95.2%
4/30/2020	70.2	70.9	170	99.387	<	5	95.0%
5/1/2020	51.3	39.6	133	70.898	<	5	92.9%
5/2/2020	42	132	153	105.69	<	5	95.3%
5/3/2020	52.4	49.8	128	73.414	<	5	93.2%
5/4/2020	50.5	109	119	90.84	<	5	94.5%
5/5/2020	57.8	96.5	143	96.053	<	5	94.8%

**GLWA Local Limits Study  
WRRF Removal Rates**

	<b>Jeff</b> mg/l		<b>Oak</b> mg/l	<b>NIEA</b> mg/l	<b>Calc_Influent</b>		<b>Zug</b> mg/l	
5/6/2020	40		80.6	123	78.28	<	5	93.6%
5/7/2020	59.4		82.1	105	80.569	<	5	93.8%
5/8/2020	74.3		96.1	130	98.083	<	5	94.9%
5/9/2020	74.7		106	183	117.062		11.7	90.0%
5/10/2020	89.5		102	202	126.5		14.5	88.5%
5/11/2020	97.1		137	158	128.726		10.7	91.7%
5/12/2020	109		122	180	134.14		8.88	93.4%
5/13/2020	81		87.5	154	104.445		4.38	95.8%
5/14/2020	72.1		95.5	104	89.541		12.9	85.6%
5/15/2020	< 40	<	40	51.2	43.248		12.6	70.9%
5/16/2020	30.7		43	57.9	42.893	<	6.67	84.4%
5/17/2020	38.4		23.3	57.3	38.596	<	6.67	82.7%
5/18/2020	34.6		31.2	115	56.726		14.8	73.9%
5/19/2020	25	<	25	61.7	35.643		27.5	22.8%
5/20/2020	< 28.6		71.5	64.2	53.939		18.4	65.9%
5/21/2020	33.6		68.5	105	66.521		10.9	83.6%
5/22/2020	46.8		59.8	228	103.898		8.04	92.3%
5/23/2020	< 40	<	33.3	86	50.995	<	3.33	93.5%
5/24/2020	< 50		35.8	78.9	53.411	<	3.33	93.8%
5/25/2020	78.8		69.8	122	88.178		4.25	95.2%
5/26/2020	54		66.7	155	87.735		4.5	94.9%
5/27/2020	52		68.4	122	78.04		3.67	95.3%
5/28/2020	40		63.6	141	77.55		3.33	95.7%
5/29/2020	77.7		82.7	230	123.617		4	96.8%
5/30/2020	61		83.8	166	99.43		8.04	91.9%
5/31/2020	55.9		87	164	98.134		5.1	94.8%
6/1/2020	49		97	147	94.22	<	5	94.7%
6/2/2020	77		128	179	124.43	<	5	96.0%
6/3/2020	55		89	154	95.61		3.5	96.3%
6/4/2020	76		112	168	115.28		4.9	95.7%
6/5/2020	78		105	222	129.21	<	5	96.1%
6/6/2020	64		82	135	90.89		3.58	96.1%
6/7/2020	38		89	157	90.36		3.5	96.1%
6/8/2020	67		136	168	120.44		4.91	95.9%
6/9/2020	66		140	208	133.08		5.38	96.0%
6/10/2020	144		163	187	163.12		22.2	86.4%
6/11/2020	58		111	199	117.44		25.8	78.0%
6/12/2020	65		148	181	127.69		5.29	95.9%
6/13/2020	74		106	187	117.97		5	95.8%
6/14/2020	55		123	174	113.31		5.5	95.1%
6/15/2020	62		155	170	125.87	<	3.33	97.4%
6/16/2020	109		154	150	136.64		4	97.1%
6/17/2020	124		142	165	142.19		6.24	95.6%

**GLWA Local Limits Study  
WRRF Removal Rates**

	<b>Jeff</b> mg/l	<b>Oak</b> mg/l	<b>NIEA</b> mg/l	<b>Calc_Influent</b>		<b>Zug</b> mg/l	
6/18/2020	93	172	157	139.21		6.58	95.3%
6/19/2020	78	143	212	139.61		5.83	95.8%
6/20/2020	55	118	149	104.31	<	4	96.2%
6/21/2020	51	132	165	112.41	<	4	96.4%
6/22/2020	75	140	190	131.1		5.41	95.9%
6/23/2020	69	156	212	140.92		10.5	92.5%
6/24/2020	34	125	227	121.82	<	4	96.7%
6/25/2020	41	165	223	137.18	<	4	97.1%
6/26/2020	71	147	207	137.04	<	4	97.1%
6/27/2020	< 25	112	88	73.72		22.2	69.9%
6/28/2020	< 25	78	138	76.32	<	3.33	95.6%
6/29/2020	< 33	83	225	106.18	<	4	96.2%
6/30/2020	46	123	325	153.86		5.85	96.2%
7/1/2020	61	156	350	178.06		4.98	97.2%
7/2/2020	< 33	148	196	120.52		5.86	95.1%
7/3/2020	< 33	127	191	111.72		4.08	96.3%
7/4/2020	36	188	177	130.09		4	96.9%
7/5/2020	27	128	200	112.52		4.6	95.9%
7/6/2020	44	122	167	106.97	<	3.33	96.9%
7/7/2020	63	122	179	117.29	<	3.33	97.2%
7/8/2020	69	151	110	109.59		7.73	92.9%
7/9/2020	52	96	166	100.46		5.5	94.5%
7/10/2020	74	112	194	122.1		5.81	95.2%
7/11/2020	< 40	77	110	73.25		11.9	83.8%
7/12/2020	< 33	63	157	79.46	<	4	95.0%
7/13/2020	< 40	107	185	105.5	<	4	96.2%
7/14/2020	71	158	220	144.66		4.2	97.1%
7/15/2020	93	113	332	169.31	<	4	97.6%
7/16/2020	50	118	162	106.28		12.7	88.1%
7/17/2020	44	71	217	103.62	<	4	96.1%
7/18/2020	61	57	162	88.89	<	5	94.4%
7/19/2020	< 40	86	136	83.94		10.9	87.0%
7/20/2020	23	36	109	52.49	<	4	92.4%
7/21/2020	28	48	132	65.16	<	4	93.9%
7/22/2020	41	78	151	85.85	<	3.33	96.1%
7/23/2020	48	82	154	90.64	<	3.33	96.3%
7/24/2020	70	129	207	130.38	<	4	96.9%
7/25/2020	68	104	144	102.64	<	3.33	96.8%
7/26/2020	42	64	136	76.96	<	4	94.8%
7/27/2020	75	132	205	132.65	<	4	97.0%
7/28/2020	99	160	220	155.44	<	4	97.4%
7/29/2020	111	140	185	142.61		16.1	88.7%
7/30/2020	85	119	255	146.2		11.8	91.9%

**GLWA Local Limits Study  
WRRF Removal Rates**

	<b>Jeff</b> mg/l	<b>Oak</b> mg/l	<b>NIEA</b> mg/l	<b>Calc_Influent</b>		<b>Zug</b> mg/l	
7/31/2020	66	96	198	114.78	<	5	95.6%
8/1/2020	112	117	211	142.46		5.1	96.4%
8/2/2020	100	96	176	120.64		28.8	76.1%
8/3/2020	45	41	83	54.62		4.1	92.5%
8/4/2020	< 29	50	69	47.95		7.85	83.6%
8/5/2020	34	79	139	80.2	<	4	95.0%
8/6/2020	71	104	225	127.21		4	96.9%
8/7/2020	< 40	78	179	93.61		4.7	95.0%
8/8/2020	62	70	145	88.87	<	4	95.5%
8/9/2020	55	56	144	81.16	<	4	95.1%
8/10/2020	65	85	116	86.79		4.6	94.7%
8/11/2020	48	96	162	97.86	<	4	95.9%
8/12/2020	61	96	148	98.48		5.33	94.6%
8/13/2020	73	96	188	114.4		6.85	94.0%
8/14/2020	103	118	190	133.48		6.12	95.4%
8/15/2020	80	111	290	151.75		6.65	95.6%
8/16/2020	100	96	232	136.88		9.42	93.1%
8/17/2020	50	33	231	96.54		5.25	94.6%
8/18/2020	57	17	223	91.14		5.52	93.9%
8/19/2020	47	135	144	105.93		5	95.3%
8/20/2020	98	60	163	103.55		6.52	93.7%
8/21/2020	60	104	185	111.65		5	95.5%
8/22/2020	58	106	126	94.52	<	4	95.8%
8/23/2020	60	99	150	99.75	<	3.33	96.7%
8/24/2020	58	113	135	99.58	<	4	96.0%
8/25/2020	61	89	112	85.59		7.72	91.0%
8/26/2020	77	120	172	119.6		7.32	93.9%
8/27/2020	40	82	167	91.53		5.2	94.3%
8/28/2020	40	84	93	70.77		16.1	77.3%
8/29/2020	< 40	< 50	106	62.64		8.01	87.2%
8/30/2020	72	< 50	108	74.74	<	4	94.6%
8/31/2020	72	53	132	82.75		9.28	88.8%
9/1/2020	61	75	160	94.61		13.2	86.0%
9/2/2020	39	46	96	57.98		6.29	89.2%
9/3/2020	62	83	153	95.74		3.83	96.0%
9/4/2020	50	52	101	65.49	<	4	93.9%
9/5/2020	80	87	117	93.18	<	4	95.7%
9/6/2020	33	58	115	65.53	<	4	93.9%
9/7/2020	38	98	131	85.97		6.96	91.9%
9/8/2020	< 33	61	154	77.89		13.9	82.2%
9/9/2020	< 25	33	95	48.1		3.42	92.9%
9/10/2020	< 33	39	68	45.25	<	4	91.2%
9/11/2020	54	96	182	105.82		10	90.5%

**GLWA Local Limits Study  
WRRF Removal Rates**

	<b>Jeff</b> mg/l	<b>Oak</b> mg/l	<b>NIEA</b> mg/l	<b>Calc_Influent</b>		<b>Zug</b> mg/l	
9/12/2020	64	82	163	99.01		5.12	94.8%
9/13/2020	98	86	169	114.39	<	5	95.6%
9/14/2020	53	60	176	91.12		3.83	95.8%
9/15/2020	63	82	110	83.28		4.46	94.6%
9/16/2020	88	109	131	107.82	<	4	96.3%
9/17/2020	88	127	174	126.59		4	96.8%
9/18/2020	40	94	220	111.1		5.49	95.1%
9/19/2020	68	126	196	125.42		4.33	96.5%
9/20/2020	60	110	208	120.42		3.75	96.9%
9/21/2020	52	117	157	105.2	<	4	96.2%
9/22/2020	53	125	144	104.59		7.51	92.8%
9/23/2020	69	116	140	106.04	<	5.71	94.6%
9/24/2020	51	150	144	112.62	<	4	96.4%
9/25/2020	146	197	272	200.39		4.73	97.6%
9/26/2020	73	132	168	121.2		4	96.7%
9/27/2020	48	94	164	97.74	<	4	95.9%
9/28/2020	51	103	203	113.28		5.25	95.4%
9/29/2020	72	97	158	105.69		4.67	95.6%
9/30/2020	145	119	260	169.25	<	4	97.6%
10/1/2020	92	116	211	134.91		4.2	96.9%
10/2/2020	81	109	260	142.71		4.6	96.8%
10/3/2020	54	108	183	110.31		3.83	96.5%
10/4/2020	67	96	332	154		6.46	95.8%
10/5/2020	70	99	163	107.12	<	4	96.3%
10/6/2020	75	109	185	118.8	<	4	96.6%
10/7/2020	53	118	140	100.98		4	96.0%
10/8/2020	65	98	164	105.26		3.83	96.4%
10/9/2020	121	143	223	158.28		5.12	96.8%
10/10/2020	69	108	166	110.78		4.3	96.1%
10/11/2020	51	76	231	111.95	<	4	96.4%
10/12/2020	46	153	155	115.06	<	4	96.5%
10/13/2020	93	90	137	104.71		6.27	94.0%
10/14/2020	85	135	177	129.18	<	5	96.1%
10/15/2020	67	83	100	82.17	<	3.33	95.9%
10/16/2020	109	111	144	119.85		5.8	95.2%
10/17/2020	58	158	335	173.33	<	4	97.7%
10/18/2020	55	137	205	127.2	<	4	96.9%
10/19/2020	42	< 40	150	72.62	<	4	94.5%
10/20/2020	62	< 40	140	76.92		3.5	95.4%
10/21/2020	34	< 29	75	44.14		4.7	89.4%
10/22/2020	32	< 33	98	51.49	<	4	92.2%
10/23/2020	40	54	106	64.04		4.7	92.7%
10/24/2020	50	98	119	86.81	<	4	95.4%

**GLWA Local Limits Study  
WRRF Removal Rates**

	<b>Jeff</b> mg/l	<b>Oak</b> mg/l	<b>NIEA</b> mg/l	<b>Calc_Influent</b>		<b>Zug</b> mg/l	
10/25/2020	54	91	182	104.07	<	4	96.2%
10/26/2020	55	102	154	100.16		18.2	81.8%
10/27/2020	44	114	448	185.66		4	97.8%
10/28/2020	48	150	210	130.68		5	96.2%
10/29/2020	67	128	127	105.75		4	96.2%
10/30/2020	64	137	141	111.88		8.76	92.2%
10/31/2020	41	168	129	110.97	<	4	96.4%
11/1/2020	45	140	130	102.9		4.4	95.7%
11/2/2020	83	185	245	165.68	<	5	97.0%
11/3/2020	55	195	256	162.29	<	5	96.9%
11/4/2020	77	179	348	191.29		5.15	97.3%
11/5/2020	163	155	340	211.53		5.58	97.4%
11/6/2020	57	162	227	143.05	<	3.33	97.7%
11/7/2020	59	188	180	139.24	<	4	97.1%
11/8/2020	68	138	170	122.08	<	4	96.7%
11/9/2020	91	176	310	184.26		4.5	97.6%
11/10/2020	98	143	244	156.09		6.67	95.7%
11/11/2020	94	118	157	120.67		9.41	92.2%
11/12/2020	86	123	194	130.27		5.98	95.4%
11/13/2020	87	164	257	163.25		6.19	96.2%
11/14/2020	66	175	400	201.01		4.4	97.8%
11/15/2020	47	96	146	92.86		9.05	90.3%
11/16/2020	58	124	255	138.23		69.5	49.7%
11/17/2020	139	247	161	183.18		10.1	94.5%
11/18/2020	62	126	224	131.38		6.67	94.9%
11/19/2020	86	147	169	131.42		13.1	90.0%
11/20/2020	71	169	180	136.91		4.8	96.5%
11/21/2020	93	135	505	227.18	<	4	98.2%
11/22/2020	81	105	175	116.66		5.71	95.1%
11/23/2020	65	82	87	77.33		9.81	87.3%
11/24/2020	114	161	158	143.21		4.8	96.6%
11/25/2020	238	145	182	189.21	<	5	97.4%
11/26/2020	31	39	144	66.57		7.4	88.9%
11/27/2020	29	< 50	142	69.12		5	92.8%
11/28/2020	82	< 7	151	75.76	<	4	94.7%
11/29/2020	< 40	85	173	94.32		4.6	95.1%
11/30/2020	4	129	135	85.74		8.29	90.3%
12/1/2020	44	129	135	100.14		4.92	95.1%
12/2/2020	59	91	174	103.55		5.25	94.9%
12/3/2020	213	155	198	188.35	>	37.8	79.9%
12/4/2020	82	243	189	169.38		7.67	95.5%
12/5/2020	51	144	150	112.26		4.85	95.7%
12/6/2020	89	91	132	102.17		6.56	93.6%

**GLWA Local Limits Study  
WRRF Removal Rates**

	<b>Jeff</b> mg/l	<b>Oak</b> mg/l	<b>NIEA</b> mg/l	<b>Calc_Influent</b>		<b>Zug</b> mg/l	
12/7/2020	64	127	224	132.45		6.52	95.1%
12/8/2020	79	171	241	158.18		7.44	95.3%
12/9/2020	57	130	110	97.92		7.02	92.8%
12/10/2020	74	201	144	138.75		5.88	95.8%
12/11/2020	82	154	196	140.26		6.21	95.6%
12/12/2020	63	118	190	119.08		14.6	87.7%
12/13/2020	< 50	75	116	77.89		7.5	90.4%
12/14/2020	75	105	209	124.36	<	6.67	94.6%
12/15/2020	78	129	240	142.83		8.83	93.8%
12/16/2020	65	126	213	129.27			
12/17/2020	101	106	152	117.54			
12/18/2020	52	75	94	72.23		5	93.1%
12/19/2020	< 40	80	131	80.39		4.08	94.9%
12/20/2020	45	71	146	83.39		5.33	93.6%
12/21/2020	116	132	163	135.23		6.25	95.4%
12/22/2020	93	270	270	206.28		6.25	97.0%
12/23/2020	56	144	208	130.88		10.3	92.1%
12/24/2020	73	148	178	129.7	<	4	96.9%
12/25/2020	47	104	325	147.57		4.3	97.1%
12/26/2020	52	105	180	107.67	<	5	95.4%
12/27/2020	63	123	194	121.99		9.17	92.5%
12/28/2020	70	111	128	101.17		8.63	91.5%
12/29/2020	52	122	362	166.4		4.5	97.3%
12/30/2020	94	168	266	169.78		14.1	91.7%
12/31/2020	70	122	212	129.38		13.4	89.6%

<b>Mean</b>	<b>110.30</b>	<b>7.75</b>	<b>94.6%</b>
<b>N</b>	<b>366</b>		
<b>Std Dev.</b>	<b>36.16</b>	<b>6.50</b>	<b>7.7%</b>
<b>Min.</b>	<b>35.643</b>	<b>3.33</b>	<b>22.8%</b>
<b>Max.</b>	<b>369.88</b>	<b>69.5</b>	<b>98.2%</b>
<b>Median</b>			<b>94.7%</b>
<b>2nd Decile</b>			<b>90.3%</b>
<b>Load</b>		<b>507,303.22</b>	<b>lbs/day</b>

**GLWA Local Limits Study  
WRRF Removal Rates**

**Total Suspended Solids (TSS)**

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent	Effluent mg/l	Overall Removal
1/1/2020	42	100	188	104.64	11	89.5%
1/2/2020	92	122	134	114.68	10	91.3%
1/3/2020	128	104	264	159.04	9.5	94.0%
1/4/2020	76	96	164	108.52	< 5	95.4%
1/5/2020	67	100	194	115.38	9	92.2%
1/6/2020	102	102	150	115.92	9	92.2%
1/7/2020	158	116	218	160.7	14.5	91.0%
1/8/2020	166	114	190	154.76	10.5	93.2%
1/9/2020	158	126	236	169.42	10	94.1%
1/10/2020	254	124	218	198.06	9	95.5%
1/11/2020	200	180	232	202.28	47	76.8%
1/12/2020	64	68	88	72.36	31	57.2%
1/13/2020	40	46	120	65.3	19.5	70.1%
1/14/2020	64	66	108	77.46	11	85.8%
1/15/2020	54	61	196	97.63	< 5	94.9%
1/16/2020	65	65	238	115.17	8	93.1%
1/17/2020	84	84	168	108.36	6.5	94.0%
1/18/2020	88	88	150	105.98	< 5	95.3%
1/19/2020	84	42	116	78.58	7	91.1%
1/20/2020	70	84	132	92.88	7.5	91.9%
1/21/2020	150	92	194	142.46	6.5	95.4%
1/22/2020	106	76	164	112.32	< 5	95.5%
1/23/2020	140	90	158	127.72	< 5	96.1%
1/24/2020	126	136	208	153.28	14.5	90.5%
1/25/2020	61	51	103	69.68	21	69.9%
1/26/2020	22	36	89	46.33	14.5	68.7%

**GLWA Local Limits Study  
WRRF Removal Rates**

**Total Suspended Solids (TSS)**

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent	Effluent mg/l	Overall Removal
1/27/2020	91	55	71	72.6	11	84.8%
1/28/2020	68	62	64	64.74	6.5	90.0%
1/29/2020	80	88	132	97.88	8.5	91.3%
1/30/2020	62	60	140	83.92	9	89.3%
1/31/2020	88	70	144	97.94	8	91.8%
2/1/2020	86	80	184	112.32	8.5	92.4%
2/2/2020	58	76	176	98.52	7.5	92.4%
2/3/2020	120	112	158	128.22	8.5	93.4%
2/4/2020	110	104	190	131.1	8	93.9%
2/5/2020	94	106	162	117.92	8	93.2%
2/6/2020	114	96	192	130.32	8	93.9%
2/7/2020	120	90	214	136.76	9.5	93.1%
2/8/2020	77	78	214	117.08	11	90.6%
2/9/2020	80	96	176	113.44	10.5	90.7%
2/10/2020	142	114	202	149.6	14	90.6%
2/11/2020	26	32	146	62.9	8.5	86.5%
2/12/2020	92	100	180	120.32	8.5	92.9%
2/13/2020	112	720	146	334.66	8	97.6%
2/14/2020	78	80	70	76.38	5.5	92.8%
2/15/2020	60	96	178	106.82	8.5	92.0%
2/16/2020	60	84	186	104.94	8.5	91.9%
2/17/2020	100	66	154	103.76	7	93.3%
2/18/2020	232	80	202	170.1	6	96.5%
2/19/2020	158	92	246	160.42	7	95.6%
2/20/2020	84	80	228	124.36	6.5	94.8%
2/21/2020	96	122	224	142.22	6.75	95.3%

**GLWA Local Limits Study  
WRRF Removal Rates**

**Total Suspended Solids (TSS)**

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent	Effluent mg/l	Overall Removal
2/22/2020	82	110	246	139.36	6.5	95.3%
2/23/2020	79	86	276	138.58	7.75	94.4%
2/24/2020	122	86	212	135.5	7.6	94.4%
2/25/2020	146	86	200	140.66	9	93.6%
2/26/2020	120	166	166	149.44	5.8	96.1%
2/27/2020	122	104	188	134.84	9.17	93.2%
2/28/2020	82	102	144	106.98	10.5	90.2%
2/29/2020	104	102	182	125.92	6.5	94.8%
3/1/2020	100	98	202	128.88	8.17	93.7%
3/2/2020	274	158	288	237.46	5.67	97.6%
3/3/2020	142	96	190	139.82	6.33	95.5%
3/4/2020	63	190	176	140.22	10	92.9%
3/5/2020	100	95	216	131.89	6.75	94.9%
3/6/2020	110	92	270	150.1	5.17	96.6%
3/7/2020	96	102	202	128.84	5.67	95.6%
3/8/2020	108	94	204	130.94	9	93.1%
3/9/2020	108	100	178	125.5	6.75	94.6%
3/10/2020	234	162	256	215.18	6.67	96.9%
3/11/2020	126	96	316	170.6	5.8	96.6%
3/12/2020	82	112	192	124.4	6.75	94.6%
3/13/2020	102	116	344	177.08	6.22	96.5%
3/14/2020	102	138	202	143.6	6.2	95.7%
3/15/2020	94	100	208	129.16	6.75	94.8%
3/16/2020	112	102	154	120.68	6.5	94.6%
3/17/2020	98	112	236	142.92	7.5	94.8%
3/18/2020	172	166	234	187.88	9.5	94.9%

**GLWA Local Limits Study  
WRRF Removal Rates**

**Total Suspended Solids (TSS)**

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent	Effluent mg/l	Overall Removal
3/19/2020	100	154	264	166.46	8.4	95.0%
3/20/2020	100	56	154	100.26	6.4	93.6%
3/21/2020	49	67	97	69.22	6.4	90.8%
3/22/2020	74	88	162	104.42	7.2	93.1%
3/23/2020	102	94	214	131.68	5.83	95.6%
3/24/2020	118	78	188	124.3	< 5	96.0%
3/25/2020	116	96	152	119.44	< 5	95.8%
3/26/2020	118	78	158	115.6	7.6	93.4%
3/27/2020	122	110	188	136.94	5.2	96.2%
3/28/2020	280	188	222	230.98	40	82.7%
3/29/2020	174	61	128	121.11	21.5	82.2%
3/30/2020	56	128	110	96.86	8.5	91.2%
3/31/2020	130	56	92	93.08	5	94.6%
4/1/2020	55	93.3	292	137.135	< 5	96.4%
4/2/2020	190	114	400	224.3	< 5	97.8%
4/3/2020	74	88	158	103.26	5.6	94.6%
4/4/2020	33	96	202	104.06	5.4	94.8%
4/5/2020	36	80	216	103.6	< 5	95.2%
4/6/2020	56	110	322	152.04	6.46	95.8%
4/7/2020	254	166	262	225.52	7.2	96.8%
4/8/2020	96	88	172	115.24	9	92.2%
4/9/2020	60	69	82	69.53	6	91.4%
4/10/2020	77	89	194	115.13	< 5	95.7%
4/11/2020	174	86	178	144.36	< 5	96.5%
4/12/2020	74	70	168	99.86	5.67	94.3%
4/13/2020	108	100	244	144.64	6.83	95.3%

**GLWA Local Limits Study  
WRRF Removal Rates**

**Total Suspended Solids (TSS)**

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent	Effluent mg/l	Overall Removal
4/14/2020	75	88	166	105.94	< 5	95.3%
4/15/2020	89	92	174	114.7	< 5	95.6%
4/16/2020	72	85	166	103.81	< 5	95.2%
4/17/2020	86	100	188	120.48	5	95.8%
4/18/2020	95	66	170	106.6	5	95.3%
4/19/2020	76	80	152	99.44	< 5	95.0%
4/20/2020	65	77	186	104.29	< 5	95.2%
4/21/2020	77	91	160	105.97	< 5	95.3%
4/22/2020	56	106	214	119.32	5.67	95.2%
4/23/2020	62	64	250	117.22	5.33	95.5%
4/24/2020	51	84	182	100.54	< 5	95.0%
4/25/2020	77	90	168	107.94	< 5	95.4%
4/26/2020	64	70	180	99.74	< 5	95.0%
4/27/2020	68	78	260	127.18	< 5	96.1%
4/28/2020	117	58	186	116.36	< 5	95.7%
4/29/2020	135	91	284	162.81	< 5	96.9%
4/30/2020	124	74	218	133.76	< 5	96.3%
5/1/2020	66	31	150	78.11	< 5	93.6%
5/2/2020	57	58	576	207.86	< 5	97.6%
5/3/2020	55	30	130	68	< 5	92.6%
5/4/2020	84	104	206	126.38	< 5	96.0%
5/5/2020	76	118	198	126.08	< 5	96.0%
5/6/2020	96	50	106	82.8	< 5	94.0%
5/7/2020	140	110	202	147.48	< 5	96.6%
5/8/2020	98	112	188	129	5.6	95.7%
5/9/2020	78	88	184	112.24	7.6	93.2%

**GLWA Local Limits Study  
WRRF Removal Rates**

**Total Suspended Solids (TSS)**

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent	Effluent mg/l	Overall Removal
5/10/2020	82	82	216	120.86	5.3	95.6%
5/11/2020	135	178	228	177.02	8.1	95.4%
5/12/2020	194	118	236	179.58	8.4	95.3%
5/13/2020	170	112	238	169.42	5.4	96.8%
5/14/2020	167	132	170	155.62	14.2	90.9%
5/15/2020	73	50	96	71.62	19.5	72.8%
5/16/2020	40	40	77	50.73	5	90.1%
5/17/2020	51	16.7	81	47.695	< 5	89.5%
5/18/2020	72	36.7	196	95.605	11.2	88.3%
5/19/2020	56	40	86	59.1	29.6	49.9%
5/20/2020	26	102	102	74.64	11.8	84.2%
5/21/2020	27	102	182	98.2	< 5	94.9%
5/22/2020	41.5	50	565	196.29	6.3	96.8%
5/23/2020	107	56	272	137	5.1	96.3%
5/24/2020	178	61	164	132.99	< 5	96.2%
5/25/2020	212	92	146	150.86	< 5	96.7%
5/26/2020	106	92	204	129.52	< 5	96.1%
5/27/2020	116	96	196	132.2	< 5	96.2%
5/28/2020	90	92	196	121.44	< 5	95.9%
5/29/2020	160	108	254	169.06	< 5	97.0%
5/30/2020	74	90	198	115.56	19.3	83.3%
5/31/2020	66	93	194	112.57	< 5	95.6%
6/1/2020	69	99	230	126.19	< 5	96.0%
6/2/2020	104	124	260	156.24	< 5	96.8%
6/3/2020	77	84	192	112.8	< 5	95.6%
6/4/2020	118	104	190	133.98	< 5	96.3%

**GLWA Local Limits Study  
WRRF Removal Rates**

**Total Suspended Solids (TSS)**

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent	Effluent mg/l	Overall Removal
6/5/2020	105	114	250	150.2	< 5	96.7%
6/6/2020	135	115	262	164.83	< 5	97.0%
6/7/2020	58	89	178	103.65	< 5	95.2%
6/8/2020	81	101	208	124.83	< 5	96.0%
6/9/2020	86	140	276	160	5.89	96.3%
6/10/2020	440	228	416	358.84	10.4	97.1%
6/11/2020	138	152	370	210.18	7.4	96.5%
6/12/2020	148	138	210	162.48	< 5	96.9%
6/13/2020	202	118	190	169.12	5.5	96.7%
6/14/2020	102	134	168	132.34	5.9	95.5%
6/15/2020	90	114	234	140.16	< 5	96.4%
6/16/2020	236	138	218	196.48	< 5	97.5%
6/17/2020	240	132	130	170.3	< 5	97.1%
6/18/2020	148	116	184	147.24	< 5	96.6%
6/19/2020	116	146	226	158.4	< 5	96.8%
6/20/2020	94	128	210	139.54	< 5	96.4%
6/21/2020	80	126	214	134.96	< 5	96.3%
6/22/2020	100	134	200	140.9	< 5	96.5%
6/23/2020	142	188	254	190.58	10.3	94.6%
6/24/2020	54	128	268	141.96	< 5	96.5%
6/25/2020	54	148	208	131.56	< 5	96.2%
6/26/2020	204	134	210	181.24	< 5	97.2%
6/27/2020	49	294	238	189.56	31.8	83.2%
6/28/2020	40	74	142	81.48	< 5	93.9%
6/29/2020	29	95	116	77.33	< 5	93.5%
6/30/2020	29	117	300	138.39	< 5	96.4%

**GLWA Local Limits Study  
WRRF Removal Rates**

**Total Suspended Solids (TSS)**

Date	Jefferson	Oakwood	NIEA	Combined	Effluent mg/l	Overall Removal
	36% mg/l	35% mg/l	29% mg/l	Influent		
7/1/2020	26	110	166	96	5.8	94.0%
7/2/2020	29	101	184	99.15	< 5	95.0%
7/3/2020	26	88	154	84.82	< 5	94.1%
7/4/2020	162	42	594	245.28	< 5	98.0%
7/5/2020	36	108	404	167.92	5	97.0%
7/6/2020	108	128	172	133.56	6.5	95.1%
7/7/2020	166	140	208	169.08	5.9	96.5%
7/8/2020	226	304	228	253.88	5.9	97.7%
7/9/2020	112	132	260	161.92	6.3	96.1%
7/10/2020	124	102	140	120.94	12	90.1%
7/11/2020	92	212	238	176.34	19.2	89.1%
7/12/2020	36	78	126	76.8	< 5	93.5%
7/13/2020	39	104	172	100.32	< 5	95.0%
7/14/2020	90	114	254	145.96	< 5	96.6%
7/15/2020	416	57	322	263.09	< 5	98.1%
7/16/2020	145	144	480	241.8	12	95.0%
7/17/2020	90	76	450	189.5	< 5	97.4%
7/18/2020	142	90	336	180.06	< 5	97.2%
7/19/2020	110	128	362	189.38	9.6	94.9%
7/20/2020	76	84	112	89.24	< 5	94.4%
7/21/2020	58	70	264	121.94	< 5	95.9%
7/22/2020	67	62	266	122.96	< 5	95.9%
7/23/2020	86	76	186	111.5	< 5	95.5%
7/24/2020	122	112	190	138.22	< 5	96.4%
7/25/2020	236	100	190	175.06	< 5	97.1%
7/26/2020	64	90	180	106.74	< 5	95.3%

**GLWA Local Limits Study  
WRRF Removal Rates**

**Total Suspended Solids (TSS)**

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent	Effluent mg/l	Overall Removal
7/27/2020	90	116	180	125.2	< 5	96.0%
7/28/2020	120	102	254	152.56	5.6	96.3%
7/29/2020	117	158	212	158.9	< 5	96.9%
7/30/2020	81	100	270	142.46	5.4	96.2%
7/31/2020	123	196	240	182.48	< 5	97.3%
8/1/2020	142	202	222	186.2	5.3	97.2%
8/2/2020	114	190	120	142.34	24.4	82.9%
8/3/2020	216	70	112	134.74	6.1	95.5%
8/4/2020	92	80	106	91.86	8.9	90.3%
8/5/2020	32	74	252	110.5	< 5	95.5%
8/6/2020	53	100	314	145.14	< 5	96.6%
8/7/2020	55	98	204	113.26	< 5	95.6%
8/8/2020	240	74	220	176.1	< 5	97.2%
8/9/2020	140	78	182	130.48	< 5	96.2%
8/10/2020	94	80	166	109.98	< 5	95.5%
8/11/2020	116	80	242	139.94	6.5	95.4%
8/12/2020	100	102	226	137.24	5.4	96.1%
8/13/2020	120	58	214	125.56	5	96.0%
8/14/2020	138	94	324	176.54	6.8	96.1%
8/15/2020	132	100	330	178.22	7	96.1%
8/16/2020	182	94	256	172.66	13.3	92.3%
8/17/2020	160	29	350	169.25	5.2	96.9%
8/18/2020	108	17.5	208	105.325	7.1	93.3%
8/19/2020	95	192	220	165.2	< 5	97.0%
8/20/2020	155	90	190	142.4	< 5	96.5%
8/21/2020	106	170	148	140.58	5.6	96.0%

**GLWA Local Limits Study  
WRRF Removal Rates**

**Total Suspended Solids (TSS)**

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent	Effluent mg/l	Overall Removal
8/22/2020	94	122	188	131.06	< 5	96.2%
8/23/2020	114	108	184	132.2	6.4	95.2%
8/24/2020	86	124	190	129.46	6.5	95.0%
8/25/2020	98	120	260	152.68	8.5	94.4%
8/26/2020	216	176	290	223.46	12.2	94.5%
8/27/2020	268	88	198	184.7	7	96.2%
8/28/2020	186	278	212	225.74	26.3	88.3%
8/29/2020	83	90	170	110.68	12.5	88.7%
8/30/2020	78	54	120	81.78	5.2	93.6%
8/31/2020	72	50	290	127.52	< 5	96.1%
9/1/2020	88	60	304	140.84	6	95.7%
9/2/2020	136	60	234	137.82	6	95.6%
9/3/2020	103	154	66	110.12	< 5	95.5%
9/4/2020	184	96	164	147.4	< 5	96.6%
9/5/2020	190	92	224	165.56	< 5	97.0%
9/6/2020	96	76	224	126.12	< 5	96.0%
9/7/2020	120	120	128	122.32	11	91.0%
9/8/2020	76	76	252	127.04	23.4	81.6%
9/9/2020	39	64	90	62.54	5.2	91.7%
9/10/2020	56	38	308	122.78	< 5	95.9%
9/11/2020	64	45	212	100.27	< 5	95.0%
9/12/2020	82	40	154	88.18	5.7	93.5%
9/13/2020	152	54	182	126.4	< 5	96.0%
9/14/2020	88	49	192	104.51	< 5	95.2%
9/15/2020	132	62	202	127.8	< 5	96.1%
9/16/2020	107	210	236	180.46	7.9	95.6%

**GLWA Local Limits Study  
WRRF Removal Rates**

**Total Suspended Solids (TSS)**

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent	Effluent mg/l	Overall Removal
9/17/2020	105	168	166	144.74	7.5	94.8%
9/18/2020	112	122	132	121.3	< 5	95.9%
9/19/2020	74	92	192	114.52	5	95.6%
9/20/2020	61	96	172	105.44	< 5	95.3%
9/21/2020	87	89	224	127.43	< 5	96.1%
9/22/2020	106	74	252	137.14	< 5	96.4%
9/23/2020	77	66	186	104.76	< 5	95.2%
9/24/2020	88	134	258	153.4	< 5	96.7%
9/25/2020	243	98	252	194.86	6.2	96.8%
9/26/2020	60.7	94.7	182	107.777	< 5	95.4%
9/27/2020	63	92	104	85.04	5.1	94.0%
9/28/2020	91	140	200	139.76	6.6	95.3%
9/29/2020	138	116	112	122.76	< 5	95.9%
9/30/2020	300	94	216	203.54	< 5	97.5%
10/1/2020	176	96	202	155.54	< 5	96.8%
10/2/2020	98.7	86	184	118.992	< 5	95.8%
10/3/2020	61.3	96.7	128	93.033	5.3	94.3%
10/4/2020	42.7	76	224	106.932	< 5	95.3%
10/5/2020	65.8	90.7	172	105.313	< 5	95.3%
10/6/2020	102	72	206	121.66	< 5	95.9%
10/7/2020	61	88	246	124.1	< 5	96.0%
10/8/2020	50	94	188	105.42	< 5	95.3%
10/9/2020	56	88	150	94.46	6.3	93.3%
10/10/2020	66	92	100	84.96	6	92.9%
10/11/2020	62	60	204	102.48	6.8	93.4%
10/12/2020	41	112	134	92.82	17.4	81.3%

**GLWA Local Limits Study  
WRRF Removal Rates**

**Total Suspended Solids (TSS)**

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent	Effluent mg/l	Overall Removal
10/13/2020	158	96	258	165.3	9.2	94.4%
10/14/2020	149	124	154	141.7	7.7	94.6%
10/15/2020	114	108	174	129.3	< 5	96.1%
10/16/2020	96	52	174	103.22	< 5	95.2%
10/17/2020	80	290	380	240.5	< 5	97.9%
10/18/2020	70	82	60	71.3	7.6	89.3%
10/19/2020	95	66	166	105.44	7	93.4%
10/20/2020	72	54	200	102.82	< 5	95.1%
10/21/2020	92	47	354	152.23	5.6	96.3%
10/22/2020	81	20	190	91.26	6.6	92.8%
10/23/2020	172	80.9	154	134.895	8.9	93.4%
10/24/2020	102	104	98	101.54	5.5	94.6%
10/25/2020	82	74	204	114.58	< 5	95.6%
10/26/2020	82	146	162	127.6	5.7	95.5%
10/27/2020	98	104	558	233.5	6.8	97.1%
10/28/2020	80	98	256	137.34	9.3	93.2%
10/29/2020	96	88	162	112.34	5.9	94.7%
10/30/2020	76	96	166	109.1	9.2	91.6%
10/31/2020	84	114	194	126.4	6.1	95.2%
11/1/2020	78	98	206	122.12	7.3	94.0%
11/2/2020	94	98	180	120.34	6.8	94.3%
11/3/2020	112	136	276	167.96	9.6	94.3%
11/4/2020	92	158	272	167.3	5.1	97.0%
11/5/2020	82	132	234	143.58	5	96.5%
11/6/2020	81	130	256	148.9	< 5	96.6%
11/7/2020	62	118	192	119.3	5.9	95.1%

**GLWA Local Limits Study  
WRRF Removal Rates**

**Total Suspended Solids (TSS)**

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent	Effluent mg/l	Overall Removal
11/8/2020	72	102	192	117.3	7.7	93.4%
11/9/2020	77.3	174	148	131.648	6.2	95.3%
11/10/2020	46.3	106	66.2	72.966	8.1	88.9%
11/11/2020	182	186	242	200.8	13.4	93.3%
11/12/2020	113	117	212	143.11	8.4	94.1%
11/13/2020	122	98	146	120.56	8.1	93.3%
11/14/2020	52	68	82	66.3	7	89.4%
11/15/2020	130	252	104	165.16	15.4	90.7%
11/16/2020	78	64	94	77.74	8	89.7%
11/17/2020	130	120	60	106.2	7.6	92.8%
11/18/2020	60	75	72	68.73	5	92.7%
11/19/2020	83	102	194	121.84	5.9	95.2%
11/20/2020	96	90	132	104.34	5.3	94.9%
11/21/2020	166	174	482	260.44	< 5	98.1%
11/22/2020	70	142	70	95.2	8.7	90.9%
11/23/2020	54	64	124	77.8	8.9	88.6%
11/24/2020	85	90	140	102.7	6.5	93.7%
11/25/2020	100	60	90	83.1	8.2	90.1%
11/26/2020	41	41	166	77.25	8.7	88.7%
11/27/2020	120	100	32	87.48	< 5	94.3%
11/28/2020	114	7.43	142	84.8205	< 5	94.1%
11/29/2020	52	52	192	92.6	< 5	94.6%
11/30/2020	60	98	206	115.64	6.3	94.6%
12/1/2020	74	156	230	147.94	6.8	95.4%
12/2/2020	73	66	74	70.84	6.6	90.7%
12/3/2020	56	95	148	96.33	< 5	94.8%

**GLWA Local Limits Study  
WRRF Removal Rates**

**Total Suspended Solids (TSS)**

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent	Effluent mg/l	Overall Removal
12/4/2020	62	118	114	96.68	< 5	94.8%
12/5/2020	62	102	152	102.1	7	93.1%
12/6/2020	66	152	162	123.94	7.5	93.9%
12/7/2020	56	96	138	93.78	7.7	91.8%
12/8/2020	70	54	180	96.3	10	89.6%
12/9/2020	86	60	132	90.24	9	90.0%
12/10/2020	122	278	234	209.08	8.2	96.1%
12/11/2020	98	102	250	143.48	7.3	94.9%
12/12/2020	178	154	200	175.98	11.8	93.3%
12/13/2020	37	46	80	52.62	6.9	86.9%
12/14/2020	44	37	40	40.39	6.8	83.2%
12/15/2020	250	84	226	184.94	9.2	95.0%
12/16/2020	112	61	148	104.59		100.0%
12/17/2020	131	66	174	120.72		100.0%
12/18/2020	77	90	134	98.08	6.9	93.0%
12/19/2020	70	72	180	102.6	6	94.2%
12/20/2020	54	76	166	94.18	7.6	91.9%
12/21/2020	100	86	188	120.62	6.3	94.8%
12/22/2020	94	112	264	149.6	6.8	95.5%
12/23/2020	64	80	166	99.18	19.8	80.0%
12/24/2020	54	84	70	69.14	7	89.9%
12/25/2020	30	82	284	121.86	7	94.3%
12/26/2020	68	108	124	98.24	< 5	94.9%
12/27/2020	52	50	90	62.32	7	88.8%
12/28/2020	84	52	50	62.94	6	90.5%
12/29/2020	77	94	76	82.66	< 5	94.0%

**GLWA Local Limits Study  
WRRF Removal Rates**

**Total Suspended Solids (TSS)**

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent	Effluent mg/l	Overall Removal
12/30/2020	96	124	262	153.94	6.4	95.8%
12/31/2020	65	84	190	107.9	9.65	91.1%

<b>Mean</b>	<b>129.869</b>	<b>7.445</b>	<b>91.8%</b>
<b>N</b>	<b>366.000</b>		
<b>Std Dev.</b>	<b>42.513</b>	<b>4.741</b>	<b>5.0%</b>
<b>Min.</b>	<b>40.390</b>	<b>5.000</b>	<b>49.9%</b>
<b>Max.</b>	<b>358.840</b>	<b>47.000</b>	<b>100.0%</b>
<b>Median</b>			<b>95.1%</b>
<b>2nd Decile</b>			<b>92.4%</b>
<b>Load</b>	<b>597,319.82</b>	<b>lbs/day</b>	



**GLWA Local Limits Study**

**WRRF Removal Rates**

**Phosphorus (P)**

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent mg/l	Effluent mg/l	Overall Removal
1/1/2020	1.07	1.93	2.42	1.7625	0.5	71.63%
1/2/2020	1.16	1.49	1.92	1.4959	0.4	73.26%
1/3/2020	1.32	1.7	2.13	1.6879	0.4	76.30%
1/4/2020	1.81	2.23	3.41	2.421	0.4	83.48%
1/5/2020	1.59	2.36	3.66	2.4598	0.4	83.74%
1/6/2020	1.89	2.32	8.51	3.9603	0.6	84.85%
1/7/2020	2.4	2.8	4.16	3.0504	0.9	70.50%
1/8/2020	2.31	2.68	3.48	2.7788	0.5	82.01%
1/9/2020	2.49	2.98	4.53	3.2531	0.6	81.56%
1/10/2020	2.03	2.22	2.96	2.3662	0.5	78.87%
1/11/2020	1.41	1.44	2.24	1.6612	0.3	81.94%
1/12/2020	0.433	0.626	0.745	0.59103	0.2	66.16%
1/13/2020	0.681	0.658	1.35	0.86696	0.2	76.93%
1/14/2020	0.853	0.999	1.62	1.12653	0.2	82.25%
1/15/2020	0.894	1.07	2.28	1.35754	0.2	85.27%
1/16/2020	0.935	1.19	2.42	1.4549	0.2	86.25%
1/17/2020	0.986	1.45	2.14	1.48306	0.2	86.51%
1/18/2020	0.739	1.09	1.64	1.12314	0.2	82.19%
1/19/2020	0.822	0.86	1.75	1.10442	0.2	81.89%
1/20/2020	1.03	1.17	1.74	1.2849	0.2	84.43%
1/21/2020	1.46	1.88	1.83	1.7143	0.2	88.33%
1/22/2020	1.66	2.43	3.1	2.3471	0.1	95.74%
1/23/2020	1.54	1.74	3.01	2.0363	0.2	90.18%
1/24/2020	0.987	1.25	2.02	1.37862	0.2	85.49%
1/25/2020	0.832	0.881	1.58	1.06607	0.2	81.24%
1/26/2020	0.566	0.769	1.42	0.88471	0.2	77.39%

GLWA Local Limits Study

WRRF Removal Rates

Phosphorus (P)

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent	Effluent mg/l	Overall Removal
1/27/2020	0.699	0.784	1.33	0.91174	0.1	89.03%
1/28/2020	1.12	1.01	1.38	1.1569	0.2	82.71%
1/29/2020	1.38	1.15	1.47	1.3256	0.2	84.91%
1/30/2020	0.984	1.19	1.9	1.32174	0.2	84.87%
1/31/2020	1.2	1.72	1.98	1.6082	0.2	87.56%
2/1/2020	1.5	2.07	3.1	2.1635	0.2	90.76%
2/2/2020	1.37	1.77	2.99	1.9798	0.3	84.85%
2/3/2020	1.75	1.95	2.7	2.0955	0.2	90.46%
2/4/2020	1.67	1.6	2.9	2.0022	0.2	90.01%
2/5/2020	1.49	1.78	2.32	1.8322	0.3	83.63%
2/6/2020	1.54	2.04	2.87	2.1007	0.3	85.72%
2/7/2020	1.23	1.62	2.32	1.6826	0.4	76.23%
2/8/2020	1.02	1.18	1.82	1.308	0.4	69.42%
2/9/2020	0.963	1.53	2.32	1.55498	0.4	74.28%
2/10/2020	1.01	1.75	3.44	1.9737	0.4	79.73%
2/11/2020	0.982	1.46	2.06	1.46192	0.3	79.48%
2/12/2020	1.53	1.49	2.03	1.661	0.3	81.94%
2/13/2020	1.28	7.74	3.27	4.1181	0.3	92.72%
2/14/2020	1.28	1.64	2.46	1.7482	0.4	77.12%
2/15/2020	1.54	2.19	3.31	2.2808	0.4	82.46%
2/16/2020	1.27	2.04	3.9	2.3022	0.4	82.63%
2/17/2020	1.38	2.01	2.18	1.8325	0.3	83.63%
2/18/2020	1.5	2.01	2.29	1.9076	0.3	84.27%
2/19/2020	1.72	1.85	2.25	1.9192	0.2	89.58%
2/20/2020	1.95	2.4	3.97	2.6933	0.4	85.15%
2/21/2020	2.16	2.38	3.42	2.6024	0.4	84.63%

**GLWA Local Limits Study**

**WRRF Removal Rates**

**Phosphorus (P)**

	Jefferson	Oakwood	NIEA	Combined	Effluent	Overall
	36%	35%	29%	Influent		Removal
Date	mg/l	mg/l	mg/l		mg/l	
2/22/2020	1.99	2.54	3.51	2.6233	0.3	88.56%
2/23/2020	2.45	2.04	3.51	2.6139	0.4	84.70%
2/24/2020	1.89	2.21	2.52	2.1847	0.3	86.27%
2/25/2020	1.35	1.97	2.63	1.9382	0.4	79.36%
2/26/2020	1.77	1.96	3.05	2.2077	0.4	81.88%
2/27/2020	1.68	1.9	2.54	2.0064	0.4	80.06%
2/28/2020	1.69	1.88	2.6	2.0204	0.5	75.25%
2/29/2020	1.78	2	3.28	2.292	0.4	82.55%
3/1/2020	1.52	2.38	3.21	2.3111	0.3	87.02%
3/2/2020	1.57	1.67	2.59	1.9008	0.3	84.22%
3/3/2020	1.74	1.93	3.58	2.3401	0.3	87.18%
3/4/2020	1.53	3.22	3.59	2.7189	0.8	70.58%
3/5/2020	1.24	1.87	2.77	1.9042	0.3	84.25%
3/6/2020	1.9	2.17	2.87	2.2758	0.4	82.42%
3/7/2020	1.79	2.43	4.2	2.7129	0.5	81.57%
3/8/2020	1.25	2.32	3.3	2.219	0.5	77.47%
3/9/2020	1.75	2.44	3.68	2.5512	0.4	84.32%
3/10/2020	1.47	2.35	1.97	1.923	0.3	84.40%
3/11/2020	1.63	1.96	2.67	2.0471	0.2	90.23%
3/12/2020	2.13	1.79	2.83	2.214	0.4	81.93%
3/13/2020	1.64	2.35	2.85	2.2394	0.5	77.67%
3/14/2020	1.91	3.09	3.62	2.8189	0.4	85.81%
3/15/2020	1.61	2.63	3.38	2.4803	0.4	83.87%
3/16/2020	1.51	1.92	4.87	2.6279	0.3	88.58%
3/17/2020	2.29	2.45	2.96	2.5403	0.3	88.19%
3/18/2020	2.18	2.73	3.81	2.8452	0.4	85.94%

**GLWA Local Limits Study**

**WRRF Removal Rates**

**Phosphorus (P)**

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent mg/l	Effluent mg/l	Overall Removal
3/19/2020	1.83	2.18	3.68	2.489	0.4	83.93%
3/20/2020	0.981	1.23	1.84	1.31726	0.2	84.82%
3/21/2020	1.42	2.05	3.17	2.148	0.2	90.69%
3/22/2020	1.27	2.17	3.02	2.0925	0.4	80.88%
3/23/2020	1.55	2.1	3.29	2.2471	0.3	86.65%
3/24/2020	1.58	1.98	2.75	2.0593	0.2	90.29%
3/25/2020	1.59	2.33	3.31	2.3478	0.3	87.22%
3/26/2020	2.03	2.39	3.19	2.4924	0.3	87.96%
3/27/2020	2.97	3.58	6.09	4.0883	0.2	95.11%
3/28/2020	1.48	1.71	2.18	1.7635	0.2	88.66%
3/29/2020	0.657	0.608	1.12	0.77412	0.2	74.16%
3/30/2020	0.509	1.25	1.49	1.05284	0.2	81.00%
3/31/2020	1.1	1.05	1.84	1.2971	0.2	84.58%
4/1/2020	1.01	1.17	2.65	1.5416	0.2	87.03%
4/2/2020	1.46	1.5	3	1.9206	0.2	89.59%
4/3/2020	1.24	2.07	6.26	2.9863	0.2	93.30%
4/4/2020	0.592	1.66	4.2	2.01212	0.2	90.06%
4/5/2020	1.15	1.77	3.74	2.1181	0.2	90.56%
4/6/2020	1.49	2.03	2.9	2.0879	0.2	90.42%
4/7/2020	2.39	2.22	3.53	2.6611	0.2	92.48%
4/8/2020	1.7	1.76	3.26	2.1734	0.2	90.80%
4/9/2020	0.99	1.44	3.25	1.8029	0.2	88.91%
4/10/2020	1.41	1.82	2.94	1.9972	0.2	89.99%
4/11/2020	1.91	1.76	3.07	2.1939	0.2	90.88%
4/12/2020	1.29	1.88	3.23	2.0591	0.3	85.43%
4/13/2020	1.88	2.47	3.79	2.6404	0.4	84.85%

GLWA Local Limits Study

WRRF Removal Rates

Phosphorus (P)

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent mg/l	Effluent mg/l	Overall Removal
4/14/2020	1.2	2.19	3.27	2.1468	0.2	90.68%
4/15/2020	1.53	2	2.79	2.0599	0.3	85.44%
4/16/2020	1.74	2.82	3.88	2.7386	0.2	92.70%
4/17/2020	1.81	2.05	4.08	2.5523	0.4	84.33%
4/18/2020	1.54	1.6	3.11	2.0163	0.2	90.08%
4/19/2020	1.54	1.83	3.34	2.1635	0.2	90.76%
4/20/2020	1.57	2.19	3.53	2.3554	0.2	91.51%
4/21/2020	1.52	2.56	3.35	2.4147	0.3	87.58%
4/22/2020	1.58	2.45	3.84	2.5399	0.4	84.25%
4/23/2020	1.92	2.33	3.49	2.5188	0.4	84.12%
4/24/2020	1.18	1.99	2.85	1.9478	0.2	89.73%
4/25/2020	1.46	2.1	3.14	2.1712	0.2	90.79%
4/26/2020	1.32	2.05	2.55	1.9322	0.2	89.65%
4/27/2020	1.97	2.44	4.22	2.787	0.3	89.24%
4/28/2020	2.57	2.23	3.6	2.7497	0.3	89.09%
4/29/2020	1.92	2.47	5.26	3.0811	0.3	90.26%
4/30/2020	1.73	2.18	3.39	2.3689	0.3	87.34%
5/1/2020	1.32	1.67	2.82	1.8775	0.3	84.02%
5/2/2020	1.46	3.85	3.57	2.9084	0.3	89.69%
5/3/2020	1.75	2.26	4.1	2.61	0.2	92.34%
5/4/2020	1.32	2.73	4.02	2.5965	0.2	92.30%
5/5/2020	1.52	2.61	4.8	2.8527	0.3	89.48%
5/6/2020	2.16	3.12	4.22	3.0934	0.4	87.07%
5/7/2020	2.45	2.96	4.57	3.2433	0.3	90.75%
5/8/2020	2.19	2.88	3.92	2.9332	0.4	86.36%
5/9/2020	1.97	2.37	3.74	2.6233	0.4	84.75%

**GLWA Local Limits Study**

**WRRF Removal Rates**

**Phosphorus (P)**

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent	Effluent mg/l	Overall Removal
5/10/2020	1.28	1.86	2.73	1.9035	0.4	78.99%
5/11/2020	1.23	2.21	2.24	1.8659	0.3	83.92%
5/12/2020	1.38	1.98	2.66	1.9612	0.5	74.51%
5/13/2020	1.15	2.23	2.86	2.0239	0.2	90.12%
5/14/2020	0.916	1.94	1.89	1.55686	0.3	80.73%
5/15/2020	0.764	1.96	1.83	1.49174	0.3	79.89%
5/16/2020	0.557	2.05	1.1	1.23702	0.2	83.83%
5/17/2020	0.651	1.64	1.36	1.20276	0.2	83.37%
5/18/2020	0.877	1.12	1.3	1.08472	0.1	90.78%
5/19/2020	0.509	1.02	0.894	0.7995	0.2	74.98%
5/20/2020	0.441	1.69	0.851	0.99705	0.1	89.97%
5/21/2020	0.619	1.38	1.07	1.01614	0.1	90.16%
5/22/2020	0.963	1.14	4.52	2.05648	0.2	90.27%
5/23/2020	0.671	0.892	1.57	1.00906	0.2	80.18%
5/24/2020	0.775	1.33	1.72	1.2433	0.2	83.91%
5/25/2020	0.891	1.29	1.74	1.27686	0.1	92.17%
5/26/2020	0.84	1.67	2.4	1.5829	0.2	87.36%
5/27/2020	0.848	1.67	2.3	1.55678	0.2	87.15%
5/28/2020	1.27	1.76	3.11	1.9751	0.2	89.87%
5/29/2020	1.78	2.03	4.08	2.5345	0.3	88.16%
5/30/2020	0.899	1.59	2.04	1.47174	0.2	86.41%
5/31/2020	0.817	1.71	2.29	1.55672	0.1	93.58%
6/1/2020	1.06	1.93	2.58	1.8053	0.2	88.92%
6/2/2020	1.04	2.14	2.52	1.8542	0.2	89.21%
6/3/2020	1.19	2.1	2.62	1.9232	0.3	84.40%
6/4/2020	1.42	2.32	3.33	2.2889	0.5	78.16%

**GLWA Local Limits Study**

**WRRF Removal Rates**

**Phosphorus (P)**

	Jefferson	Oakwood	NIEA	Combined	Effluent	Overall
	36%	35%	29%	Influent		Removal
Date	mg/l	mg/l	mg/l		mg/l	
6/5/2020	1.43	2.02	2.78	2.028	0.6	70.41%
6/6/2020	1.1	1.59	2.35	1.634	0.3	81.64%
6/7/2020	0.952	1.28	1.5	1.22572	0.2	83.68%
6/8/2020	1.31	2.28	2.76	2.07	0.4	80.68%
6/9/2020	1.46	2.45	2.75	2.1806	0.5	77.07%
6/10/2020	1.16	2.81	2.73	2.1928	0.6	72.64%
6/11/2020	0.953	2.14	2.32	1.76488	0.5	71.67%
6/12/2020	1.67	3.35	4.04	2.9453	0.5	83.02%
6/13/2020	0.961	2.22	2.78	1.92916	0.4	79.27%
6/14/2020	0.887	2.39	2.76	1.95622	0.2	89.78%
6/15/2020	0.968	2.93	3.68	2.44118	0.4	83.61%
6/16/2020	1.16	2.86	3.73	2.5003	0.5	80.00%
6/17/2020	1.49	2.69	3.34	2.4465	0.5	79.56%
6/18/2020	1.31	2.69	2.98	2.2773	0.6	73.65%
6/19/2020	2.28	3.99	5.02	3.6731	0.5	86.39%
6/20/2020	0.985	2.56	2.06	1.848	0.3	83.77%
6/21/2020	0.784	2.23	2.74	1.85734	0.5	73.08%
6/22/2020	1.96	3.13	3.15	2.7146	0.4	85.26%
6/23/2020	0.902	2.19	2.91	1.93512	0.5	74.16%
6/24/2020	0.724	2.09	2.84	1.81574	0.2	88.99%
6/25/2020	0.736	3.77	5.05	3.04896	0.3	90.16%
6/26/2020	2.46	3.54	4.71	3.4905	0.4	88.54%
6/27/2020	0.473	1.36	1.22	1.00008	0.3	70.00%
6/28/2020	0.652	1.1	1.69	1.10982	0.1	90.99%
6/29/2020	0.284	1.08	2.78	1.28644	0.2	84.45%
6/30/2020	1	2.31	4.87	2.5808	0.3	88.38%

GLWA Local Limits Study

WRRF Removal Rates

Phosphorus (P)

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent mg/l	Effluent mg/l	Overall Removal
7/1/2020	0.966	2.5	6.55	3.12226	0.3	90.39%
7/2/2020	0.996	2.5	3.01	2.10646	0.4	81.01%
7/3/2020	1.06	2.65	3.39	2.2922	0.4	82.55%
7/4/2020	1.08	2.75	2.76	2.1517	0.3	86.06%
7/5/2020	0.994	2.31	2.51	1.89424	0.3	84.16%
7/6/2020	1.09	2.69	2.8	2.1459	0.4	81.36%
7/7/2020	1.21	2.73	3.3	2.3481	0.5	78.71%
7/8/2020	1.78	2.7	2.42	2.2876	0.6	73.77%
7/9/2020	0.83	1.87	2.71	1.7392	0.2	88.50%
7/10/2020	0.992	2.1	2.96	1.95052	0.3	84.62%
7/11/2020	0.442	1.18	1.34	0.96072	0.1	89.59%
7/12/2020	0.449	0.718	1.49	0.84504	0.1	88.17%
7/13/2020	0.687	2.15	2.45	1.71032	0.2	88.31%
7/14/2020	0.799	2.47	2.78	1.95834	0.2	89.79%
7/15/2020	1.49	2.84	3.32	2.4932	0.5	79.95%
7/16/2020	0.895	1.9	2.43	1.6919	0.7	58.63%
7/17/2020	0.881	1.5	2.08	1.44536	0.2	86.16%
7/18/2020	0.749	1.5	2.31	1.46454	0.2	86.34%
7/19/2020	0.756	1.58	1.97	1.39646	0.2	85.68%
7/20/2020	0.624	0.919	1.69	1.03639	0.1	90.35%
7/21/2020	0.503	1.54	2.51	1.44798	0.1	93.09%
7/22/2020	0.845	2.13	3.14	1.9603	0.3	84.70%
7/23/2020	0.945	2.19	3.03	1.9854	0.3	84.89%
7/24/2020	1.12	2.37	3.03	2.1114	0.3	85.79%
7/25/2020	1.12	2.45	3.05	2.1452	0.3	86.02%
7/26/2020	1.17	2.51	3.5	2.3147	0.3	87.04%

GLWA Local Limits Study

WRRF Removal Rates

Phosphorus (P)

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent mg/l	Effluent mg/l	Overall Removal
7/27/2020	1.4	2.56	3.19	2.3251	0.4	82.80%
7/28/2020	1.8	2.89	3.56	2.6919	0.5	81.43%
7/29/2020	1.58	2.69	3.7	2.5833	0.5	80.64%
7/30/2020	1.07	2.45	3.47	2.249	0.5	77.77%
7/31/2020	1.21	2.63	3.28	2.3073	0.4	82.66%
8/1/2020	1.46	2.45	3.27	2.3314	0.5	78.55%
8/2/2020	0.629	1.58	1.85	1.31594	0.3	77.20%
8/3/2020	0.599	1.05	1.31	0.96304	0.1	89.62%
8/4/2020	0.446	1.09	1.35	0.93356	0.1	89.29%
8/5/2020	0.52	1.46	2.18	1.3304	0.1	92.48%
8/6/2020	0.994	2.47	3.58	2.26054	0.3	86.73%
8/7/2020	2.14	1.42	2.91	2.1113	0.3	85.79%
8/8/2020	1.07	2.15	2.93	1.9874	0.2	89.94%
8/9/2020	0.888	2.09	2.99	1.91828	0.2	89.57%
8/10/2020	1.17	2.4	3.27	2.2095	0.3	86.42%
8/11/2020	1.28	2.87	3.58	2.5035	0.5	80.03%
8/12/2020	1.26	2.56	3.06	2.237	0.5	77.65%
8/13/2020	1.3	2.86	3.34	2.4376	0.4	83.59%
8/14/2020	1.3	2.77	3.59	2.4786	0.6	75.79%
8/15/2020	0.921	2.52	3	2.08356	0.6	71.20%
8/16/2020	0.843	1.78	3.05	1.81098	0.6	66.87%
8/17/2020	0.733	0.801	2.72	1.33303	0.3	77.49%
8/18/2020	1.06	0.665	4.13	1.81205	0.6	66.89%
8/19/2020	1.09	3.12	3.25	2.4269	0.5	79.40%
8/20/2020	1.37	1.8	3.35	2.0947	0.6	71.36%
8/21/2020	1.27	2.52	3.2	2.2672	0.5	77.95%

**GLWA Local Limits Study**

**WRRF Removal Rates**

**Phosphorus (P)**

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent mg/l	Effluent mg/l	Overall Removal
8/22/2020	1.52	2.89	3.39	2.5418	0.5	80.33%
8/23/2020	1.42	2.7	3.61	2.5031	0.4	84.02%
8/24/2020	1.49	3.1	3.73	2.7031	0.6	77.80%
8/25/2020	1.23	2.59	3.36	2.3237	0.7	69.88%
8/26/2020	1.22	2.52	3.21	2.2521	1	55.60%
8/27/2020	1.7	2.33	3.27	2.3758	0.5	78.95%
8/28/2020	1.51	0.618	1.68	1.2471	0.3	75.94%
8/29/2020	0.6	1.02	1.8	1.095	0.1	90.87%
8/30/2020	0.586	1.34	1.73	1.18166	0.1	91.54%
8/31/2020	0.657	1.43	2.06	1.33442	0.1	92.51%
9/1/2020	1.04	2.1	2.69	1.8895	0.2	89.42%
9/2/2020	0.798	1.88	2.47	1.66158	0.3	81.94%
9/3/2020	1.2	1.68	4.16	2.2264	0.3	86.53%
9/4/2020	1.33	1.81	2.56	1.8547	0.2	89.22%
9/5/2020	2.87	3.26	4.4	3.4502	0.3	91.30%
9/6/2020	1.19	3.06	3.22	2.4332	0.2	91.78%
9/7/2020	0.628	1.28	2.74	1.46868	0.3	79.57%
9/8/2020	0.705	1.31	2.58	1.4605	0.2	86.31%
9/9/2020	0.478	0.941	1.41	0.91033	0.1	89.01%
9/10/2020	0.673	1.45	2.22	1.39358	0.2	85.65%
9/11/2020	0.782	1.76	2.61	1.65442	0.2	87.91%
9/12/2020	1.01	1.68	3.46	1.955	0.2	89.77%
9/13/2020	1.4	1.97	4.27	2.4318	0.4	83.55%
9/14/2020	0.915	1.7	2.87	1.7567	0.2	88.62%
9/15/2020	1.45	2.32	3.1	2.233	0.4	82.09%
9/16/2020	1.34	2.81	3.25	2.4084	0.4	83.39%

GLWA Local Limits Study

WRRF Removal Rates

Phosphorus (P)

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent	Effluent mg/l	Overall Removal
9/17/2020	1.2	2.05	2.84	1.9731	0.4	79.73%
9/18/2020	1.85	2.94	3.54	2.7216	0.5	81.63%
9/19/2020	1.71	2.68	3.64	2.6092	0.6	77.00%
9/20/2020	1.34	2.97	3.81	2.6268	0.4	84.77%
9/21/2020	1.16	2.72	3.46	2.373	0.4	83.14%
9/22/2020	1.48	2.95	3.65	2.6238	0.6	77.13%
9/23/2020	1.5	2.93	3.82	2.6733	0.5	81.30%
9/24/2020	2	3.5	3.95	3.0905	0.6	80.59%
9/25/2020	3.15	4.2	4.83	4.0047	0.8	80.02%
9/26/2020	1.2	2.89	3.72	2.5223	0.5	80.18%
9/27/2020	1.37	3.14	3.57	2.6275	0.6	77.16%
9/28/2020	1.92	4	4.06	3.2686	1.3	60.23%
9/29/2020	2.63	3.11	4.41	3.3142	0.7	78.88%
9/30/2020	1.02	2.23	2.24	1.7973	0.5	72.18%
10/1/2020	2.13	2.74	4.18	2.938	0.6	79.58%
10/2/2020	1.26	2.73	3.28	2.3603	0.4	83.05%
10/3/2020	1.63	3.4	3.97	2.9281	0.7	76.09%
10/4/2020	1.21	2.98	3.78	2.5748	0.4	84.46%
10/5/2020	1.29	2.61	3.35	2.3494	0.4	82.97%
10/6/2020	1.52	3.32	3.69	2.7793	0.6	78.41%
10/7/2020	1.77	3.77	4.08	3.1399	0.7	77.71%
10/8/2020	1.56	2.81	3.62	2.5949	0.6	76.88%
10/9/2020	1.89	3.73	3.79	3.085	0.6	80.55%
10/10/2020	1.6	3.19	3.65	2.751	0.5	81.82%
10/11/2020	1.64	2.93	3.71	2.6918	0.4	85.14%
10/12/2020	1.41	3.25	3.53	2.6688	0.4	85.01%

GLWA Local Limits Study

WRRF Removal Rates

Phosphorus (P)

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent mg/l	Effluent mg/l	Overall Removal
10/13/2020	1.73	3.3	3.85	2.8943	0.9	68.90%
10/14/2020	1.72	3.25	3.81	2.8616	0.7	75.54%
10/15/2020	1.44	3.16	3.36	2.5988	0.7	73.06%
10/16/2020	1.76	3.2	3.71	2.8295	0.6	78.79%
10/17/2020	1.52	3.61	6.13	3.5884	0.5	86.07%
10/18/2020	1.35	2.92	4.82	2.9058	0.4	86.23%
10/19/2020	1.4	2.39	3.53	2.3642	0.6	74.62%
10/20/2020	1.21	2.01	3.15	2.0526	0.8	61.03%
10/21/2020	1.19	1.89	3.12	1.9947	0.7	64.91%
10/22/2020	1.06	1.62	2.98	1.8128	0.5	72.42%
10/23/2020	0.963	2.57	2.99	2.11328	0.4	81.07%
10/24/2020	0.955	2.09	1.19	1.4204	0.4	71.84%
10/25/2020	1.21	2.43	3.29	2.2402	0.3	86.61%
10/26/2020	1.35	2.32	3.25	2.2405	0.4	82.15%
10/27/2020	1.46	3.44	4.6	3.0636	0.6	80.42%
10/28/2020	1.33	2.55	2.82	2.1891	1	54.32%
10/29/2020	1.36	2.9	3.39	2.4877	0.6	75.88%
10/30/2020	1.5	3.28	5.33	3.2337	0.6	81.45%
10/31/2020	1.34	3.36	3.77	2.7517	0.4	85.46%
11/1/2020	1.45	3.04	3.57	2.6213	0.7	73.30%
11/2/2020	1.51	3.55	3.53	2.8098	0.4	85.76%
11/3/2020	1.87	3.83	7.04	4.0553	0.8	80.27%
11/4/2020	2.03	3.51	3.81	3.0642	0.7	77.16%
11/5/2020	1.59	3.45	3.89	2.908	0.8	72.49%
11/6/2020	1.54	3.29	3.79	2.805	0.6	78.61%
11/7/2020	1.48	3.04	3.72	2.6756	0.4	85.05%

**GLWA Local Limits Study**

**WRRF Removal Rates**

**Phosphorus (P)**

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent	Effluent mg/l	Overall Removal
11/8/2020	1.59	2.87	3.49	2.589	0.6	76.83%
11/9/2020	1.74	3.42	3.56	2.8558	0.6	78.99%
11/10/2020	1.76	3.45	3.93	2.9808	1.2	59.74%
11/11/2020	1.44	2.4	3.22	2.2922	0.9	60.74%
11/12/2020	1.73	3.61	3.89	3.0144	0.8	73.46%
11/13/2020	1.79	2.94	5.94	3.396	0.5	85.28%
11/14/2020	1.53	2.98	4.31	2.8437	0.4	85.93%
11/15/2020	0.827	1.82	3.18	1.85692	0.2	89.23%
11/16/2020	0.936	1.96	1.93	1.58266	0.2	87.36%
11/17/2020	1.15	2.61	4.22	2.5513	0.2	92.16%
11/18/2020	1.39	2.92	5.22	3.0362	0.3	90.12%
11/19/2020	1.74	2.73	3.48	2.5911	0.5	80.70%
11/20/2020	1.4	2.9	3.66	2.5804	0.4	84.50%
11/21/2020	1.37	2.82	4.03	2.6489	0.4	84.90%
11/22/2020	1.14	1.82	4.11	2.2393	0.4	82.14%
11/23/2020	1.13	1.52	2.64	1.7044	0.2	88.27%
11/24/2020	1.45	2.76	3.52	2.5088	0.3	88.04%
11/25/2020	1.16	1.88	2.48	1.7948	0.4	77.71%
11/26/2020	0.565	0.876	1.77	1.0233	0.2	80.46%
11/27/2020	0.753	0.819	4.06	1.73513	0.1	94.24%
11/28/2020	0.893	0.466	2.59	1.23568	0.1	91.91%
11/29/2020	1	1.66	3.26	1.8864	0.2	89.40%
11/30/2020	1.05	1.88	3.21	1.9669	0.7	64.41%
12/1/2020	1.06	2.37	2.88	2.0463	0.2	90.23%
12/2/2020	1.4	2.35	4.72	2.6953	0.4	85.16%
12/3/2020	1.46	2.64	3.51	2.4675	0.4	83.79%

GLWA Local Limits Study

WRRF Removal Rates

Phosphorus (P)

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent mg/l	Effluent mg/l	Overall Removal
12/4/2020	1.18	2.27	2.79	2.0284	0.2	90.14%
12/5/2020	1.67	2.92	3.92	2.76	0.5	81.88%
12/6/2020	1.7	2.33	3.96	2.5759	0.7	72.83%
12/7/2020	1.42	2.77	3.21	2.4116	0.6	75.12%
12/8/2020	1.59	2.84	4.09	2.7525	0.7	74.57%
12/9/2020	1.84	2.83	3.07	2.5432	0.6	76.41%
12/10/2020	1.22	2.9	2.91	2.2981	0.5	78.24%
12/11/2020	1.26	2.39	3.15	2.2036	0.5	77.31%
12/12/2020	1.42	2.59	3.46	2.4211	0.5	79.35%
12/13/2020	0.916	1.42	2.1	1.43576	0.3	79.11%
12/14/2020	1.15	3.41	4.12	2.8023	0.3	89.29%
12/15/2020	1.34	2.51	3.81	2.4658	0.6	75.67%
12/16/2020	1.71	2.56	3.63	2.5643	0.5	80.50%
12/17/2020	2.16	1.89	3.4	2.4251	0.5	79.38%
12/18/2020	1.28	2.24	2.82	2.0626	0.3	85.46%
12/19/2020	1.34	2.54	4.24	2.601	0.2	92.31%
12/20/2020	1.6	2.48	4.2	2.662	0.3	88.73%
12/21/2020	1.56	2.63	3.18	2.4043	0.4	83.36%
12/22/2020	1.53	2.87	4.35	2.8168	0.5	82.25%
12/23/2020	1.4	2.6	3.84	2.5276	0.4	84.17%
12/24/2020	1.54	2.55	5.02	2.9027	0.4	86.22%
12/25/2020	1.24	2.2	3.97	2.3677	0.3	87.33%
12/26/2020	1.96	3.01	4.32	3.0119	0.4	86.72%
12/27/2020	2.39	3.16	4.08	3.1496	0.5	84.12%
12/28/2020	1.44	2.18	3.58	2.3196	0.3	87.07%
12/29/2020	1.79	3.16	9.29	4.4445	0.4	91.00%



GLWA Local Limits Study

WRRF Removal Rates

Fats, Oils & Grease (FOG)

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent	Effluent mg/l	Overall Removal
1/1/2020	7.7	11.2	25.8	14.174	5.7	59.79%
1/2/2020	7.4	9.1	47.8	19.711	5.8	70.57%
1/3/2020	8.1	10.8	13.5	10.611	< 5	52.88%
1/4/2020	12.9	12.5	14.8	13.311	7.2	45.91%
1/5/2020	7.9	15.1	15.5	12.624	< 5	60.39%
1/6/2020	7.4	6	14.2	8.882	< 5	43.71%
1/7/2020	10.6	12.5	16.4	12.947	< 5	61.38%
1/8/2020	10.7	17.6	23.4	16.798	< 5	70.23%
1/9/2020	27.1	9.9	16.8	18.093	< 5	72.37%
1/10/2020	27.9	16.7	17.6	20.993	< 5	76.18%
1/11/2020	9.2	9.8	22.6	13.296	< 5	62.39%
1/12/2020	7.2	6	6.3	6.519	< 5	23.30%
1/13/2020	12.1	8.7	10.9	10.562	6.8	35.62%
1/14/2020	28	9.8	6	15.25	5.1	66.56%
1/15/2020	6.2	5.6	10	7.092	< 5	29.50%
1/16/2020	23.4	10.7	22.3	18.636	< 5	73.17%
1/17/2020	13.5	14.2	18.3	15.137	5.1	66.31%
1/18/2020	6.6	< 5	18	9.346	< 5	46.50%
1/19/2020	11.3	11.1	14.1	12.042	< 5	58.48%
1/20/2020	19.9	18.2	18.9	19.015	< 5	73.70%
1/21/2020	10.1	< 5	6.6	7.3	< 5	31.51%
1/22/2020	7.4	11.1	< 5	7.999	< 5	37.49%
1/23/2020	22.8	24	19.8	22.35	< 5	77.63%
1/24/2020	8.4	10.4	8.4	9.1	< 5	45.05%
1/25/2020	13.1	11.2	14.1	12.725	7.1	44.20%
1/26/2020	< 5	< 5	6.5	5.435	< 5	8.00%

GLWA Local Limits Study

WRRF Removal Rates

Fats, Oils & Grease (FOG)

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent	Effluent mg/l	Overall Removal
1/27/2020	9	11	11.7	10.483	6.2	40.86%
1/28/2020	10.6	5.9	12.4	9.477	< 5	47.24%
1/29/2020	6.1	8.4	< 5	6.586	5.5	16.49%
1/30/2020	< 5	6.3	6.4	5.861	< 5	14.69%
1/31/2020	8.8	9.4	6.4	8.314	< 5	39.86%
2/1/2020	14.2	10.6	15.4	13.288	< 5	62.37%
2/2/2020	< 5	9.9	13.3	9.122	< 5	45.19%
2/3/2020	6.5	8.5	11.3	8.592	< 5	41.81%
2/4/2020	10.5	9.8	11.9	10.661	< 5	53.10%
2/5/2020	5.6	19.2	16.6	13.55	< 5	63.10%
2/6/2020	14.1	8.1	14.2	12.029	6.1	49.29%
2/7/2020	18.8	14.7	25.2	19.221	< 5	73.99%
2/8/2020	8.6	12	22.6	13.85	< 5	63.90%
2/9/2020	5.6	12.2	9.1	8.925	< 5	43.98%
2/10/2020	9	12.9	13.8	11.757	< 5	57.47%
2/11/2020	13.6	17.9	17.2	16.149	5.8	64.08%
2/12/2020	5.5	< 5	15.8	8.312	< 5	39.85%
2/13/2020	8.9	10.9	48.6	21.113	< 5	76.32%
2/14/2020	22.8	9.8	13.4	15.524	5.2	66.50%
2/15/2020	11.2	14.8	23.4	15.998	5.5	65.62%
2/16/2020	9.2	15	20	14.362	5.1	64.49%
2/17/2020	14	10	11	11.73	< 5	57.37%
2/18/2020	35.7	20.7	16.5	24.882	< 5	79.91%
2/19/2020	27.9	11.9	14.6	18.443	< 5	72.89%
2/20/2020	23.6	12.7	16	17.581	< 5	71.56%
2/21/2020	14.2	16.5	14.6	15.121	< 5	66.93%

GLWA Local Limits Study

WRRF Removal Rates

Fats, Oils & Grease (FOG)

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent	Effluent mg/l	Overall Removal
2/22/2020	19.6	12.1	20.8	17.323	< 5	71.14%
2/23/2020	19.3	15.9	29	20.923	5.1	75.62%
2/24/2020	25.9	12.8	16	18.444	< 5	72.89%
2/25/2020	8.1	10.6	12.2	10.164	< 5	50.81%
2/26/2020	12.8	18.1	16.8	15.815	< 5	68.38%
2/27/2020	17.4	14.7	27.1	19.268	6.4	66.78%
2/28/2020	13	19.6	27.7	19.573	6.3	67.81%
2/29/2020	9.1	9.8	17.2	11.694	< 5	57.24%
3/1/2020	9.6	11.6	12.9	11.257	5	55.58%
3/2/2020	16.6	12.5	26	17.891	< 5	72.05%
3/3/2020		15	24.5		< 5	#DIV/0!
3/4/2020	21	13.7	22.9	18.996	< 5	73.68%
3/5/2020	7.1	6.8	10.8	8.068	< 5	38.03%
3/6/2020	11.8	8.9	26.2	14.961	< 5	66.58%
3/7/2020	11.8	8.8	14.6	11.562	< 5	56.75%
3/8/2020	14.1	11.6	32.8	18.648	5	73.19%
3/9/2020	10.4	14.1	22.6	15.233	< 5	67.18%
3/10/2020	15.7	15.2	13.1	14.771	< 5	66.15%
3/11/2020	7.6	9.9	26.3	13.828	< 5	63.84%
3/12/2020	9.1	21.2	16.2	15.394	< 5	67.52%
3/13/2020	10.1	15.4	17.6	14.13	< 5	64.61%
3/14/2020	10.9	11.5	18	13.169	< 5	62.03%
3/15/2020	11.4	17	17.4	15.1	7.3	51.66%
3/16/2020	10.6	9.4	15.4	11.572	< 5	56.79%
3/17/2020	8.5	19.9	15.4	14.491	< 5	65.50%
3/18/2020	10.8	10.1	17.4	12.469	< 5	59.90%

GLWA Local Limits Study

WRRF Removal Rates

Fats, Oils & Grease (FOG)

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent	Effluent mg/l	Overall Removal
3/19/2020	11.5	10	15.8	12.222	< 5	59.09%
3/20/2020	38.9	16.8	18.6	25.278	7.2	71.52%
3/21/2020	22.1	7.8	11.1	13.905	< 5	64.04%
3/22/2020	6.3	13.7	18.1	12.312	< 5	59.39%
3/23/2020	5.9	11.2	26	13.584	10.1	25.65%
3/24/2020	12.7	6.9	12.6	10.641	< 5	53.01%
3/25/2020	9.7	10.6	12.2	10.74	< 5	53.45%
3/26/2020	12.1	21	23	18.376	< 5	72.79%
3/27/2020	9.8	13.1	17.6	13.217	< 5	62.17%
3/28/2020	60.8	34.2	50	48.358	11.7	75.81%
3/29/2020	50.3	15.9	17.5	28.748	< 5	82.61%
3/30/2020	6.5	8.8	6.4	7.276	5.9	18.91%
3/31/2020	10.9	11.7	24.3	15.066	< 5	66.81%
4/1/2020	13.6	9.5	15.9	12.832	< 5	61.03%
4/2/2020	15.3	12.6	18.4	15.254	< 5	67.22%
4/3/2020	10.3	10.6	21.1	13.537	< 5	63.06%
4/4/2020	7.4	13.2	16.3	12.011	< 5	58.37%
4/5/2020	< 5	11.3	19	11.265	< 5	55.61%
4/6/2020	6.2	9.8	15.6	10.186	< 5	50.91%
4/7/2020	7.5	10.5	17.7	11.508	< 5	56.55%
4/8/2020	30.1	11	17.7	19.819	< 5	74.77%
4/9/2020	23.8	8	16.5	16.153	< 5	69.05%
4/10/2020	7.3	7.4	17.6	10.322	< 5	51.56%
4/11/2020	7.4	7.1	22.3	11.616	< 5	56.96%
4/12/2020	6.8	8.2	20.3	11.205	< 5	55.38%
4/13/2020	12.7	11.3	20	14.327	< 5	65.10%

GLWA Local Limits Study

WRRF Removal Rates

Fats, Oils & Grease (FOG)

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent mg/l	Effluent mg/l	Overall Removal
4/14/2020	5.5	8.6	20.3	10.877	< 5	54.03%
4/15/2020	18.4	12.8	14.8	15.396	< 5	67.52%
4/16/2020	8.4	8.4	18.9	11.445	< 5	56.31%
4/17/2020	8	20.3	12.3	13.552	< 5	63.11%
4/18/2020	7	8.5	17.5	10.57	< 5	52.70%
4/19/2020	7.7	6.8	21.1	11.271	< 5	55.64%
4/20/2020	7.6	6.7	26.5	12.766	< 5	60.83%
4/21/2020	10.8	11.1	9.3	10.47	7.6	27.41%
4/22/2020	7.8	7.5	22.5	11.958	< 5	58.19%
4/23/2020	9.7	12.3	31.8	17.019	< 5	70.62%
4/24/2020	8.2	8.6	18.1	11.211	< 5	55.40%
4/25/2020	5.7	16.8	10.9	11.093	< 5	54.93%
4/26/2020	7.3	9.3	39.3	17.28	< 5	71.06%
4/27/2020	7.1	13.9	17.9	12.612	< 5	60.36%
4/28/2020	7.4	8.1	12.6	9.153	< 5	45.37%
4/29/2020	14.9	9.9	25.3	16.166	< 5	69.07%
4/30/2020	7.3	8.6	18.4	10.974	< 5	54.44%
5/1/2020	6.3	8.1	10.1	8.032	< 5	37.75%
5/2/2020	< 5	8	59.7	21.913	< 5	77.18%
5/3/2020	9.4	8.2	13.1	10.053	< 5	50.26%
5/4/2020	8.9	13.2	21.1	13.943	< 5	64.14%
5/5/2020	11.4	13.7	27	16.729	< 5	70.11%
5/6/2020	9.9	8.5	18.8	11.991	< 5	58.30%
5/7/2020	7.9	11.3	15.7	11.352	5.6	50.67%
5/8/2020	21.4	8.1	19.3	16.136	< 5	69.01%
5/9/2020	8	12.2	22.7	13.733	6.3	54.13%

GLWA Local Limits Study

WRRF Removal Rates

Fats, Oils & Grease (FOG)

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent	Effluent mg/l	Overall Removal
5/10/2020	8.9	9.9	22.7	13.252	< 5	62.27%
5/11/2020	14	18.6	16	16.19	< 5	69.12%
5/12/2020	13.6	16.3	23.5	17.416	< 5	71.29%
5/13/2020	28.7	19.5	28.2	25.335	10.1	60.13%
5/14/2020	39.9	15.7	19.4	25.485	< 5	80.38%
5/15/2020	9.6	8.5	13.4	10.317	< 5	51.54%
5/16/2020	25.1	21.9	9.4	19.427	11.1	42.86%
5/17/2020	5.9	8.3	9.6	7.813	< 5	36.00%
5/18/2020	5.9	9.9	10.8	8.721	< 5	42.67%
5/19/2020	5.5	< 5	9.3	6.427	< 5	22.20%
5/20/2020	5.3	< 5	5.2	5.166	< 5	3.21%
5/21/2020	6.7	11.9	67.9	26.268	< 5	80.97%
5/22/2020	5	8	11.7	7.993	5.3	33.69%
5/23/2020	8.9	10.6	15.8	11.496	5	56.51%
5/24/2020	20.6	36	37.6	30.92	< 5	83.83%
5/25/2020	9.3	9.2	12.8	10.28	< 5	51.36%
5/26/2020	11.8	15.9	17.7	14.946	< 5	66.55%
5/27/2020	9.8	17.9	26.6	17.507	< 5	71.44%
5/28/2020	9.2	14.9	17.3	13.544	< 5	63.08%
5/29/2020	8.8	12.6	19.8	13.32	< 5	62.46%
5/30/2020	7.9	12.9	21	13.449	< 5	62.82%
5/31/2020	6.1	8.4	13.6	9.08	< 5	44.93%
6/1/2020	7.4	11.8	17.4	11.84	< 5	57.77%
6/2/2020	9.8	21.9	21.6	17.457	< 5	71.36%
6/3/2020	7.3	12.7	18.5	12.438	< 5	59.80%
6/4/2020	17.5	23.9	28.3	22.872	5.2	77.26%

GLWA Local Limits Study

WRRF Removal Rates

Fats, Oils & Grease (FOG)

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent	Effluent mg/l	Overall Removal
6/5/2020	8.2	12.1	23.6	14.031	5.1	63.65%
6/6/2020	36.7	17.9	26	27.017	< 5	81.49%
6/7/2020	9.9	13.9	22.3	14.896	< 5	66.43%
6/8/2020	8.7	9	11	9.472	5.2	45.10%
6/9/2020	9.3	22	20.7	17.051	< 5	70.68%
6/10/2020	9.2	10.8	23.9	14.023	< 5	64.34%
6/11/2020	9.8	20.8	22.5	17.333	< 5	71.15%
6/12/2020	6.1	18.9	20.8	14.843	< 5	66.31%
6/13/2020	8.5	7.8	19.9	11.561	< 5	56.75%
6/14/2020	15.2	13.9	18.8	15.789	< 5	68.33%
6/15/2020	6.9	18.5	27.5	16.934	< 5	70.47%
6/16/2020	6.9	17.3	24.6	15.673	< 5	68.10%
6/17/2020	22.6	14.4	23.4	19.962	< 5	74.95%
6/18/2020	8.3	19.7	20.5	15.828	< 5	68.41%
6/19/2020	8.9	17.2	30.5	18.069	< 5	72.33%
6/20/2020	7.7	16.6	26.9	16.383	< 5	69.48%
6/21/2020	30.2	17.9	20.1	22.966	< 5	78.23%
6/22/2020		18.4			< 5	#DIV/0!
6/23/2020	11.6	37.6	27.1	25.195	< 5	80.15%
6/24/2020	19.4	13.6	19.6	17.428	< 5	71.31%
6/25/2020	< 5	11.3	22.6	12.309	< 5	59.38%
6/26/2020	< 5	28.2	20	17.47	< 5	71.38%
6/27/2020	5.3	15.1	19.6	12.877	< 5	61.17%
6/28/2020	9.5	7.3	11.2	9.223	< 5	45.79%
6/29/2020	< 5	11.1	11.4	8.991	< 5	44.39%
6/30/2020	5.4	29.2	14.6	16.398	< 5	69.51%

GLWA Local Limits Study

WRRF Removal Rates

Fats, Oils & Grease (FOG)

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent	Effluent mg/l	Overall Removal
7/1/2020	< 5	9.6	14.5	9.365	< 5	46.61%
7/2/2020	< 5	12.2	22.7	12.653	< 5	60.48%
7/3/2020	< 5	7.9	10.7	7.668	< 5	34.79%
7/4/2020	< 5	14.2	27.8	14.832	< 5	66.29%
7/5/2020	< 5	12.9	207	66.345	< 5	92.46%
7/6/2020	< 5	< 5	25.5	10.945	< 5	54.32%
7/7/2020	9.5	25.3	22.2	18.713	< 5	73.28%
7/8/2020	14.5	89.1	20.6	42.379	< 5	88.20%
7/9/2020	9.9	15.9	17.8	14.291	< 5	65.01%
7/10/2020	5.1	17.3	15.5	12.386	< 5	59.63%
7/11/2020	6	8.9	13.5	9.19	< 5	45.59%
7/12/2020	7.7	7.3	10.6	8.401	< 5	40.48%
7/13/2020	< 5	12.4	22.6	12.694	< 5	60.61%
7/14/2020	6.1	10.2	16.4	10.522	< 5	52.48%
7/15/2020	9.3	13.3	16.6	12.817	< 5	60.99%
7/16/2020	15.1	18.4	16.2	16.574	< 5	69.83%
7/17/2020	7.1	9.8	19.1	11.525	< 5	56.62%
7/18/2020	19.3	11.6	14	15.068	< 5	66.82%
7/19/2020	< 5	11.2	19.1	11.259	< 5	55.59%
7/20/2020	8.1	14.6	23.7	14.899	5.2	65.10%
7/21/2020	< 5	12	16.7	10.843	< 5	53.89%
7/22/2020	< 5	16.6	22.4	14.106	< 5	64.55%
7/23/2020	7.1	16	26	15.696	< 5	68.14%
7/24/2020	10	15.3	16.3	13.682	< 5	63.46%
7/25/2020	16.8	8	19.4	14.474	5.4	62.69%
7/26/2020	8.2	10.1	18.4	11.823	< 5	57.71%

**GLWA Local Limits Study  
WRRF Removal Rates**

**Fats, Oils & Grease (FOG)**

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent	Effluent mg/l	Overall Removal
7/27/2020	14.2	11.2	18.9	14.513	< 5	65.55%
7/28/2020	7.2	21.5	25.3	17.454	< 5	71.35%
7/29/2020	16.7	19.3	19.4	18.393	< 5	72.82%
7/30/2020	< 5	33.1	27.3	21.302	< 5	76.53%
7/31/2020	13.6	29.2	25.6	22.54	< 5	77.82%
8/1/2020	15.7	21.1	30.4	21.853	7.4	66.14%
8/2/2020	16	149	30.9	66.871	8.2	87.74%
8/3/2020	6	16.8	11.5	11.375	< 5	56.04%
8/4/2020	< 5	8.1	14.3	8.782	< 5	43.07%
8/5/2020	14.1	< 5	18.4	12.162	< 5	58.89%
8/6/2020	10.2	17	26.3	17.249	< 5	71.01%
8/7/2020	7.2	16.5	20.5	14.312	< 5	65.06%
8/8/2020	15.5	10	17.5	14.155	< 5	64.68%
8/9/2020	5.9	9.8	16.8	10.426	< 5	52.04%
8/10/2020	< 5	19.3	21.4	14.761	< 5	66.13%
8/11/2020	19	12.9	31.7	20.548	5.9	71.29%
8/12/2020	10.4	9.4	15.5	11.529	< 5	56.63%
8/13/2020	20	< 5	14.6	13.184	< 5	62.08%
8/14/2020	6.7	9.5	11.2	8.985	< 5	44.35%
8/15/2020	9.9	14.5	24.1	15.628	< 5	68.01%
8/16/2020	18.8	10.4	22.8	17.02	< 5	70.62%
8/17/2020	7.2	8.5	25.1	12.846	< 5	61.08%
8/18/2020	9.3	< 5	26.5	12.783	< 5	60.89%
8/19/2020	12.1	20.1	22.4	17.887	< 5	72.05%
8/20/2020	25.1	6.9	30.1	20.18	5.4	73.24%
8/21/2020	26.2	13.2	31.5	23.187	< 5	78.44%

GLWA Local Limits Study

WRRF Removal Rates

Fats, Oils & Grease (FOG)

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent	Effluent mg/l	Overall Removal
8/22/2020	14.2	10.4	24.2	15.77	< 5	68.29%
8/23/2020	39.6	19.1	20.2	26.799	< 5	81.34%
8/24/2020	35.2	13.4	24.8	24.554	< 5	79.64%
8/25/2020	9.4	24.6	30.1	20.723	< 5	75.87%
8/26/2020	33.5	13.2	31.1	25.699	< 5	80.54%
8/27/2020	10.8	9.5	12.5	10.838	< 5	53.87%
8/28/2020	6.1	12.5	16.4	11.327	< 5	55.86%
8/29/2020	< 5	15.7	10.9	10.456	< 5	52.18%
8/30/2020	< 5	14.6	7.8	9.172	< 5	45.49%
8/31/2020	< 5	11.6	16	10.5	< 5	52.38%
9/1/2020	12.1	11.5	29.7	16.994	< 5	70.58%
9/2/2020	7.1	19.8	14.2	13.604	< 5	63.25%
9/3/2020	5.3	11	8.6	8.252	7.9	4.27%
9/4/2020	13.1	12.3	33.1	18.62	5.6	69.92%
9/5/2020	9.7	8.9	20.7	12.61	< 5	60.35%
9/6/2020	9.2	9.1	19.4	12.123	< 5	58.76%
9/7/2020	6.2	15.8	23.5	14.577	< 5	65.70%
9/8/2020	7.9	9.1	14.1	10.118	< 5	50.58%
9/9/2020	5.4	20.3	16.8	13.921	< 5	64.08%
9/10/2020	< 5	15.3	15	11.505	< 5	56.54%
9/11/2020	6.2	21.9	26.3	17.524	< 5	71.47%
9/12/2020	< 5	6.6	33.8	13.912	< 5	64.06%
9/13/2020	14.1	17.3	10.6	14.205	< 5	64.80%
9/14/2020	16	27.5	18.8	20.837	< 5	76.00%
9/15/2020	11	16	24.6	16.694	< 5	70.05%
9/16/2020					< 5	#DIV/0!

GLWA Local Limits Study

WRRF Removal Rates

Fats, Oils & Grease (FOG)

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent	Effluent mg/l	Overall Removal
9/17/2020	13.2	15.1	28.1	18.186	< 5	72.51%
9/18/2020	18.5	14.1	14.1	15.684	< 5	68.12%
9/19/2020	13.2	18.5	18.5	16.592	< 5	69.86%
9/20/2020	23.8	16	32.4	23.564	< 5	78.78%
9/21/2020	38.3	23	41.1	33.757	< 5	85.19%
9/22/2020	11.5	22.2	21.5	18.145	< 5	72.44%
9/23/2020	< 5	97.6	31.1	44.979	5.4	87.99%
9/24/2020	21.3	30.7	20.8	24.445	< 5	79.55%
9/25/2020	14.6	25.7	42.2	26.489	< 5	81.12%
9/26/2020	9.7	20.1	21.5	16.762	< 5	70.17%
9/27/2020	7.2	28.4	24.2	19.55	< 5	74.42%
9/28/2020	< 5	20.9	23.6	15.959	< 5	68.67%
9/29/2020	16.1	16.6	17.4	16.652	< 5	69.97%
9/30/2020	12.8	14.5	30.8	18.615	< 5	73.14%
10/1/2020	23.6	16.2	17.5	19.241	< 5	74.01%
10/2/2020	11.7	11	19.8	13.804	< 5	63.78%
10/3/2020	17.3	18.9	39.5	24.298	< 5	79.42%
10/4/2020	8	10.1	15.4	10.881	< 5	54.05%
10/5/2020	10.9	12.5	30.5	17.144	< 5	70.84%
10/6/2020	5.6	10.2	16	10.226	< 5	51.11%
10/7/2020	13.2	20	18.6	17.146	5.6	67.34%
10/8/2020	6.9	14	23.8	14.286	< 5	65.00%
10/9/2020	11.7	52.2	77.4	44.928	< 5	88.87%
10/10/2020	14.2	7.6	16.3	12.499	< 5	60.00%
10/11/2020	24.3	15.2	30.3	22.855	< 5	78.12%
10/12/2020	19.2	182	39.3	82.009	6.4	92.20%

GLWA Local Limits Study

WRRF Removal Rates

Fats, Oils & Grease (FOG)

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent	Effluent mg/l	Overall Removal
10/13/2020	32	18	29	26.23	< 5	80.94%
10/14/2020	18.5	31.7	25.9	25.266	< 5	80.21%
10/15/2020	17	98.9	28.4	48.971	< 5	89.79%
10/16/2020	39.7	14.7	20.9	25.498	5.1	80.00%
10/17/2020	21.1	13.1	19.6	17.865	< 5	72.01%
10/18/2020	12.7	7.8	12.1	10.811	< 5	53.75%
10/19/2020	14.1	15	25.7	17.779	5.5	69.06%
10/20/2020	11.7	15.6	27	17.502	5.8	66.86%
10/21/2020	13.4	< 5	26.8	14.346	5.9	58.87%
10/22/2020	9.6	5.4	15.3	9.783	< 5	48.89%
10/23/2020		< 5	15.9		< 5	#DIV/0!
10/24/2020	17.2	26.4	19.5	21.087	< 5	76.29%
10/25/2020	6.1	12.7	27.2	14.529	< 5	65.59%
10/26/2020	7.6	28	23	19.206	< 5	73.97%
10/27/2020	19.5	34	20.6	24.894	< 5	79.91%
10/28/2020	12	18.3	31.3	19.802	6	69.70%
10/29/2020	17	26.5	26.2	22.993	< 5	78.25%
10/30/2020	14.2	20.6	30.1	21.051	5.3	74.82%
10/31/2020	12.8	21.3	41	23.953	5.7	76.20%
11/1/2020	7.6	18.5	30.3	17.998	< 5	72.22%
11/2/2020	13.1	19.4	38.9	22.787	< 5	78.06%
11/3/2020	16.3	24.5	33.5	24.158	5.4	77.65%
11/4/2020	10.4	14.1	16.8	13.551	< 5	63.10%
11/5/2020	12	18.5	23.6	17.639	< 5	71.65%
11/6/2020	11.8	16.6	18.5	15.423	< 5	67.58%
11/7/2020	20	27.8	36.9	27.631	< 5	81.90%

GLWA Local Limits Study

WRRF Removal Rates

Fats, Oils & Grease (FOG)

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent	Effluent mg/l	Overall Removal
11/8/2020	6.9	5.3	27.4	12.285	< 5	59.30%
11/9/2020	13.3	13.8	20.2	15.476	< 5	67.69%
11/10/2020	< 5	19.4	30.1	17.319	< 5	71.13%
11/11/2020	26.1	41	59.8	41.088	< 5	87.83%
11/12/2020	32.8	35.4	37.5	35.073	< 5	85.74%
11/13/2020	13.4	27.6	17.2	19.472	< 5	74.32%
11/14/2020	11.3	16.5	18.4	15.179	< 5	67.06%
11/15/2020	9.5	23.8	20.1	17.579	< 5	71.56%
11/16/2020	5.2	12.8	18.1	11.601	< 5	56.90%
11/17/2020	10.2	31.4	10.4	17.678	6.3	64.36%
11/18/2020	14.7	18.5	80.1	34.996	< 5	85.71%
11/19/2020	10.2	22.6	27.6	19.586	< 5	74.47%
11/20/2020	11.4	14.5	10.2	12.137	< 5	58.80%
11/21/2020	34.2	23.9	25.3	28.014	< 5	82.15%
11/22/2020	9.8	10.7	26.5	14.958	< 5	66.57%
11/23/2020	11.1	28.3	32.1	23.21	6.1	73.72%
11/24/2020	10.8	17.8	29.2	18.586	< 5	73.10%
11/25/2020	23	28.4	34.9	28.341	5.1	82.00%
11/26/2020	13.1	18.3	31.3	20.198	< 5	75.25%
11/27/2020	< 5	6.9	7	6.245	< 5	19.94%
11/28/2020	16	23.2	14.8	18.172	< 5	72.49%
11/29/2020	10	17	23.6	16.394	9.5	42.05%
11/30/2020	6.4	12.9	30.6	15.693	< 5	68.14%
12/1/2020	14.9	18.9	35.3	22.216	< 5	77.49%
12/2/2020	10.5	11.3	12.9	11.476	< 5	56.43%
12/3/2020	8.9	13.6	28.2	16.142	< 5	69.02%

**GLWA Local Limits Study  
WRRF Removal Rates**

**Fats, Oils & Grease (FOG)**

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent	Effluent mg/l	Overall Removal
12/4/2020	10.4	9.6	23.1	13.803	< 5	63.78%
12/5/2020	8.9	11.9	20.6	13.343	< 5	62.53%
12/6/2020	9.9	108	40.7	53.167	< 5	90.60%
12/7/2020	11.4	24	26.4	20.16	7.4	63.29%
12/8/2020	20.2	21.1	80.2	37.915	5.7	84.97%
12/9/2020	21.9	29.4	159	64.284	6.6	89.73%
12/10/2020	11.4	15.5	14.2	13.647	< 5	63.36%
12/11/2020	< 5	18.6	14.9	12.631	< 5	60.41%
12/12/2020	13.8	10.2	15.8	13.12	< 5	61.89%
12/13/2020	12	8.5	14.4	11.471	< 5	56.41%
12/14/2020	8.5	27.2	11.9	16.031	< 5	68.81%
12/15/2020	9.2	53.2	30.2	30.69	< 5	83.71%
12/16/2020	10.6	20.1	25.9	18.362		100.00%
12/17/2020	5	11.3	23.4	12.541		100.00%
12/18/2020	15.9	23.5	11.7	17.342	8.9	48.68%
12/19/2020	9.1	16	31.4	17.982	< 5	72.19%
12/20/2020	21.6	28.7	20.5	23.766	< 5	78.96%
12/21/2020	20	17.3	32.8	22.767	5.7	74.96%
12/22/2020	22.3	21.3	59.1	32.622	< 5	84.67%
12/23/2020	6.8	16.6	25.3	15.595	< 5	67.94%
12/24/2020	< 5	11.2	11.9	9.171	< 5	45.48%
12/25/2020	6.5	17.5	48.9	22.646	< 5	77.92%
12/26/2020	17.4	13.4	8.6	13.448	< 5	62.82%
12/27/2020	5.8	20.7	28	17.453	< 5	71.35%
12/28/2020	16.9	21.8	21.9	20.065	8.6	57.14%
12/29/2020	10.5	12.6	9.3	10.887	5.8	46.73%

**GLWA Local Limits Study  
WRRF Removal Rates**

**Fats, Oils & Grease (FOG)**

Date	Jefferson 36% mg/l	Oakwood 35% mg/l	NIEA 29% mg/l	Combined Influent	Effluent mg/l	Overall Removal
12/30/2020	14.8	20.1	38.5	23.528	< 5	78.75%
12/31/2020	17.2	15.1	21.2	17.625	< 5	71.63%

<b>Mean</b>	<b>16.748</b>	<b>5.240</b>	<b>67.9%</b>
<b>N</b>	<b>362.000</b>		
<b>Std Dev.</b>	<b>8.905</b>	<b>0.825</b>	<b>14.5%</b>
<b>Min.</b>	<b>5.166</b>	<b>5.000</b>	<b>3.2%</b>
<b>Max.</b>	<b>82.009</b>	<b>11.700</b>	<b>92.5%</b>
<b>Median</b>			<b>65.3%</b>
<b>2nd Decile</b>			<b>53.9%</b>
<b>Load</b>	<b>77,031.10</b>		<b>lbs/day</b>



**GLWA Local Limits Study  
WRRF Removal Rates**

**Fluorotelomer sulphonic acid 4:2 (FtS 4:2)**

Date	Jefferson	Oakwood	NIEA	Combined			Overall
	36% ngms/l	35% ngms/l	29% ngms/l	Influent ngms/l	Effluent ngms/l	Effluent	Removal
01/09/20	0	0	0	0	0		ND
03/04/20	0	0	0	0	0		ND
04/07/20	0	0	0	0	0		ND
07/09/20	0	0	0	0	0		ND
10/15/20	0	0	0	0	0		ND
11/12/20	0	0	0	0	0		ND
12/02/20	0	0	0	0	0		ND
			Mean	0.00	0.00		ND
			N	7			7
			Std Dev.	0.00	0.00		ND
			Min.	0	0		0.0%
			Max.	0	0		0.0%
			Median				ND
			2nd Decile				ND
			Load		-		lbs/day

**GLWA Local Limits Study  
WRRF Removal Rates**

**Perfluorodecanoic acid (PFDA)**

Date	Jefferson	Oakwood	NIEA	Combined		Overall Removal
	36% ngms/l	35% ngms/l	29% ngms/l	Influent ngms/l	Effluent ngms/l	
01/09/20	0	0	0	0	0	ND
03/04/02	0	0	0	0	0	ND
04/07/20	0	0	0	0	0	ND
07/09/20	0	0	0	0	0	ND
10/15/20	0	0	0	0	0	ND
11/12/20	0	0	0	0	0	ND
12/02/20	0	0	0	0	0	ND
						7
			Mean	0.00	0.00	ND
			N	7		7
			Std Dev.	0.00	0.00	ND
			Min.	0	0	0.0%
			Max.	0	0	0.0%
			Median			ND
			2nd Decile			ND
			Load		-	lbs/day

GLWA Local Limits Study

WRRF Removal Rates

**Perfluoroheptanesulfonic acid (PFHpS)**

Date	Jefferson	Oakwood	NIEA	Combined		Overall Removal
	36% ngms/l	35% ngms/l	29% ngms/l	Influent ngms/l	Effluent ngms/l	
01/09/20	0	0	0	0	0	ND
03/04/02	0	0	0	0	0	ND
04/07/20	0	0	0	0	0	ND
07/09/20	0	0	0	0	0	ND
10/15/20	0	0	0	0	0	ND
11/12/20	0	0	0	0	0	ND
12/02/20	0	0	0	0	0	ND
			Mean	0.00	0.00	ND
			N	7		11
			Std Dev.	0.00	0.00	ND
			Min.	0	0	0.0%
			Max.	0	0	0.0%
			Median			ND
			2nd Decile			ND
			Load		-	lbs/day

**GLWA Local Limits Study  
WRRF Removal Rates**

**-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11CI-PF3OUc**

Date	Jefferson 36% ngms/l	Oakwood 35% ngms/l	NIEA 29% ngms/l	Combined Influent ngms/l	Effluent ngms/l	Effluent	Overall Removal
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01/09/20

03/04/02

04/07/20

07/09/20

10/15/20

11/12/20

12/02/20

0

0

0

0

0

ND

0

0

0

0

0

ND

0

0

0

0

0

ND

Mean

0.00

0.00

ND

N

3

7

Std Dev.

0.00

0.00

ND

Min.

0

0

0.0%

Max.

0

0

0.0%

Median

ND

2nd Decile

ND

Load

-

lbs/day

**GLWA Local Limits Study  
WRRF Removal Rates**

**Fluorotelomer sulphonic acid 6:2 (FtS 6:2)**

Date	Jefferson	Oakwood	NIEA	Combined Influent ngms/l	Effluent ngms/l	Effluent ngms/l	Overall Removal
	36% ngms/l	35% ngms/l	29% ngms/l				
01/09/20	0	0	230	66.7	27	27	59.5%
03/04/20	28	0	54	25.74	52	52	-102.0%
04/07/20	64	0	0	23.04	0	0	100.0%
07/09/20	55	0	32	29.08	69	69	-137.3%
10/15/20	140	6.9	60	70.215	28	28	60.1%
11/12/20	190	9.6	46	85.1	70	70	17.7%
12/02/20	13	11	39	19.84	17	17	14.3%

EPA Removal Rate

Mean	45.67	37.57	1.8%
N	7		7
Std Dev.	27.24	26.73	88.4%
Min.	19.84	0	-137.3%
Max.	85.1	70	100.0%
Median			17.7%
2nd Decile			-78.8%
Load		0.210	lbs/day

**GLWA Local Limits Study  
WRRF Removal Rates**

**Perfluoroundecanoic acid (PFUnA)**

Date	Jefferson	Oakwood	NIEA	Combined Influent ngms/l	Effluent ngms/l	Effluent	Overall Removal
	36% ngms/l	35% ngms/l	29% ngms/l				
01/09/20	0	0	0	0	0		ND
03/04/02	0	0	0	0	0		ND
04/07/20	0	0	0	0	0		ND
07/09/20	0	0	0	0	0		ND
10/15/20	0	0	0	0	0		ND
11/12/20	0	0	0	0	0		ND
12/02/20	0	0	0	0	0		ND
			Mean	0.00	0.00		ND
			N	7			7
			Std Dev.	0.00	0.00		ND
			Min.	0	0		0.0%
			Max.	0	0		0.0%
			Median				ND
			2nd Decile				ND
			Load		-		lbs/day

**GLWA Local Limits Study  
WRRF Removal Rates**

**Perfluorononanesulfonic acid (PFNS)**

Date	Jefferson	Oakwood	NIEA	Combined Influent ngms/l	Effluent ngms/l	Effluent	Overall Removal
	36% ngms/l	35% ngms/l	29% ngms/l				
01/09/20	0	0	0	0	0		ND
03/04/02	0	0	0	0	0		ND
04/07/20	0	0	0	0	0		ND
07/09/20	0	0	0	0	0		ND
10/15/20	0	0	0	0	0		ND
11/12/20	0	0	0	0	0		ND
12/02/20	0	0	0	0	0		ND
			Mean	0.00	0.00		ND
			N	7			7
			Std Dev.	0.00	0.00		ND
			Min.	0	0		0.0%
			Max.	0	0		0.0%
			Median				ND
			2nd Decile				ND
			Load		-		lbs/day

**GLWA Local Limits Study  
WRRF Removal Rates**

**9-Chlorohexadecafluoro-3-oxnonane-1-sulfonic acid (9CI-PF3ONS)**

Date	Jefferson 36% ngms/l	Oakwood 35% ngms/l	NIEA 29% ngms/l	Combined Influent ngms/l	Effluent ngms/l	Effluent	Overall Removal
01/09/20							
03/04/02							
04/07/20							
07/09/20							
10/15/20	0	0	0	0	0		ND
11/12/20	0	0	0	0	0		ND
12/02/20	0	0	0	0	0		ND
			Mean	0.00	0.00		ND
			N	3			7
			Std Dev.	0.00	0.00		ND
			Min.	0	0		0.0%
			Max.	0	0		0.0%
			Median				ND
			2nd Decile				ND
			Load		-		lbs/day

**GLWA Local Limits Study  
WRRF Removal Rates**

**Fluorotelomer sulphonic acid 8:2 (FtS 8:2)**

Date	Jefferson	Oakwood	NIEA	Combined	Effluent	Effluent	Overall
	36% ngms/l	35% ngms/l	29% ngms/l	Influent ngms/l	ngms/l	ngms/l	Removal
01/09/20	0	0	0	0	0		ND
03/04/20	17	18	17	17.35	19		-9.5%
04/07/20	0	0	0	0	0		ND
07/09/20	0	0	0	0	0		ND
10/15/20	0	0	0	0	0		ND
11/12/20	0	0	0	0	0		ND
12/02/20	0	0	0	0	0		ND

Mean	2.48	2.71	-9.5%
N	7		7
Std Dev.	6.56	7.18	NS
Min.	0	0	-9.5%
Max.	17.35	0	-9.5%
Median			ND
2nd Decile			ND
Load		0.011	lbs/day

**GLWA Local Limits Study  
WRRF Removal Rates**

**Perfluorododecanoic acid (PFDoA)**

Date	Jefferson	Oakwood	NIEA	Combined	Effluent	Effluent	Overall
	36% ngms/l	35% ngms/l	29% ngms/l	Influent ngms/l	ngms/l	ngms/l	Removal
01/09/20	0	0	0	0	0		ND
03/04/02	0	0	0	0	0		ND
04/07/20	0	0	0	0	0		ND
07/09/20	0	0	0	0	0		ND
10/15/20	0	0	0	0	0		ND
11/12/20	0	0	0	0	0		ND
12/02/20	0	0	0	0	0		ND
			Mean	0.00	0.00		ND
			N	7			7
			Std Dev.	0.00	0.00		ND
			Min.	0	0		0.0%
			Max.	0	0		0.0%
			Median				ND
			2nd Decile				ND
			Load		-		lbs/day

GLWA Local Limits Study

WRRF Removal Rates

**Perfluorodecanesulfonic acid (PFDS)**

Date	Jefferson	Oakwood	NIEA	Combined	Effluent	Effluent	Overall
	36% ngms/l	35% ngms/l	29% ngms/l	Influent ngms/l	ngms/l	ngms/l	Removal
01/09/20	0	0	0	0	0		ND
03/04/02	0	0	0	0	0		ND
04/07/20	0	0	0	0	0		ND
07/09/20	0	0	0	0	0		ND
10/15/20	0	0	0	0	0		ND
11/12/20	0	0	0	0	0		ND
12/02/20	0	0	0	0	0		ND
			Mean	0.00	0.00		ND
			N	7			7
			Std Dev.	0.00	0.00		ND
			Min.	0	0		0.0%
			Max.	0	0		0.0%
			Median				ND
			2nd Decile				ND
			Load		-		lbs/day

**GLWA Local Limits Study  
WRRF Removal Rates**

**4,8-dioxa-3H-perfluorononanoic acid (ADONA)**

Date	Jefferson	Oakwood	NIEA	Combined	Effluent	Effluent	Overall
	36% ngms/l	35% ngms/l	29% ngms/l	Influent ngms/l	ngms/l	ngms/l	Removal
01/09/20							
03/04/02							
04/07/20							
07/09/20							
10/15/20	0	0	0	0	0		ND
11/12/20	0	0	0	0	0		ND
12/02/20	0	0	0	0	0		ND
			Mean	0.00	0.00		ND
			N	3			7
			Std Dev.	0.00	0.00		ND
			Min.	0	0		0.0%
			Max.	0	0		0.0%
			Median				ND
			2nd Decile				ND
			Load		-		lbs/day

GLWA Local Limits Study

WRRF Removal Rates

**Perfluorobutanoic acid (PFBA)**

Date	Jefferson	Oakwood	NIEA	Combined	Effluent	Effluent	Overall
	36% ngms/l	35% ngms/l	29% ngms/l	Influent ngms/l	ngms/l	ngms/l	Removal
01/09/20	3.8	11	5.1	6.697	11	11	-64.3%
03/04/20	9.7	17	9.2	12.11	19	19	-56.9%
04/07/20	6.4	16	20	13.704	12	12	12.4%
07/09/20	7.2	19	11	12.432	13	13	-4.6%
10/15/20	0	18	0	6.3	11	11	-74.6%
11/12/20	7.1	32	8.1	16.105	12	12	25.5%
12/02/20	13	12	4.3	10.127	12	12	-18.5%

Mean	11.07	12.86	-25.8%
N	7		7
Std Dev.	3.61	2.79	39.6%
Min.	6.3	11	-74.6%
Max.	16.105	19	25.5%
Median			-18.5%
2nd Decile			-62.8%
Load		0.051	lbs/day

**GLWA Local Limits Study  
WRRF Removal Rates**

**Perfluorotridecanoic acid (PFTriA)**

Date	Jefferson	Oakwood	NIEA	Combined		Overall Removal
	36% ngms/l	35% ngms/l	29% ngms/l	Influent ngms/l	Effluent ngms/l	
01/09/20	0	0	0	0	0	ND
03/04/02	0	0	0	0	0	ND
04/07/20	0	0	0	0	0	ND
07/09/20	0	0	0	0	0	ND
10/15/20	0	0	0	0	0	ND
11/12/20	0	0	0	0	0	ND
12/02/20	0	0	0	0	0	ND
Mean				0.00	0.00	ND
N				7		7
Std Dev.				0.00	0.00	ND
Min.				0	0	0.0%
Max.				0	0	0.0%
Median						ND
2nd Decile						ND
Load					-	lbs/day

**GLWA Local Limits Study  
WRRF Removal Rates**

**Perfluorooctanesulfonamide (PFOSA)**

Date	Jefferson	Oakwood	NIEA	Combined		Overall Removal
	36% ngms/l	35% ngms/l	29% ngms/l	Influent ngms/l	Effluent ngms/l	
01/09/20	0	0	0	0	0	ND
03/04/02	0	0	0	0	0	ND
04/07/20	0	0	0	0	0	ND
07/09/20	0	0	0	0	0	ND
10/15/20	0	0	0	0	0	ND
11/12/20	0	0	0	0	0	ND
12/02/20	0	0	0	0	0	ND
Mean				0.00	0.00	ND
N				7		7
Std Dev.				0.00	0.00	ND
Min.				0	0	0.0%
Max.				0	0	0.0%
Median						ND
2nd Decile						ND
Load					-	lbs/day
					0	

**GLWA Local Limits Study  
WRRF Removal Rates**

**Hexafluoropropylene oxide dimer (HFPO-DA)**

Date	Jefferson 36% ngms/l	Oakwood 35% ngms/l	NIEA 29% ngms/l	Combined Influent ngms/l	Effluent ngms/l	Effluent	Overall Removal
01/09/20							
03/04/02							
04/07/20							
07/09/20							
10/15/20	0	0	0	0	0		ND
11/12/20	0	3.9	0	1.365	0		100.0%
12/02/20	0	0	0	0	0		ND

Mean	0.46	0.00	100.0%
N	3		7
Std Dev.	0.79	0.00	ND
Min.	0	0	100.0%
Max.	1.365	0	100.0%
Median			100.0%
2nd Decile			100.0%
Load		0.002	lbs/day

GLWA Local Limits Study

WRRF Removal Rates

**Perfluoropentanoic acid (PFPeA)**

Date	Jefferson	Oakwood	NIEA	Combined Influent ngms/l	Effluent ngms/l	Effluent	Overall Removal
	36% ngms/l	35% ngms/l	29% ngms/l				
01/09/20	5	8.4	4.5	6.045	7.2	7.2	-19.1%
03/04/02	7.3	9.8	7.8	8.32	9.1	9.1	-9.4%
04/07/20	8.6	11	7.9	9.237	9.7	9.7	-5.0%
07/09/20	9.2	16	11	12.102	16	16	-32.2%
10/15/20	4.8	9.7	4.4	6.399	6.7	6.7	-4.7%
11/12/20	6.5	13	6.2	8.688	9.2	9.2	-5.9%
12/02/20	13	11	7.2	10.618	8.5	8.5	19.9%
			Mean	8.77	9.49		-8.1%
			N	7			7
			Std Dev.	2.16	3.07		15.9%
			Min.	6.045	6.7		-32.2%
			Max.	12.102	16		19.9%
			Median				-5.9%
			2nd Decile				-17.2%
			Load		0.040		lbs/day

GLWA Local Limits Study

WRRF Removal Rates

**Perfluorotetradecanoic acid (PFTeA)**

Date	Jefferson	Oakwood	NIEA	Combined Influent ngms/l	Effluent ngms/l	Effluent	Overall Removal
	36% ngms/l	35% ngms/l	29% ngms/l				
01/09/20	0	0	0	0	0		ND
03/04/02	0	0	0	0	0		ND
04/07/20	0	0	0	0	0		ND
07/09/20	0	0	0	0	0		ND
10/15/20	0	0	0	0	0		ND
11/12/20	0	0	0	0	0		ND
12/02/20	0	0	0	0	0		ND
			Mean	0.00	0.00		ND
			N	7			7
			Std Dev.	0.00	0.00		ND
			Min.	0	0		0.0%
			Max.	0	0		0.0%
			Median				ND
			2nd Decile				ND
			Load		-		lbs/day

GLWA Local Limits Study

WRRF Removal Rates

**2-(N-Ethylperfluorooctanesulfonamido) acetic acid (N-EtFOSAA)**

Date	Jefferson	Oakwood	NIEA	Combined Influent ngms/l	Effluent ngms/l	Effluent	Overall Removal
	36% ngms/l	35% ngms/l	29% ngms/l				
01/09/20	0	0	0	0	0		ND
03/04/02	0	0	0	0	0		ND
04/07/20	0	0	0	0	0		ND
07/09/20	0	0	0	0	0		ND
10/15/20	0	0	0	0	0		ND
11/12/20	0	0	0	0	0		ND
12/02/20	0	0	0	0	0		ND
Mean				0.00	0.00		ND
N				7			11
Std Dev.				0.00	0.00		ND
Min.				0	0		0.0%
Max.				0	0		0.0%
Median							ND
2nd Decile							ND
Load					-		lbs/day

**GLWA Local Limits Study  
WRRF Removal Rates**

**Perfluorohexanoic acid (PFHxA)**

Date	Jefferson	Oakwood	NIEA	Combined	Effluent	Effluent	Overall
	36% ngms/l	35% ngms/l	29% ngms/l	Influent ngms/l	ngms/l	ngms/l	Removal
01/09/20	5.7	12	6.9	8.253	20	20	-142.3%
03/04/02	7.8	18	13	12.878	17	17	-32.0%
04/07/20	11	16	13	13.33	23	23	-72.5%
07/09/20	13	20	15	16.03	27	27	-68.4%
10/15/20	8	19	5.7	11.183	21	21	-87.8%
11/12/20	8.2	25	9.7	14.515	25	25	-72.2%
12/02/20	6.1	13	9	9.356	25	25	-167.2%
			Mean	12.22	22.57		-91.8%
			N	7			7
			Std Dev.	2.78	3.46		46.8%
			Min.	8.253	17		-167.2%
			Max.	16.03	27		-32.0%
			Median				-72.5%
			2nd Decile				-131.4%
			Load		0.056		lbs/day

**GLWA Local Limits Study  
WRRF Removal Rates**

**Perfluorobutanesulfonic acid (PFBS)**

Date	Jefferson	Oakwood	NIEA	Combined	Effluent	Effluent	Overall
	36% ngms/l	35% ngms/l	29% ngms/l	Influent ngms/l	ngms/l	ngms/l	Removal
01/09/20	4.5	12	7.2	7.908	17	17	-115.0%
03/04/02	7.3	19	23	15.948	17	17	-6.6%
04/07/20	6.5	18	24	15.6	20	20	-28.2%
07/09/20	5.5	24	18	15.6	16	16	-2.6%
10/15/20	2.6	24	10	12.236	20	20	-63.5%
11/12/20	3.2	41	17	20.432	13	13	36.4%
12/02/20	6.1	11	11	9.236	17	17	-84.1%
			Mean	13.85	17.14		-37.6%
			N	7			7
			Std Dev.	4.34	2.41		52.5%
			Min.	7.908	13		-115.0%
			Max.	20.432	20		36.4%
			Median				-28.2%
			2nd Decile				-79.9%
			Load		0.064		lbs/day

**GLWA Local Limits Study  
WRRF Removal Rates**

**2-(NMethylperfluorooctanesulfonamido) acetic acid (N-MeFOSAA)**

Date	Jefferson	Oakwood	NIEA	Combined		Overall Removal
	36% ngms/l	35% ngms/l	29% ngms/l	Influent ngms/l	Effluent ngms/l	
01/09/20	0	0	0	0	0	ND
03/04/02	0	0	0	0	0	ND
04/07/20	0	0	0	0	0	ND
07/09/20	0	0	0	0	0	ND
10/15/20	0	0	0	0	0	ND
11/12/20	0	0	0	0	0	ND
12/02/20	0	0	0	0	0	ND
Mean				0.00	0.00	ND
N				7		11
Std Dev.				0.00	0.00	ND
Min.				0	0	0.0%
Max.				0	0	0.0%
Median						ND
2nd Decile						ND
Load					-	lbs/day

GLWA Local Limits Study

WRRF Removal Rates

Perfluoroheptanoic acid (PFHpA)

Date	Jefferson	Oakwood	NIEA	Combined Influent ngms/l	Effluent ngms/l	Effluent	Overall Removal
	36% ngms/l	35% ngms/l	29% ngms/l				
01/09/20	2.6	3.5	2.3	2.828	3.1	3.1	-9.6%
03/04/02	2.4	4.4	2.9	3.245	4.2	4.2	-29.4%
04/07/20	2.9	3.9	2.6	3.163	3.6	3.6	-13.8%
07/09/20	3.8	6.4	4.4	4.884	4.9	4.9	-0.3%
10/15/20	2.4	3.6		2.124	2.9	2.9	-36.5%
11/12/20	2.1	4.7	2.1	3.01	3.2	3.2	-6.3%
12/02/20	2.1	3.8	2.1	2.695	3.2	3.2	-18.7%

Mean	3.14	3.59	-16.4%
N	7		7
Std Dev.	0.86	0.72	12.9%
Min.	2.124	2.9	-36.5%
Max.	4.884	4.9	-0.3%
Median			-13.8%
2nd Decile			-27.3%
Load		0.014	lbs/day

**GLWA Local Limits Study  
WRRF Removal Rates**

**Perfluoropentanesulfonic acid (PFPeS)**

Date	Jefferson	Oakwood	NIEA	Combined Influent ngms/l	Effluent ngms/l	Effluent	Overall Removal
	36% ngms/l	35% ngms/l	29% ngms/l				
01/09/20	2.1	0	0	0.756	0	0	100.0%
03/04/02	0	0	0	0	0	0	ND
04/07/20	2	1.9		1.385	2.2	2.2	-58.8%
07/09/20	0	0	0	0	0	0	ND
10/15/20	0	0	0	0	0	0	ND
11/12/20	0	0	0	0	0	0	ND
12/02/20	0	0	0	0	0	0	ND
Mean				0.31	0.31		20.6%
N				7			7
Std Dev.				0.55	0.83		112.3%
Min.				0	0		-58.8%
Max.				1.385	2.2		100.0%
Median							20.6%
2nd Decile							-27.1%
Load					0.001		lbs/day

**GLWA Local Limits Study  
WRRF Removal Rates**

**Perfluorooctanoic acid (PFOA)**

Date	Jefferson	Oakwood	NIEA	Combined Influent ngms/l	Effluent ngms/l	Effluent	Overall Removal
	36% ngms/l	35% ngms/l	29% ngms/l				
01/09/20	14	7.3	4.6	8.929	8.1	8.1	9.3%
03/04/02	5.4	11	7.9	8.085	7.3	7.3	9.7%
04/07/20	4.5	9.2	6	6.58	10	10	-52.0%
07/09/20	6.8	12	10	9.548	10	10	-4.7%
10/15/20	3.2	9.6	4.3	5.759	7	7	-21.5%
11/12/20	4.3	10	5.4	6.614	6.3	6.3	4.7%
12/02/20	5	8.6	4.9	6.231	6.7	6.7	-7.5%
Mean				7.39	7.91		-8.9%
N				7			7
Std Dev.				1.46	1.53		22.0%
Min.				5.759	6.3		-52.0%
Max.				9.548	10		9.7%
Median							-4.7%
2nd Decile							-18.7%
Load					0.034		lbs/day

**GLWA Local Limits Study  
WRRF Removal Rates**

**Perfluorononanoic acid (PFNA)**

Date	Jefferson	Oakwood	NIEA	Combined Influent	Effluent	Effluent	Overall Removal
	36% ngms/l	35% ngms/l	29% ngms/l	ngms/l	ngms/l		
01/09/20	0	0	0	0	0		ND
03/04/02	0	0	0	0	0		ND
04/07/20	0	0	0	0	0		ND
07/09/20	0	0	0	0	0		ND
10/15/20	0	0	0	0	0		ND
11/12/20	0	0	0	0	0		ND
12/02/20	1.9	0	0	0.684	0		100.0%

Mean	0.10	0.00	100.0%
N	7		11
Std Dev.	0.26	0.00	ND
Min.	0	0	100.0%
Max.	0.684	0	100.0%
Median			100.0%
2nd Decile			100.0%
Load		0.00045	lbs/day

GLWA Local Limits Study

WRRF Removal Rates

**Perfluorohexanesulfonic acid (PFHxS)**

Date	Jefferson	Oakwood	NIEA	Combined Influent ngms/l	Effluent ngms/l	Effluent	Overall Removal
	36% ngms/l	35% ngms/l	29% ngms/l				
01/09/20	16	9.8	5	10.64	8.6	8.6	19.2%
03/04/02	6.4	9.8	6.4	7.59	7.8	7.8	-2.8%
04/07/20	14	10	7	10.57	18	18	-70.3%
07/09/20	4.5	12	5.9	7.531	6	6	20.3%
10/15/20	1.9	8.4	5.7	5.277	4.8	4.8	9.0%
11/12/20	2.1	9.1	4.3	5.188	4.1	4.1	21.0%
12/02/20	4.8	9.4	4.8	6.41	5.6	5.6	12.6%
			Mean	7.60	7.84		1.3%
			N	7			7
			Std Dev.	2.26	4.75		32.7%
			Min.	5.188	4.1		-70.3%
			Max.	10.64	18		21.0%
			Median				12.6%
			2nd Decile				-0.4%
			Load		0.035		lbs/day

GLWA Local Limits Study

WRRF Removal Rates

**Perfluorooctanesulfonic acid (PFOS)**

Date	Jefferson 36% ngms/l	Oakwood 35% ngms/l	NIEA 29% ngms/l	Combined Influent ngms/l	Effluent ngms/l	Effluent	Overall Removal
01/09/20	27	15	8.6	17.464	30	30	-71.8%
03/04/02	18	18	8.5	15.245	10	13	14.7%
04/07/20	51	13	12	26.39	37	37	-40.2%
07/09/20	22	38	14	25.28	15	15	40.7%
10/15/20	8.5	18	7.6	11.564	9.8	9.8	15.3%
11/12/20	19	16	7.7	14.673	8	8	45.5%
12/02/20	14	23	6.7	15.033	12	12	20.2%

Mean	17.95	17.83	3.5%
N	7		7
Std Dev.	5.66	11.12	43.3%
Min.	11.564	8	-71.8%
Max.	26.39	37	45.5%
Median			15.3%
2nd Decile			-29.2%
Load		0.083	lbs/day

TAB E – Background Source Data and  
Loading

Domestic Contribution  
Arsenic

Date	7 Mile - Livernois mg/l	7 Mile - Berg Rd mg/l	Cadieus - Mack mg/l
3/4/2020	0.014	0.004	0.008
3/5/2020	0	0	0
5/5/2020	0	0	0.012
5/6/2020	0.006	0	0
6/2/2020	0.005	0	0.004
6/3/2020	0.005	0	0.002
7/7/2020	0	0	0
7/8/2020	0	0.001	0
8/18/2020	0	0.012	0.004
8/19/2020	0.001	0	0.01
	Average =	0.00293	mg/l

Domestic Contribution

Cadmium

RL = 0.01

Date	7 Mile - Livernois mg/l	7 Mile - Berg Rd mg/l	Cadieux - Mack mg/l	
3/4/2020	0.000	0.000	0.000	x
3/5/2020	0.000	0.000	0.000	x
5/5/2020	0.000	0.000	0.000	x
5/6/2020	0.000	0.000	0.000	x
6/2/2020	0.000	0.000	0.000	x
6/3/2020	0.000	0.000	0.000	x
7/7/2020	0.000	0.002	0.000	x
7/8/2020	0.000	0.000	0.001	x
8/18/2020	0.001	0.001	0.000	x
8/19/2020	0.000	0.000	0.001	x
	Average =	0.000200	mg/l	

Domestic Contribution  
Chromium

Date	7 Mile - Livernois ug/l	7 Mile - Berg Rd ug/l	Cadieux - Mack ug/l
3/4/2020	1.00	22.00	7.00
3/5/2020	1.00	1.00	6.00
5/5/2020	1.00	0.00	1.00
5/6/2020	1.00	0.00	439.00
6/2/2020	1.00	1.00	2.00
6/3/2020	1.00	0.00	1.00
7/7/2020	1.00	8.00	2.00
7/8/2020	2.00	1.00	5.00
8/18/2020	0.00	1.00	2.00
8/19/2020	0.00	0.00	4.00
	Average =	17.067	ug/l

Domestic Contribution  
Copper

Date	7 Mile - Livernois ug/l	7 Mile - Berg Rd ug/l	Cadieux - Mack ug/l
3/4/2020	6	38	25
3/5/2020	18	24	21
5/5/2020	10	7	9
5/6/2020	18	10	12
6/2/2020	8	7	6
6/3/2020	25	7	7
7/7/2020	8	122	5
7/8/2020	14	8	4
8/18/2020	11	15	9
8/19/2020	5	0	16
	Average =	15.833	ug/l

Domestic Contribution  
Lead

Date	7 Mile - Livernois ug/l	7 Mile - Berg Rd ug/l	Cadieux - Mack ug/l
3/4/2020	4.00	0.00	8.00
3/5/2020	0.00	4.00	0.00
5/5/2020	4.00	2.00	4.00
5/6/2020	10.00	4.00	5.00
6/2/2020	3.00	3.00	5.00
6/3/2020	3.00	3.00	6.00
7/7/2020	6.00	10.00	0.00
7/8/2020	1.00	0.00	6.00
8/18/2020	1.00	8.00	11.00
8/19/2020	3.00	0.00	12.00
	Average =	4.200	ug/l

Domestic Contribution  
Mercury

Date	7 Mile - Livernois ug/l	7 Mile - Berg Rd ug/l	Cadieux - Mack ug/l
3/4/2020	0.00	0.00	0.00
3/5/2020	0.15	0.00	0.08
5/5/2020	0.10	0.10	0.09
5/6/2020	0.10	0.09	0.11
6/2/2020	0.00	0.00	0.00
6/3/2020	0.01	0.00	0.01
7/7/2020	0.00	0.38	0.00
7/8/2020	0.00	0.00	0.00
8/18/2020	0.00	0.00	0.00
8/19/2020	0.00	0.00	0.00
	Average =	0.04067	ug/l

Domestic Contribution  
Nickel

Date	7 Mile - Livernois ug/l	7 Mile - Berg Rd ug/l	Cadieux - Mack ug/l
3/4/2020	0.00	11.00	0.00
3/5/2020	0.00	1.00	0.00
5/5/2020	0.00	0.00	0.00
5/6/2020	0.00	0.00	145.00
6/2/2020	2.00	1.00	1.00
6/3/2020	1.00	0.00	1.00
7/7/2020	0.00	3.00	1.00
7/8/2020	1.00	0.00	1.00
8/18/2020	0.00	0.00	1.00
8/19/2020	1.00	1.00	2.00
	Average =	5.800	ug/l

Domestic Contribution  
Silver

Date	7 Mile - Livernois ug/l	7 Mile - Berg Rd ug/l	Cadieux - Mack ug/l
3/4/2020	0.00	0.00	2.00
3/5/2020	0.00	0.00	0.00
5/5/2020	0.00	0.00	0.00
5/6/2020	0.00	0.00	169.00
6/2/2020	1.00	0.00	1.00
6/3/2020	1.00	0.00	122.00
7/7/2020	1.00	0.00	9.00
7/8/2020	1.00	1.00	1.00
8/18/2020	0.00	0.00	0.00
8/19/2020	0.00	0.00	0.00
	Average =	10.300	ug/l

Domestic Contribution  
Zinc

Date	7 Mile - Livernois ug/l	7 Mile - Berg Rd ug/l	Cadieux - Mack ug/l
03/04/20	24.00	68.00	70.00
03/05/20	37.00	60.00	34.00
05/05/20	30.00	29.00	30.00
05/06/20	62.00	23.00	67.00
06/02/20	37.00	39.00	38.00
06/03/20	31.00	31.00	30.00
07/07/20	25.00	304.00	21.00
07/08/20	51.00	54.00	23.00
08/18/20	44.00	52.00	40.00
08/19/20	27.00	1.00	80.00
	Average =	48.733	ug/l



Domestic Contribution  
Amenable CN

Date	7 Mile - Livernois ug/l	7 Mile - Berg Rd ug/l	Cadieux - Mack ug/l
03/04/20	0	0	0
03/05/20	0	0	0
05/05/20	2.67	3.24	6.09
05/06/20	2.53	2.52	3.72
06/02/20	1.618	0.6381	4.25
06/03/20	1.73	0.6586	2.82
07/07/20	2.08	0.7863	2.66
07/08/20	0.6242	1.364	0.1155
08/18/20	1.897	1.735	2.31
08/19/20	1.929	2.53	1.925
	Average =	1.748	ug/l

Domestic Contribution  
Available CN

Date	7 Mile - Livernois ug/l	7 Mile - Berg Rd ug/l	Cadieux - Mack ug/l
03/04/20	0.00	0.00	0.00
03/05/20	0.00	0.00	0.00
05/05/20	2.67	3.24	6.09
05/06/20	2.53	2.52	3.72
06/02/20	1.62	0.64	4.25
06/03/20	1.73	0.66	2.82
07/07/20	1.35	0.79	2.15
07/08/20	0.62	1.36	0.59
08/18/20	1.90	1.74	2.31
08/19/20	1.93	2.53	1.93
	Average =	1.722	ug/l

Domestic Contribution  
Total CN

Date	7 Mile - Livernois ug/l	7 Mile - Berg Rd ug/l	Cadieux - Mack ug/l
03/04/20	2.28	4.54	10.6
03/05/20	1.17	0.439	7.21
05/05/20	3.46	3.86	12.6
05/06/20	7.65	5.85	10.8
06/02/20	0	0.9587	4.92
06/03/20	2.872	1.992	9.44
07/07/20	2.162	0	4.57
07/08/20	4.59	0.3921	0.1582
08/18/20	0	0	0
08/19/20	2.75	4.3	3.27
	Average =	3.761	ug/l



Domestic Contribution  
Total Phenolics

Date	7 Mile - Livernois ug/l	7 Mile - Berg Rd ug/l	Cadieux - Mack ug/l
03/04/20	38	50.1	95.5
03/05/20	105	111	98.6
05/05/20	44.4	35.6	56.2
05/06/20	20.9	23.8	20.9
06/02/20	97.7	40.1	101
06/03/20	31	249	195
07/07/20	142	114	58.7
07/08/20	116	81.5	93.9
08/18/20	21.8	21.8	6.53
08/19/20	61.5	27.9	0.4286
	Average =	71.995	ug/l

Domestic Contribution  
4-Chloro-3-methylphenol

Date	7 Mile - Livernois ug/l	7 Mile - Berg Rd ug/l	Cadieus - Mack ug/l
03/04/20	0	0	0
03/05/20	0	0	0
05/05/20	0	0	0
05/06/20	0	0	0
06/02/20	0	0	0
06/03/20	0	0	0
07/07/20	0	0	0
07/08/20	0	0	0
08/18/20	0	0	0
08/19/20	0	0	0
	Average =	0.000	ug/l

Domestic Contribution  
Phenol Alcohol

Date	7 Mile - Livernois ug/l	7 Mile - Berg Rd ug/l	Cadieus - Mack ug/l
03/04/20	0	0	0
03/05/20	0	0	0
05/05/20	0	0	0
05/06/20	0	0	0
06/02/20	0	0	0
06/03/20	0	0	0
07/07/20	0	0	0
07/08/20	0	0	0
08/18/20	0	0	0
08/19/20	0	0	0
	Average =	0.000	ug/l

Domestic Contribution  
2-Chlorophenol

Date	7 Mile - Livernois ug/l	7 Mile - Berg Rd ug/l	Cadieus - Mack ug/l
03/04/20	0	0	0
03/05/20	0	0	0
05/05/20	0	0	0
05/06/20	0	0	0
06/02/20	0	0	0
06/03/20	0	0	0
07/07/20	0	0	0
07/08/20	0	0	0
08/18/20	0	0	0
08/19/20	0	0	0
	Average =	0.000	ug/l

Domestic Contribution  
4-Chlorophenol

Date	7 Mile - Livernois ug/l	7 Mile - Berg Rd ug/l	Cadieus - Mack ug/l
03/04/20	0	0	0
03/05/20	0	0	0
05/05/20	0	0	0
05/06/20	0	0	0
06/02/20	0	0	0
06/03/20	0	0	0
07/07/20	0	0	0
07/08/20	0	0	0
08/18/20	0	0	0
08/19/20	0	0	0
	Average =	0.000	ug/l

Domestic Contribution  
2,4-Dichlorophenol

Date	7 Mile - Livernois ug/l	7 Mile - Berg Rd ug/l	Cadieus - Mack ug/l
03/04/20	0	0	0
03/05/20	0	0	0
05/05/20	0	0	0
05/06/20	0	0	0
06/02/20	0	0	0
06/03/20	0	0	0
07/07/20	0	0	0
07/08/20	0	0	0
08/18/20	0	0	0
08/19/20	0	0	0
	Average =	0.000	ug/l

Domestic Contribution 4-  
Nitrophenol

Date	7 Mile - Livernois ug/l	7 Mile - Berg Rd ug/l	Cadieus - Mack ug/l
03/04/20	0	0	0
03/05/20	0	0	0
05/05/20	0	0	0
05/06/20	0	0	0
06/02/20	0	0	0
06/03/20	0	0	0
07/07/20	0	0	0
07/08/20	0	0	0
08/18/20	0	0	0
08/19/20	0	0	0
	Average =	0.000	ug/l

Domestic Contribution  
2,4-Dinitrophenol

Date	7 Mile - Livernois ug/l	7 Mile - Berg Rd ug/l	Cadieux - Mack ug/l
03/04/20	0	0	0
03/05/20	0	0	0
05/05/20	0	0	0
05/06/20	0	0	0
06/02/20	0	0	0
06/03/20	0	0	0
07/07/20	0	0	0
07/08/20	0	0	0
08/18/20	0	0	0
08/19/20	0	0	0
	Average =	0.000	ug/l

Domestic Contribution  
4-Methylphenol

Date	7 Mile - Livernois ug/l	7 Mile - Berg Rd ug/l	Cadieux - Mack ug/l
03/04/20	0	0	0
03/05/20	0	0	0
05/05/20	0	0	0
05/06/20	0	0	0
06/02/20	0	0	0
06/03/20	0	0	0
07/07/20	0	0	0
07/08/20	0	0	0
08/18/20	0	0	0
08/19/20	0	0	0
	Average =	0.000	ug/l

Domestic Contribution  
Total PCB

Date	7 Mile - Livernois ug/l	7 Mile - Berg Rd ug/l	Cadieux - Mack ug/l
03/04/20	0	0	0
03/05/20	0	0	0
05/05/20	0	0	0
05/06/20	0	0	0
06/02/20	0	0	0
06/03/20	0	0	0
07/07/20	0	0	0
07/08/20	0	0	0
08/18/20	0	0	0
08/19/20	0	0	0
	Average =	0.000	ug/l



Domestic Contribution  
Biochemical Oxygen Demand

Date	7 Mile - Livernois mg/l	7 Mile - Berg Rd mg/l	Cadieux - Mack mg/l
03/04/20	48.00	101.00	48.00
03/05/20	64.00	151.00	45.00
05/05/20	48.00	43.00	22.00
05/06/20	28.00	85.00	25.00
06/02/20	35.00	66.00	28.00
06/03/20	40.00	31.00	24.00
07/07/20	54.00	143.00	22.00
07/08/20	65.00	110.00	20.00
08/18/20	41.00	80.00	32.00
08/19/20	55.00	78.00	39.00
	Average =	55.700	mg/l

Domestic Contribution  
Total Suspended Solids

Date	7 Mile - Livernois mg/l	7 Mile - Berg Rd mg/l	Cadieux - Mack mg/l
03/04/20	124.00	152.00	68.00
03/05/20	62.00	160.00	66.00
05/05/20	22.00	32.00	21.00
05/06/20	32.00	93.00	20.00
06/02/20	25.00	106.00	15.00
06/03/20	21.00	19.00	14.00
07/07/20	25.00	117.00	7.00
07/08/20	46.00	56.00	8.00
08/18/20	38.00	55.00	100.00
08/19/20	40.00	59.00	44.00
	Average =	54.900	mg/l

Domestic Contribution  
Phosphorus

Date	7 Mile - Livernois mg/l	7 Mile - Berg Rd mg/l	Cadieux - Mack mg/l
03/04/20	1.41	2.29	0.995
03/05/20	1.82	2.39	1.150
05/05/20	1.58	1.98	0.973
05/06/20	1.48	2.41	1.180
06/02/20	1.31	0.93	0.877
06/03/20	1.26	1.19	1.020
07/07/20	1.36	2.95	0.896
07/08/20	1.92	2.44	0.699
08/18/20	1.79	2.71	0.824
08/19/20	1.68	2.37	1.870
	Average =	1.592	mg/l

Domestic Contribution  
Fats, Oils & Grease

Date	7 Mile - Livernois mg/l	7 Mile - Berg Rd mg/l	Cadieux - Mack mg/l
03/04/20	28.8	1.11	2.25
03/05/20	13.3	12.7	15.1
05/05/20	10.3	12.2	9.5
05/06/20	10.6	9.1	18.3
06/02/20	8	4.78	25.2
06/03/20	2.31	3.13	30.3
07/07/20	17.5	3.4	49.1
07/08/20	21.1	14.7	1.25
08/18/20	7	13.8	4.71
08/19/20	69.8	13	1.07
	Average =	14.447	mg/l



Domestic Contribution  
Perfluorobutanoic Acid - PFBA

Date	7 Mile - Livernois ng/l	7 Mile - Berg Rd ng/l	Cadieux - Mack ng/l
01/09/20	0	0	0
03/04/20	0	0	0
05/05/20	0	6.7	0
05/06/20	0	0	0
06/02/20	0	24	200
06/03/20	24	22	29
07/07/20	29	35	17
07/08/20	0	23	19
08/18/20	21	19	0
08/19/20			
	Average =	17.359	ng/l

Domestic Contribution  
N-Methyl perfluorooctanesulfonamidoacetic Acid - N-MeFOSAA

Date	7 Mile - Livernois ng/l	7 Mile - Berg Rd ng/l	Cadieux - Mack ng/l
01/09/20	0	0	0
03/04/20	0	0	0
05/05/20	0	0	0
05/06/20	0	0	0
06/02/20	0	0	0
06/03/20	0	0	0
07/07/20	0	0	0
07/08/20	0	0	0
08/18/20	0	0	0
08/19/20	0	0	0
	Average =	0.000	ng/l

Domestic Contribution  
Perfluoropentanoic Acid - PFPeA

Date	7 Mile - Livernois ng/l	7 Mile - Berg Rd ng/l	Cadieus - Mack ng/l
01/09/20	5.7	4.5	8.9
03/04/20	8.1	4.3	64
05/05/20	10	7.4	7.6
05/06/20	10	7.4	6.9
06/02/20	8	5.4	15
06/03/20	8.2	4.7	5.1
07/07/20	8.4	5	2.9
07/08/20	8.3	4.8	4.4
08/18/20	11	4.6	0
08/19/20	9.2	4.6	5.8
	Average =	8.673	ng/l

Domestic Contribution  
N-Ethyl PerfluorooctaneSulfonamidoacetic Acid - EtFOSAA

Date	7 Mile - Livernois ng/l	7 Mile - Berg Rd ng/l	Cadieus - Mack ng/l
01/09/20	0	0	0
03/04/20	0	0	0
05/05/20	0	0	0
05/06/20	0	0	0
06/02/20	0	0	0
06/03/20	0	0	0
07/07/20	0	0	0
07/08/20	0	0	0
08/18/20	0	0	0
08/19/20	0	0	0
	Average =	0.000	ng/l

Domestic Contribution  
4:2 Fluorotelomer Sulfonic Acid - 4:2FTSA

Date	7 Mile - Livernois ng/l	7 Mile - Berg Rd ng/l	Cadieux - Mack ng/l
01/09/20	0	0	0
03/04/20	0	0	0
05/05/20	0	0	0
05/06/20	0	0	0
06/02/20	0	0	0
06/03/20	0	0	0
07/07/20	0	0	0
07/08/20	0	0	0
08/18/20	0	0	0
08/19/20	0	0	0
	Average =	0.000	ng/l

Domestic Contribution  
Perfluorooctane Sulfonic Acid - PFOS

Date	7 Mile - Livernois ng/l	7 Mile - Berg Rd ng/l	Cadieux - Mack ng/l
01/09/20	8.1	6.4	8
03/04/20	9	9	7.3
05/05/20	12	8.9	9.6
05/06/20	14	12	8.6
06/02/20	7.3	7.7	22
06/03/20	7.8	6.1	9.8
07/07/20	6.9	6.4	9.1
07/08/20	10	6.4	9.5
08/18/20	8	8.4	13
08/19/20	7.5	5.7	11
	Average =	9.183	ng/l

Domestic Contribution  
Perfluorohexanoic Acid - PFHxA

Date	7 Mile - Livernois ng/l	7 Mile - Berg Rd ng/l	Cadieux - Mack ng/l
01/09/20	5.5	3.9	7
03/04/20	6.8	4.7	6.3
05/05/20	9	7.4	6.8
05/06/20	9	7.5	7.4
06/02/20	6.8	5.1	5.1
06/03/20	7.9	4.7	6.5
07/07/20	8.2	5.1	3.2
07/08/20	9.5	5.7	4.2
08/18/20	8	4.3	
08/19/20	8.2	4.2	5
	Average =	6.310	ng/l

Domestic Contribution  
Perfluoroundecanoic Acid - PFUnDA

Date	7 Mile - Livernois ng/l	7 Mile - Berg Rd ng/l	Cadieux - Mack ng/l
01/09/20	0	0	0
03/04/20	0	0	0
05/05/20	0	0	0
05/06/20	0	0	0
06/02/20	0	0	0
06/03/20	0	0	0
07/07/20	0	0	0
07/08/20	0	0	0
08/18/20	0	0	0
08/19/20	0	0	0
	Average =	0.000	ng/l

Domestic Contribution  
Perfluorobutane Sulfonic Acid - PFBS

Date	7 Mile - Livernois ng/l	7 Mile - Berg Rd ng/l	Cadieux - Mack ng/l
01/09/20	16	8.6	4.1
03/04/20	17	10	6.4
05/05/20	19	11	6.1
05/06/20	21	7.5	12
06/02/20	21	13	3.4
06/03/20	20	12	4
07/07/20	19	7	0
07/08/20	15	7.7	4.1
08/18/20	18	6	0
08/19/20	18	6.3	4
	Average =	10.573	ng/l

Domestic Contribution  
Perfluorononane Sulfonic Acid - PFNS

Date	7 Mile - Livernois ng/l	7 Mile - Berg Rd ng/l	Cadieux - Mack ng/l
01/09/20	0	0	0
03/04/20	0	0	0
05/05/20	0	0	0
05/06/20	0	0	0
06/02/20	0	0	0
06/03/20	0	0	0
07/07/20	0	0	0
07/08/20	0	0	0
08/18/20	0	0	0
08/19/20	0	0	0
	Average =	0.000	ng/l

Domestic Contribution  
Perfluoroheptanoic Acid - PFHpA

Date	7 Mile - Livernois ng/l	7 Mile - Berg Rd ng/l	Cadieus - Mack ng/l
01/09/20	3.2	1.9	3.4
03/04/20	1.6	0	0
05/05/20	0	0	0
05/06/20	0	0	0
06/02/20	3.3	2.8	2.3
06/03/20	3	2	1.8
07/07/20	3.1	1.6	0
07/08/20	3.1	1.8	1.7
08/18/20	3.8	1.5	0
08/19/20	3.4	1.6	1.7
	Average =	1.620	ng/l

Domestic Contribution  
Perfluoroddecanoic Acid - PFDoDA

Date	7 Mile - Livernois ng/l	7 Mile - Berg Rd ng/l	Cadieus - Mack ng/l
01/09/20	0	0	0
03/04/20	0	0	0
05/05/20	0	0	0
05/06/20	0	0	0
06/02/20	0	0	0
06/03/20	0	0	0
07/07/20	0	0	0
07/08/20	0	0	0
08/18/20	0	0	0
08/19/20	0	0	0
	Average =	0.000	ng/l

Domestic Contribution  
Perfluoropentane Sulfonic Acid - PFPeS

Date	7 Mile - Livernois ng/l	7 Mile - Berg Rd ng/l	Cadieux - Mack ng/l
01/09/20	0	0	0
03/04/20	0	0	0
05/05/20	0	0	0
05/06/20	0	0	0
06/02/20	0	0	0
06/03/20	0	0	0
07/07/20	0	0	0
07/08/20	0	0	0
08/18/20	0	0	0
08/19/20	0	0	0
	Average =	0.000	ng/l

Domestic Contribution  
Perfluorodecane Sulfonic Acid - PFDS

Date	7 Mile - Livernois ng/l	7 Mile - Berg Rd ng/l	Cadieux - Mack ng/l
01/09/20	0	0	0
03/04/20	0	0	0
05/05/20	0	0	0
05/06/20	0	0	0
06/02/20	0	0	0
06/03/20	0	0	0
07/07/20	0	0	0
07/08/20	0	0	0
08/18/20	0	0	0
08/19/20	0	0	0
	Average =	0.000	ng/l

Domestic Contribution  
6:2 Fluorotelomer Sulfonic Acid - 6:2FTSA

Date	7 Mile - Livernois ng/l	7 Mile - Berg Rd ng/l	Cadieux - Mack ng/l
01/09/20	0	0	0
03/04/20	4400	44	20
05/05/20	6.4	7.2	17
05/06/20	5	6.3	4.4
06/02/20	0	0	0
06/03/20	0	0	3.7
07/07/20	2.9	0	6.2
07/08/20	4	0	0
08/18/20	0	0	0
08/19/20	0	0	0
	Average =	150.903	ng/l

Domestic Contribution  
Perfluorotridecanoic Acid - PFTrDA

Date	7 Mile - Livernois ng/l	7 Mile - Berg Rd ng/l	Cadieux - Mack ng/l
01/09/20	0	0	0
03/04/20	0	0	0
05/05/20	0	0	0
05/06/20	0	0	0
06/02/20	0	0	0
06/03/20	0	0	0
07/07/20	0	0	0
07/08/20	0	0	0
08/18/20	0	0	0
08/19/20	0	0	0
	Average =	0.000	ng/l

Domestic Contribution  
Perfluorooctanoic Acid - PFOA

Date	7 Mile - Livernois ng/l	7 Mile - Berg Rd ng/l	Cadieux - Mack ng/l
01/09/20	3.8	3.5	5.5
03/04/20	6.1	0	2.1
05/05/20	11	0	0
05/06/20	7.9	5.5	0
06/02/20	6.9	5.5	2.4
06/03/20	6.5	5.2	2.6
07/07/20	7.3	4.2	2.3
07/08/20	7.6	4.7	2.9
08/18/20	7.6	3.4	0
08/19/20	7.8	3.3	4.3
	Average =	4.330	ng/l

Domestic Contribution  
Perfluorooctane Sulfonamide - PFOSA

Date	7 Mile - Livernois ng/l	7 Mile - Berg Rd ng/l	Cadieux - Mack ng/l
01/09/20	0	0	0
03/04/20	0	0	0
05/05/20	0	0	0
05/06/20	0	0	0
06/02/20	0	0	0
06/03/20	0	0	0
07/07/20	0	0	0
07/08/20	0	0	0
08/18/20	0	0	0
08/19/20	0	0	0
	Average =	0.000	ng/l

Domestic Contribution  
Perfluorohexane Sulfonic Acid - PFHxS

Date	7 Mile - Livernois ng/l	7 Mile - Berg Rd ng/l	Cadieux - Mack ng/l
01/09/20	6	4.6	4.6
03/04/20	5.8	4.8	4.5
05/05/20	0	6.3	6.3
05/06/20	8.4	0	7.7
06/02/20	8.2	7.3	4.6
06/03/20	9.7	5.7	2.5
07/07/20	7.7	4.7	0
07/08/20	6.6	0	2.5
08/18/20	7.6	2.9	0
08/19/20	7.7	4.1	3.2
	Average =	4.800	ng/l

Domestic Contribution  
Perfluorotetradecanoic Acid - PFTeDA

Date	7 Mile - Livernois ng/l	7 Mile - Berg Rd ng/l	Cadieux - Mack ng/l
01/09/20	0	0	0
03/04/20	0	0	0
05/05/20	0	0	0
05/06/20	0	0	0
06/02/20	0	0	0
06/03/20	0	0	0
07/07/20	0	0	0
07/08/20	0	0	0
08/18/20	0	0	0
08/19/20	0	0	0
	Average =	0.000	ng/l

Domestic Contribution  
Perfluorononanoic Acid - PFNA

Date	7 Mile - Livernois ng/l	7 Mile - Berg Rd ng/l	Cadieux - Mack ng/l
01/09/20	0	0	0
03/04/20	0	0	0
05/05/20	0	0	0
05/06/20	0	0	0
06/02/20	0	0	0
06/03/20	0	0	0
07/07/20	0	0	0
07/08/20	0	0	0
08/18/20	0	0	0
08/19/20	0	0	0
	Average =	0.000	ng/l

Domestic Contribution  
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic Acid - 11Cl-PF3OUdS

Date	7 Mile - Livernois ng/l	7 Mile - Berg Rd ng/l	Cadieux - Mack ng/l
01/09/20	0	0	0
03/04/20	0	0	0
05/05/20	0	0	0
05/06/20	0	0	0
06/02/20	0	0	0
06/03/20	0	0	0
07/07/20	0	0	0
07/08/20	0	0	0
08/18/20	0	0	0
08/19/20	0	0	0
	Average =	0.000	ng/l

Domestic Contribution  
8:2Perfluorotelomer Sulfonic Acid - 8:2FTSA

Date	7 Mile - Livernois ng/l	7 Mile - Berg Rd ng/l	Cadieux - Mack ng/l
01/09/20	0	0	0
03/04/20	0	0	0
05/05/20	0	0	0
05/06/20	0	0	0
06/02/20	0	0	0.98
06/03/20	0	0	0
07/07/20	0	0	0
07/08/20	0	0	0
08/18/20	0	0	0
08/19/20	0	0	0
Average =		0.033	ng/l

Domestic Contribution  
9-chlorohexadecafluoro-3-oxanone1-sulfonic Acid - 9Cl-PF3ONS

Date	7 Mile - Livernois ng/l	7 Mile - Berg Rd ng/l	Cadieux - Mack ng/l
01/09/20	0	0	0
03/04/20	0	0	0
05/05/20	0	0	0
05/06/20	0	0	0
06/02/20	0	0	0
06/03/20	0	0	0
07/07/20	0	0	0
07/08/20	0	0	0
08/18/20	0	0	0
08/19/20	0	0	0
Average =		0.000	ng/l

Domestic Contribution  
Perfluoroheptane Sulfonic Acid - PFHpS

Date	7 Mile - Livernois ng/l	7 Mile - Berg Rd ng/l	Cadieux - Mack ng/l
01/09/20	0	0	0
03/04/20	0	0	0
05/05/20	0	0	0
05/06/20	0	0	0
06/02/20	0	0	0
06/03/20	0	0	0
07/07/20	0	0	0
07/08/20	0	0	0
08/18/20	0	0	0
08/19/20	0	0	0
	Average =	0.000	ng/l

Domestic Contribution  
4,8-dioxo-3H-perfluorononnoic acid - ADONA

Date	7 Mile - Livernois ng/l	7 Mile - Berg Rd ng/l	Cadieux - Mack ng/l
01/09/20	0	0	0
03/04/20	0	0	0
05/05/20	0	0	0
05/06/20	0	0	0
06/02/20	0	0	0
06/03/20	0	0	0
07/07/20	0	0	0
07/08/20	0	0	0
08/18/20	0	0	0
08/19/20	0	0	0
	Average =	0.000	ng/l

Domestic Contribution  
Perfluorodecanoic Acid - PFDA

Date	7 Mile - Livernois ng/l	7 Mile - Berg Rd ng/l	Cadieux - Mack ng/l
01/09/20	0	0	0
03/04/20	0	0	0
05/05/20	0	0	0
05/06/20	0	0	0
06/02/20	0	0	0
06/03/20	0	0	0
07/07/20	0	0	0
07/08/20	0	0	0
08/18/20	0	0	0
08/19/20	0	0	0
	Average =	0.000	ng/l

Domestic Contribution  
Hexafluoropropylene oxide dimer - HFPO-DA

Date	7 Mile - Livernois ng/l	7 Mile - Berg Rd ng/l	Cadieux - Mack ng/l
01/09/20	0	0	0
03/04/20	0	0	0
05/05/20	0	0	0
05/06/20	0	0	0
06/02/20	0	0	0
06/03/20	0	0	0
07/07/20	0	0	0
07/08/20	0	0	0
08/18/20	0	0	0
08/19/20	0	0	0
	Average =	0.000	ng/l

## TAB F – Background Source Survey

## **Residential Survey Report – Limitations Project**

The wastewater limitations reevaluation task being performed under the requirement of NPDES Permit No. MI 0022802 needed background information to represent “residential” or “domestic” flows. This information is necessary to establish a background level needed for calculating appropriate wastewater discharge limitations

Three (3) locations within the City of Detroit were selected for the purposes of collecting Background information needed for the task. Criteria considered in choosing the sites selected were:

This area is defined by the following boundaries:

- Use large area of at least 1 sq. mile area,
- Flows originating from area should be predominantly residential or light commercial
- Site should be distributed across City (East and West sides).

### **Summary of Findings:**

As a result of the survey efforts, the selected areas have been found to be primarily residential and light commercial. No Significant Industrial Users resided within the area nor were there any users who were “potentially significant”.

Therefore, wastewater flows should be representative of residential/domestic wastewater.

## Legend

CMIN	Facility classified as “Minor Industrial User” whose operations and/or wastewater discharges do not require a Wastewater Discharge Permit.
CAMI	Automatic Minor Status – Business Type, Inspection is not required.
CMOV	Facility out of business at this address
NCPD	No Categorical Process Discharge
OOB	Facility Out of Business
APAP	Permit Application provided to the Industrial User
SIU	Facility qualifies as a “Significant Industrial User” whose operations and/or wastewater discharges require a Wastewater Discharge Permit

# I. Area 1 – North University Area

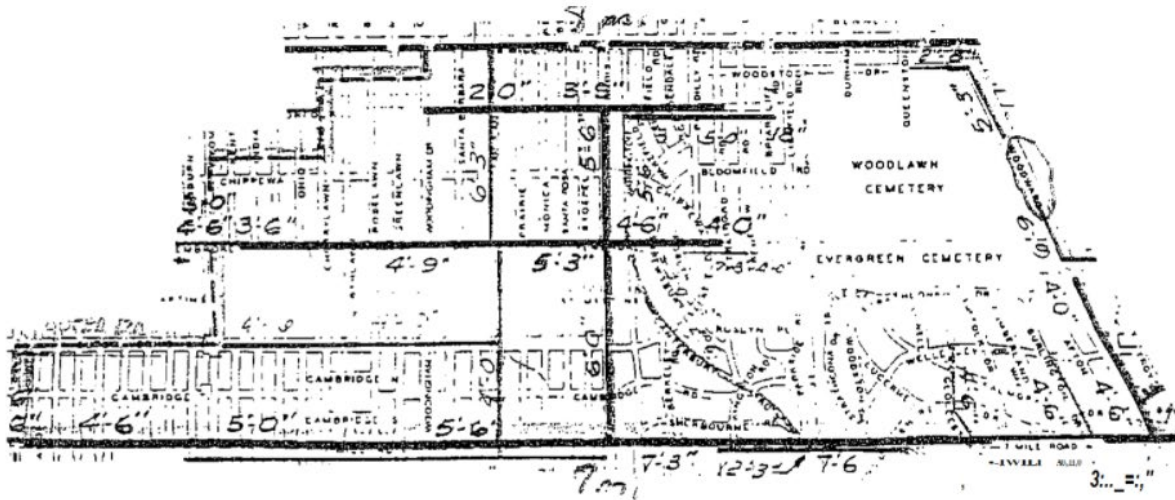
This area is defined by the following boundaries:

To the East, Woodward Avenue, To the North by Eight Mile Road (M-102), to the South by W. Seven Mile Road, and to the West by an irregular area from Meyer at W. Seven Mile Road to Woodingham Drive (See attached Map)

Commercial users are concentrated in the Northwest corner along Woodward Avenue, Eight Mile Road and W. Seven Mile Road. There are no Significant Industrial Users or potentially significant users in this area. The area is predominately residential.

Significant land use within are included: (i) Evergreen Cemetery, (ii) Woodlawn Cemetery, and (iii) Palmer Park.

The attached listings summarize the commercial facilities operating within the area and the current classification.



**SURVEY REPORT – AREA 1  
NORTH UNIVERSITY AREA**

<b>Facility Name Address City, Zip Code</b>	<b>Facility ID</b>	<b>Status</b>	<b>Description</b>
Amoco Gas Station 19100 Wyoming Detroit, 482121	75507	CMIN	Gas Station
Auto Radiator Exchange10801 W. 8 Mile Rd. Detroit, 48221	94107	CMIN	Radiator Exchange
Balfrey Johnston Inc.7431 W 8 Mile Rd. Detroit, 48221	87067	CMIN	Warehouse
Basrah Store Fixtures10801 W. 8 Mile Rd. Detroit, 48221	77588	CMIN	Store Fixtures Sales
Detroit Diamond 7021 W. 8 Mile Rd. Detroit, 48221	87357	CMIN	Construction Equipment Sales
Detroit Vilbert Burial Vault 20514 Woodingham Detroit, 48221	92290	CMIN	Burial Vault Mfg.
Evergreen Cemetery 19807 Woodward Ave. Detroit, 48221	75760	CAMI	Cemetery
Expway. Tires & Rims 7141 W. 8 Mile Rd. Detroit, 48221	94112	CMIN	Tires & Rims sale and Services
Francis Animal Hospital7339 W. 8 Mile Rd. Detroit, 48221	75789	CAMI	Animal Hospital
Great Deal Auto Sales 19344 Woodward Ave. Detroit, 48203	79079	CMIN	Used Auto Sales
Great Smiles Dentistry 10720 W. 7 Mile Rd. Detroit, 48221	94122	CAMI	Dentist

**SURVEY REPORT – AREA 1  
NORTH UNIVERSITY AREA**

<b>Facility Name Address City, Zip Code</b>	<b>Facility ID</b>	<b>Status</b>	<b>Description</b>
Hueberts Towing & Auto 20049 Livernois. Detroit, 48221	94095	CMIN	Towing & AutoRepair
Auto Rejuvenators, 20415 Woodingham Detroit, 48221	79661	CMIN	Auto Repair
Lafond Vet Hospital 3191 W. 8 Mile Rd. Detroit, 48221	86265	CMIN	Animal Hospital
Legend Motors. 8935 W 8 Mile Rd. Detroit, 48221	94102	CMIN	Used Auto Sales
Elite Car Center 19590 Woodward Ave Detroit, 48203	96826	CAMI	Auto Service Center
King Auto Sales /Royal Auto 8845 W. 8 Mile Rd. Detroit, 48221	94104	CMIN	Auto Sales/Repair
Mobile Mart 10833 W. 7 Mile Rd. Detroit, 48221	76020	CAMI	Gas Station/ Market
Premier Collision 8221 W. 8 Mile Rd. Detroit, 48221	94115	CMIN	Auto Body Shop
Quickest Oil & Lube 18010 W 7 Mile Rd. Detroit, 48221	94112	CMIN	Oil Change Shop
Royal Norg Cleaners 7339 W. 8 Mile Rd. Detroit, 48221	94128	CMIN	Dry Cleaners
State Fair Dialysis 19800 Woodward Ave. Detroit, 48203	94127	CMIN	Dialysis Center
Straight Booth & Cab. 20495 Woodingham. Detroit, 48221	8162 2	CMI N	Cabinet Maker

**SURVEY REPORT – AREA 1  
NORTH UNIVERSITY AREA**

<b>Facility Name Address City, Zip Code</b>	<b>Facility ID</b>	<b>Status</b>	<b>Description</b>
Sunoco 19420 Woodward. Detroit, 48203	7623 2	CA MI	Gas Station
The Cleaners 19377 Livernois Detroit, 48203	94098	CMIN	Dry Cleaner
Top Value Car & Truck 10520 W. 7 Mile Rd. Detroit, 48221	94124	CMIN	Auto Repair
U Haul. 19797 Livernois Detroit, 48221	94094	CMIN	Truck Rental
Unique Auto Body 10301 W. 8 Mile Rd. Detroit, 48221	94109*	CMIN	Auto Body Shop
Joe's Auto Repair 19680 Woodward Ave. Detroit, 48203	96808	CMIN	Auto Repair
US Ice 10625 W. 8Mile Rd. Detroit, 48221	94106	CMIN	Ice Mfg.
Wear Master 20125 Livernois. Detroit, 48221	94093	CMIN	Brake Shop
West York Cleaners 4120 W 7 Mile Rd. Detroit, 48221	94093	CMIN	Dry Cleaners
Wise Automotive 10400 W. 7 Mile Rd. Detroit, 48221	78043	CMIN	Auto Repair
Haig's Mower Service 20404 Woodward Ave. Detroit, 48203	79204	CMIN	Mower Sales&Services
A 1 Transmission 7745 W 8 Mile Rd Detroit, 48221	78145	CMIN	Auto Repair

**SURVEY REPORT – AREA 1  
NORTH UNIVERSITY AREA**

<b>Facility Name Address City, Zip Code</b>	<b>Facility ID</b>	<b>Status</b>	<b>Description</b>
The Original \$3 Soft Car Wash 19664 Woodward Ave. Detroit, 48203	96830	CMIN	Car Wash
A 1 Transmission 7745 W 8 Mile Rd Detroit, 48221	7814 5	CMI N	Auto Repair
Express Car Sales 7765 W. 8 mile Rd Detroit, 48221	9683 0	CMI N	Use Car Salas
Safe Way Mufflers 8049 W. 8 Mile Rd. Detroit, 48221	94098	CMIN	Auto Care
Precision tune Auto Care 8113 W. 8 Mile Rd Detroit, 48221	94163	CMIN	Auto Repair
Elite Car Center 19590 Woodward Ave. Detroit, 48203	96826	CMIN	Auto Care Center

## Area 2 – Northwest Area

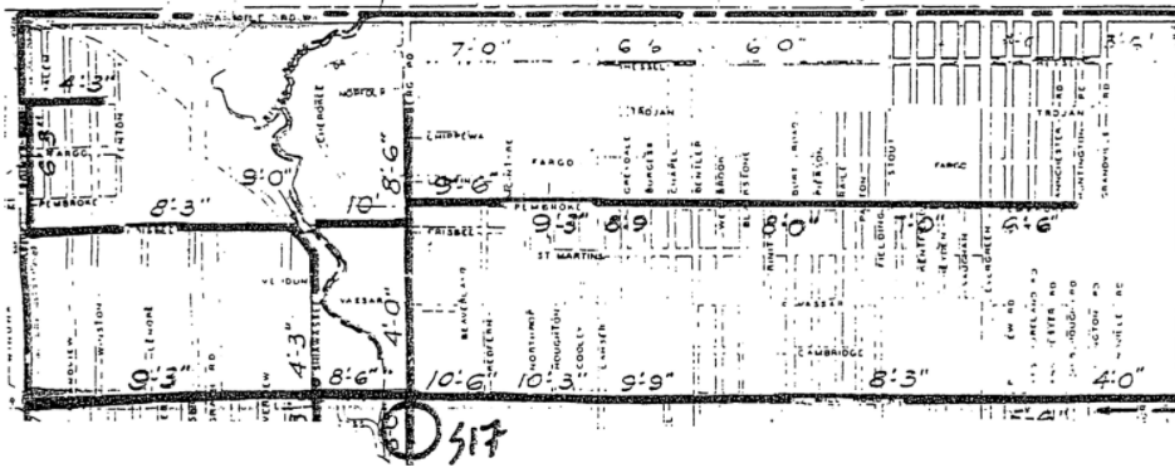
This area is defined by the following boundaries:

To the North, W. Eight Mile Road (M-102), To the West, Five Points Street, to the South by W. Seven Mile Road, and an irregular area from Avon Road at W. Seven Mile Road to Sunderland Road. at W. Eight Mile Road (See attached Map).

Commercial users are concentrated in the W. Seven Mile Road, W. Eight Mile Road, and Telegraph Road. There are no Significant Industrial Users or potentially significant users in this area. The area is predominately residential.

Significant land use within are included: (i) Bonnie Brook Golf Course (Closed), (ii) Henry Ford High School, (iii) O’Hair Memorial Park, and (iv) Simmons Park. The Rouge River also runs through this area.

The attached listings summarize the commercial facilities operating within the area and the current classification.



**SURVEY REPORT – AREA 2  
NORTHWEST AREA**

<b>Facility Name Address City Zip Code</b>	<b>Sequence Number</b>	<b>Status</b>	<b>Description</b>
Alpha Auto Repair 19645 W 8 Mile R Detroit 48219	86952	CMIN	Auto Repair
Aspen Cleaners 19401 W 7 Mile Rd Detroit 48219	77396	CMIN	Dry Cleaners
Auto Outlet 20141 W 8 Mile Rd Detroit 48219	77436	CMIN	Auto Repair
Auto Zone 19701 W 8 Mile Rd Detroit 48219	94151	CAMI	Retail Store
Best Offer Auto Sales 18415 W 7 Mile Detroit 48219	77627	CMOV	Auto Sales
Big Mikes Auto Spa 18939 W 7 Mile Rd Detroit 48219	75875	CMIN	Car Wash
Big Nate's Car Wash 20347 W 7 Mile Rd Detroit 48219	75601	CMIN	Car Wash
Big Ray's Quick Lube Ctr 18915 Telegraph Rd Detroit 48219	77634	CMIN	Oil change Ctr
Bonnie Brook Golf Course 19990 Shiawassee Dr Detroit 48219		OOB	Golf Course
BT Auto Inc 21221 W 7 Mile Rd Detroit 48219	87100	CMOV	Auto Sales
Caps Furnace 18665 W 8 Mile Rd Detroit 48219	85517	CMOV	Furnace Sales
Charity Motors 21501 W 8 Mile Rd Detroit 48219	77988	CMIN	Auto Sales
Coin Operated Car Wash 18835 W 7 Mile Rd Detroit 48219	75665	CAMI	Car Wash

**SURVEY REPORT – AREA 2  
NORTHWEST AREA**

<b>Facility Name Address City Zip Code</b>	<b>Sequence Number</b>	<b>Status</b>	<b>Description</b>
Custom U-Haul 18270 Telegraph Detroit 48219	94042	CMOV	Truck Rental
Discount Collision Center 21139 W 7 Mile Rd Detroit 48219	94146	CMIN	Auto Body Shop
Daily Cleaners 23700 W 7 Mile Rd Detroit 48219	87501	CMIN	Dry Cleaners
Daniels Glass Company 21250 W 7 Mile Rd Detroit 48219	94161	CMIN	Repair Shop
Day Stars Auto Repair 19600 W 7 Mile Rd Detroit 48219	94144	CMIN	Auto Repair
Eclipse Business Consultants 17447 Lasher Rd Detroit 48219	97442	CAMI	Business Consultants
Fast Splash 20823 W 7 Mile Rd Detroit 48219	85781	CMIN	Car Wash
Greater Grace Church Annex 22340 W 7 Mile Rd Detroit 48219	88456	CAMI	Church Office
Golden Star Cleaners 20521 W 7 Mile Rd Detroit 48219	94165	CMOV	Dry Cleaners
Greenview Auto Words 18511 W 7 Mile Rd Detroit 48219	79104	CMIN	Auto Repair
Hess Glass Company 17122 Braile St Detroit 48219	79255	CMIN	Repair Shop
Henry Ford High School 20000 Evergreen Detroit 48219		CAMI	High School
Henry Tuttle Park 20000 Stout Detroit 48219		CAMI	Park

**SURVEY REPORT – AREA 2  
NORTHWEST AREA**

<b>Facility Name Address City Zip Code</b>	<b>Sequence Number</b>	<b>Status</b>	<b>Description</b>
Holbrook Auto Parts 21221 W 7 Mile Rd Detroit 48219	96834	CMIN	Auto repair & auto part sales
Hot Wheel City 18415 W 7 Mile Rd Detroit 48219	97444	CMIN	Tire Shop
J&R Cycle 17447 Lasher Rd Detroit 48219	97441	CMIN	Motorcycle Sales & Repair
Kmart 19990 Telegraph Rd Detroit 48219	94027	CMOV	Retail Store
LBC Deluxe Cleaners 18309 W 7 Mile Rd Detroit 48219	88229	CMIN	Dry Cleaners
Lewette 40 Minute Cleaners 20536 Lasher Rd Detroit 48219	94004	CMOV	Dry Cleaners
Liberty Tax 20101 W 7 Mile Rd Detroit	97445	CAMI	Tax Preparation
Lion's Bend Used Cars 18270 Telegraph Detroit 48219	97439	CMIN	Used Car Sales
M&G Auto Repair 18601 W 8 Mile Rd Detroit 48219	97448	CMIN	Auto Repair
Mai-Kai Cleaners 24235 W 7 Mile Rd Detroit 48219	80121	CMIN	Dry Cleaners
Marathon Gas Station 19025 Telegraph Detroit 48219	78008	CAMI	Gas Station
Marathon Gas Station 22645 W 8 Mile Detroit 48219	76275	CAMI	Gas Station
Master Auto 21101 W 7 Mile Rd Detroit 48219	94143	CMOV	Auto Sales

**SURVEY REPORT – AREA 2  
NORTHWEST AREA**

<b>Facility Name Address City Zip Code</b>	<b>Sequence Number</b>	<b>Status</b>	<b>Description</b>
Meat Town 20500 Lasher Rd Detroit 48219	85758	CMOV	Retail Store
Mercedes Cleaners 19000 W 7 Mile Rd Detroit 48219	80230	CMOV	Dry Cleaners
Metro PCS 18225 W 8 Mile Rd Detroit 48219	97443	CAMI	Cell Phone Store
Michigan 49 Minute Cleaners 18601 W 8 Mile Rd Detroit 48219	80277	CMOV	Dry Cleaners
Mirage Cricket Ground 20229 Cherokee St Detroit 48219		CAMI	Park
Modern World Coatings 18429 W 8 Mile Rd Detroit 48219	80395	CAMI	Retail Sales of paint
Mr. Muffler 18955 Telegraph Detroit 48219	96833	CMIN	Auto Repair
O’Hair Park 19400 Pembroke Detroit 48219		CAMI	Park
Oil Exchange 19841 W 8 Mile Detroit 48219	94150	CMIN	Oil Change
Ox Auto Clinic 20630 W 7 Mile Rd Detroit 48219	81477	CMIN	Auto Repair & Gas Station
Peace of Amsterdam 18665 W 8 Mile Rd Detroit 48219	97440	CAMI	Marijuana Sales
Personal Touch Hand Car Wash 18915 Telegraph Rd Detroit 48219	94013	AMIL	Car Wash
Plumbers Wholesale Supply 24377 W 8 Mile Rd Detroit 48219	80879	CMIN	Retail Sales

**SURVEY REPORT – AREA 2  
NORTHWEST AREA**

<b>Facility Name Address City Zip Code</b>	<b>Sequence Number</b>	<b>Status</b>	<b>Description</b>
Quick Lube 20401 W 8 Mile Rd Detroit	87340	CMIN	Oil Change
Prime 40 Minute Cleaners 20233 W 7 Mile Rd Detroit 48219	80929	CMIN	Dry Cleaners
Redford Car Care 20335 W 8 Mile Rd Detroit 48219	93380	CMIN	Auto Repair
Rent A Jalopy 17245 W 7 Mile Rd Detroit 48219	94011	CMIN	Car Rental
Ruby Cleaners 20101 W 7 Mile Rd Detroit 48219	81241	CMOV	Dry Cleaners
S&R Car Wash 20700 W 7 Mile Rd Detroit 48219	76230	CAMI	Coin Car Wash
Shavco Energy Association 19711 Greenview Detroit 48219	86406	CMOV	Business Office
Signature Woodworks 17260 Redford Detroit 48219	78361	CMIN	Carpentry
Simmons Park 19450 Chapel Detroit 48219		CAMI	Park
Start-All Enterprise 24731 W 8 Mile Rd Detroit 48219	89055	CMOV	Car Rental
Stout Cleaners 20416 W 7 Mile Rd Detroit 48219	81660	CMIN	Dry Cleaners
Sunoco 19331 W 7 Mile Rd Detroit 48219	75947	CAMI	Gas Station
Sunoco 21435 W 8 Mile Detroit 48219	86410	CAMI	Gas Station

**SURVEY REPORT – AREA 2  
NORTHWEST AREA**

<b>Facility Name Address City Zip Code</b>	<b>Sequence Number</b>	<b>Status</b>	<b>Description</b>
Sunoco Family Mini Mart 23540 W 7 Mile Rd Detroit 48219	91221	CAMI	Gas Station
The Collision 19401 W 8 Mile Rd Detroit 48219	94149	CMOV	Auto Repair
Redford Auto Repair & Collision 18645 W 8 Mile Rd Detroit 48219	94041	CMIN	Auto Repair
The Oil Exchange 17203 Telegraph Rd Detroit 48219	94026	CMIN	Oil Change Shop
The Original \$3 Car Wash 19425 W 8 Mile Rd Detroit 48219	81912	CMIN	Car Wash
The Tom Company Inc 21357 Telegraph Rd Detroit 48219	81925	CMOV	
The Original \$3.50 Soft Cloth Car Wash 18310 Telegraph Rd Detroit 48219	82049	CMIN	Car Wash
Top Notch Auto Sales 19234 W 7 Mile Rd Detroit 48219	94145	CMIN	Auto Sales
U-Haul 19990 Telegraph Detroit 48219	97447	CMIN	Truck Rental/Storage
Uni Cleaners 19145 Telegraph Rd Detroit 48219	94025	CMIN	Dry Cleaners
United Car Company 17447 Lasher Rd Detroit 48219	82108	CMOV	Cab Company
United Car Company 20615 W 7 Mile Rd Detroit 48219	94162	CMIN	Auto Sales
Valero Gas Station 20800 W 7 Mile Rd Detroit 48219	75569	CAMI	Gas Station

**SURVEY REPORT – AREA 2  
NORTHWEST AREA**

<b>Facility Name Address City Zip Code</b>	<b>Sequence Number</b>	<b>Status</b>	<b>Description</b>
Volvo Auto Repair 23733 W 7 Mile Rd Detroit 48219	94148	CMIN	Auto Repair
Voltrobeck Park 17240 Stahelin Detroit 48219		CAMI	Park
Wesley Auto 21101 W 7 Mile Rd Detroit 48219	96832	CMIN	Auto Sales
Wheels Car Wash 22680 W 7 Mile Rd Detroit 48219	86471	CAMI	Car Wash
Willis Watts O’Hair Park 20427 – 20253 Stahelin Detroit 48219		CAMI	Park
Yates Office Supply 18225 W 8 Mile Detroit 48219	82416	CMOV	Retail Sales

## Area 3 – East – Central Detroit Area

This area is defined by the following boundaries:

The area is very irregular and bounded by Woodhall Ave., from Mack to Harper, North, McCormick from Harper Avenue to Kelly Road, Seven Mile Road from Kelly Road to Brock, Kensington from Rosewood to Harper (See Attached map).

Commercial users are concentrated on Harper Avenue, W. Eight Mile Road, Harper Avenue, Morang Ave Road, and Telegraph Road. There are no Significant Industrial Users or potentially significant users in this area. The area is predominately residential.

Significant land use within are included: (i) Canner Playfield, (ii) Messmer Park, (iii) Balduck Memorial Park, and (iv) Dorothy Fisher Middle School, Edwin Denby High School, and Jared Finney High School.

The attached listings summarize the commercial facilities operating within the area and the current classification.



**SURVEY REPORT – AREA 3  
EAST-CENTRAL DETROIT AREA**

<b>Facility Name Address City, Zip Code</b>	<b>Facility ID</b>	<b>Status</b>	<b>Description</b>
A & J AUTO REPAIR 15307 - 7 MILE ROAD DETROIT 48205		CMIN	AUTO REPAIR
A & S AUTO SERVICE CENTER 15791 E. WARREN AVE DETROIT 48224	77761	CMIN	AUTO REPAIR
AAA LAUNDRY & DRY CLEAN 16300 WARREN DETROIT 48224	77145	CAMI	LAUNDRY
AEE CONSTRUCTION LLC 3557 KENSINGTON AVE DETROIT 48224		CAMI	HOME BUILDER
ALL NATURAL COLLECTIVE 15605 MACK AVE. DETROIT 48224		CAMI	MEDICAL SUPPLY STORE
ALL PURPOSE SCREENING SERVICES 17211 MACK AVE. DETROIT 48224		CAMI	DRUG TESTING SERVICES
ALLEMON'S LANDSCAPE CENTER 17727 MACK AVE. DETROIT 48224		CAMI	LANDSCAPING
AL'S GAS & SERVICE 11030 MORAANG AVE DETROIT 48224		CAMI	CAR WASH
ARBOR PRO TREE SERVICE 17726 E. WARREN DETROIT 48224	77367	CAMI	TREE SERVICE
AREA CODE URBAN WEAR 10793 MORANG AVE DETROIT 48224		CAMI	CLOTHING STORE
ARTS & SCRAPS 16135 HARPER DETROIT 48224	86387	CAMI	KIDS LEARNING CENTER

**SURVEY REPORT – AREA 3  
EAST-CENTRAL DETROIT AREA**

<b>Facility Name Address City, Zip Code</b>	<b>Facility ID</b>	<b>Status</b>	<b>Description</b>
ATI PHYSICAL THERAPY 18101 E. WARREN AVE DETROIT 48224		CAMI	PHYSICAL THERAPY
AUTO SHOP 17155 E. WARREN AVE DETROIT 48224		CMIN	AUTO REPAIR
AUTO ZONE AUTO PARTS 17520 E. WARREN DETROIT 48224		CAMI	AUTO PARTS SALES
BAUL TERRY SCOTT, M.D. 17751 E. WARREN AVE. DETROIT 48224		CAMI	DOCTOR'S OFFICE
BEADS IN A BASKET 10443 E. OUTER DRIVE DETROIT 48224		CAMI	JEWELRY STORE
BEAUTY SECRETS HAIR & NAIL 15030 HARPER DETROIT 48224		CAMI	SALON
BEVERLY WILLIAMS 15500 MAPLERIDGE STREET DETROIT 48205		CAMI	WOMEN'S CLOTHING STORE
BIG BURGZS 17627 E. WARREN DETROIT 48224		CAMI	RESTAURANT
BILLET'S 19164 KELLY ROAD DETROIT 48224		CAMI	BAR
BOGART'Z FOOD & SPIRITS 17441 MACK AVE DETROIT 48224		CAMI	RESTAURANT
BOOPERS DOG & SUDS 10620 MORANG DETROIT 48224		CAMI	PET GROOMING

**SURVEY REPORT – AREA 3  
EAST-CENTRAL DETROIT AREA**

<b>Facility Name Address City, Zip Code</b>	<b>Facility ID</b>	<b>Status</b>	<b>Description</b>
BOOST MOBILE 16945 HARPER DETROIT 48224		CAMI	DEALER
BP GAS STATION 17111 HARPER DETROIT 48224		CAMI	GAS STATION
BRICK HOME MANAGEMENT 18438 MORANG DETROIT 48205		CAMI	PROPERTY MANAGEMENT
BUTLER FUNERAL HOME 12140 MORANG AVE DETROIT 48224		CMIN	FUNERAL HOME
CADIEUX CAFÉ 4300 CADIEUX ROAD DETROIT 48224		CAMI	RESTAURANT
CAKES BY MYRT, INC 15446 MAPLERIDGE STREET DETROIT 48205		CAMI	PASTRY
COGNAC CASTLE 15415 HARPER DETROIT 48224		CAMI	RETAIL STORE
COLES CASTLE 16605 E. WARREN DETROIT 48224		CAMI	LEARNING CENTER
COMERICA BANK-ATM 16235 E. WARREN DETROIT 48224		CAMI	BANK
CORNERSTONE VILLAGE BAR & GRILL 17315 MACK AVE DETROIT 48224		CAMI	BAR
DAVITA GROSSE POINTE DIALYSIS 18000 E. WARREN AVE DETROIT 48224		CAMI	DIALYSIS CENTER

**SURVEY REPORT – AREA 3  
EAST-CENTRAL DETROIT AREA**

<b>Facility Name Address City, Zip Code</b>	<b>Facility ID</b>	<b>Status</b>	<b>Description</b>
DELPOINTE FOOD CENTER 16700 HARPER AVE DETROIT 48224		CAMI	GROCERY STORE
DOLLAR TREE 17931 E. WARREN AVE DETROIT 48224		CAMI	RETAIL
DOOLIES AUTO REPAIR 15515 E. WARREN AVE DETROIT 48224		CMIN	AUTO REPAIR
EAST DETROIT CUSTOMS, INC. 11841 MORANG DETROIT 48224		CMIN	AUTO & BOAT COVERTIBLE TOPS
EAST ENGLISH VILLAGE PREP ACADEMY 5020 CADIEUX DETROIT 48224		CAMI	PART OF DPS
EASTSIDE LOCKSMITHS 15138 E. WARREN DETROIT 48224		CAMI	LOCKSMITH
EASTSIDE TENNIS & FITNESS CLUB 18201 E. WARREN AVE DETROIT 48224		CAMI	FITNESS CENTER
ELUSIVE HAIR 19156 KELLY ROAD DETROIT 48224		CAMI	SALON
EMC.3 4185 HARVARD ROAD DETROIT 48224		CAMI	ELECTRONICS STORE
EXPRESS QUICK LUBE 17221 HARPER DETROIT 48224	78709	CAMI	OIL CHANGE SHOP
EXTREME AUTO BODY 10021 CADIEUX DETROIT 48224		CMIN	AUTO REPAIR

**SURVEY REPORT – AREA 3  
EAST-CENTRAL DETROIT AREA**

<b>Facility Name Address City, Zip Code</b>	<b>Facility ID</b>	<b>Status</b>	<b>Description</b>
EZ 49 MINUTE CLEANERS 12415 MORANG DETROIT 48224	78589	CMIN	DRY CLEANERS
EZ STORAGE 18145 MACK AVE DETROIT 48224		CAMI	STORAGE FACILITY
FAMILY DOLLAR 12511 MORANG DETROIT 48224		CAMI	RETAIL
FAY SERVICE 16644 E. WARREN DETROIT 48224		CAMI	FOOD SERVICE DISTRIBUTOR
FISHER MAGNET UPPER ACADEMY 15491 MADDELEIN STREET DETROIT 48205		CAMI	EDUCATIONAL INSTITUTE
FLAMZ PIZZERIA 16369 E. WARREN DETROIT 48224		CAMI	PIZZA PLACE
FOUR BROTHERS FINE FAMILY DINING 17017 E. WARREN DETROIT 48224		CAMI	DINING
FOUR J MARKET 15291 7 MILE ROAD DETROIT 48205		CAMI	RETAIL
FRANK'S OIL SHOP & AUTO REPAIR 17500 E. WARREN DETROIT 48224	93974	CMIN	OIL CHANGE SHOP
GENANSCOT SERVICES LLC 17800 E. WARREN AVE. DETROIT 48224		CAMI	NURSING SCHOOL
GINA'S SOUL FOOD 17410 E. WARREN DETROIT 48224		CAMI	RESTAURANT

**SURVEY REPORT – AREA 3  
EAST-CENTRAL DETROIT AREA**

<b>Facility Name Address City, Zip Code</b>	<b>Facility ID</b>	<b>Status</b>	<b>Description</b>
GIRL BOSS BEAUTY BAR & BOUTIQUE 18927 KELLY ROAD DETROIT 48224		CAMI	WOMEN'S CLOTHING STORE
GOOD VIBES LOUNGE 16801 HARPER DETROIT 48224		CAMI	BAR
GRACE SUPERMARKET 12055 MORANG AVE DETROIT 48224		CAMI	GROCERY STORE
GREAT LAKES ACE HARDWARE 18165 MACK AVE DETROIT 48224		CAMI	RETAIL
GROOVE SHOPPE INC. 17411 MACK AVE DETROIT 48224		CAMI	GIFT SHOP
GROWING MINDS LEARNING CENTER 16361 MACK AVE. DETROIT 48224		CAMI	LEARNING CENTER
HAMMER TIME TRUE VALUE HARDWARE 16380 E. WARREN AVE DETROIT 48224		CAMI	HARDWARE STORE
HARELL'S UPHOLSTERY 15033 E. WARREN DETROIT 48224		CAMI	FURNITURE
HARPER TIRE SERVICE 1700 HARPER DETROIT 48224		CAMI	AUTO REPAIR
HASTING'S AUTO PARTS 16200 HARPER DETROIT 48224		CAMI	RETAIL
HATS TO THE RACK 18400 MORANG DETROIT 48205		CAMI	BEAUTY SALON

**SURVEY REPORT – AREA 3  
EAST-CENTRAL DETROIT AREA**

<b>Facility Name Address City, Zip Code</b>	<b>Facility ID</b>	<b>Status</b>	<b>Description</b>
HERTZ CAR RENTAL 17651 MACK AVE DETROIT 48224		CAMI	CAR RENTAL
I94 FULL MART, INC. 17046 HARPER AVE DETROIT 48224		CAMI	GAS STATION
iFIX DETROIT 16401 E. WARREN DETROIT 48224		CAMI	PHONE REPAIR
IMAGINE THIS STYLING SALON 14901 HARPER DETROIT 48224		CAMI	SALON
INTELLIGENT TOTS EARLY LEARNING CENTER 17331 E. WARREN DETROIT 48224		CAMI	LEARNING CENTER
JERMAINES HOUSE OF STYLES 18414 MORANG AVE DETROIT 48205		CAMI	SALON
JIM'S COLLISION SHOP 16651 HARPER DETROIT 48224	79569	CMIN	AUTO BODY SHOP
JOHNNY'S RADIATOR SHOP 17307 E. WARREN DETROIT 48224	88140	CMIN	RADIATOR SALES
K & B BEAUTY SUPPLY 16850 HARPER AVE DETROIT 48224		CAMI	RETAIL
KELLY & ASSOCIATES 15761 E. WARREN DETROIT 48114		CAMI	NOTORY PUBLIC
KELLY AUTO CENTER 12520 MORANG AVE DETROIT 48224		CMIN	AUTO REPAIR

**SURVEY REPORT – AREA 3  
EAST-CENTRAL DETROIT AREA**

<b>Facility Name Address City, Zip Code</b>	<b>Facility ID</b>	<b>Status</b>	<b>Description</b>
KINGS OF CUSTOM COLLISION 15445 HARPER DETROIT 48224		CMIN	COLLISION SHOP
L&T FOOD CENTER 10240 WHITTIER DETROIT 48224		CAMI	GROCERY
LARRY'S COLLISION 17244 E. WARREN DETROIT 48224	79819	CMIN	AUTO BODY SHOP
LAUNDRY IN THE D 16300 E. WARREN DETROIT 48224		CAMI	LAUNDROMART
LIQUOR ISLAND 17342 E. WARREN DETROIT 48324		CAMI	RETAIL
LJ'S AUTO REPAIR 10200 WHITTIER DETROIT 48224		CMIN	AUTO REPAIR
M & S AUTO REPAIR 16230 HARPER DETROIT 48224	88313	CMIN	AUTO REPAIR
M&M PET SUPPLIES INC. 15625 E. WARREN DETROIT 48224		CAMI	PET SUPPLIES
MACK AUTO CENTER 17051 MACK AVE. DETROIT 48224		CMIN	AAUTO REPAIR
MACK CAR WASH 15735 MACK AVE DETROIT 48224		CAMI	CAR WASH
MARATHON 17040 E. WARREN DETROIT 48224	80133	CAMI	GAS STATION

**SURVEY REPORT – AREA 3  
EAST-CENTRAL DETROIT AREA**

<b>Facility Name Address City, Zip Code</b>	<b>Facility ID</b>	<b>Status</b>	<b>Description</b>
MARKET BASKET 11050 MORANG AVE DETROIT 48224		CAMI	GAS STATION /RETAIL?
McDONNELL DRUGS 16636 HARPER AVE. DETROIT 48224		CAMI	PHARMACY STORE
McGUIRE CLEANERS 16215 E. WARREN DETROIT 48224	80203	CMIN	LAUNDRY
ME & MY LADY BOUTIQUE 16808 E. WARREN DETROIT 48224		CAMI	SPORTSWEAR STORE
MIKE'S ANTIQUES 11109 MORANG DETROIT 48224		CAMI	ANTIQUE SHOP
MMI MEDICAL SUPPLIES EQUIPMENT 15223 MACK AVE. DETROIT 48224		CAMI	MEDICAL SUPPLY STORE
MOBIL SERVICE 17046 HARPER AVE DETROIT 48224		CAMI	GAS STATION
MORANG & KELLY MOBIL GAS STATION 18300 MORANG AVE DETROIT 48205		CAMI	GAS STATION
MORANG DRY CLEANERS 11230 MORANG DETROIT 48224	88115	CMIN	DRY CLEANERS
MOROSS & KELLY AUTO 18505 MOROSS DETROIT 48224	80416	CMIN	AUTO REPAIR
MOROSS QUICK LUBE & AUTO WASH 18510 MOROSS DETROIT 48224	80416	CAMI	CAR WASH

**SURVEY REPORT – AREA 3  
EAST-CENTRAL DETROIT AREA**

<b>Facility Name Address City, Zip Code</b>	<b>Facility ID</b>	<b>Status</b>	<b>Description</b>
MR. B'S AUTO WASH 17333 HARPER DETROIT 48224	88579	CAMI	AUTO WSAH
MUSE ENTERTAINMENT GROUP INC 4925 CADIEUX DETROIT 48224		CAMI	ENTERTAINMENT
NIC NICOLE'S UNISEX SALON 15500 HARPER DETROIT 48224		CAMI	SALON
NIKKI'S PLACE 17200 HAARPER DETROIT 48224		CAMI	BAR
NINO'S MARKET 15901 E. WARREN DETROIT 48224		CAMI	MARKET PLACE
NOTTINGHAM PHARMACY 15800 E. WARREN DETROIT 48224		CAMI	PHARMACY STORE
O'RIELLEY AUTO PARTS 17600 E. WARREN AVE. DETROIT 48224		CAMI	AUTO PARTS SUPPLIER
OUR KIDZ WORLD LEARNING 16060 MOROSS DETROIT 48205		CAMI	LEARNING CENTER
PAPA'S CONEY ISLAND 19130 KELLY ROAD DETROIT 48224		CAMI	RESTAURANT
PAPA'S PIZZA 17137 HARPER DETROIT 48224		CAMI	PIZZA PLACE
PAPA'S PIZZA 17137 HARPER DETROIT 48224		CAMI	PIZZA PLACE

**SURVEY REPORT – AREA 3  
EAST-CENTRAL DETROIT AREA**

<b>Facility Name Address City, Zip Code</b>	<b>Facility ID</b>	<b>Status</b>	<b>Description</b>
PARK ANTIQUES 16311 MACK AVE. DETROIT 48224		CAMI	ANTIQUE STORE
PARK ANTIQUES 16311 MACK AVE. DETROIT 48224		CAMI	ANTIQUE STORE
PIT STOP TIRES 16700 E. WARREN DETROIT 48224		CAMI	TIRE SHOP
PNC BANK 17101 MACK AVE DETROIT 48224		CAMI	BANK
POINTE AUTO TECH 17819 E. WARREN AVE DETROIT 48224		CAMI	AUTO REPAIR
PONY KEG WINE SHOPPE 17900 E. WARREN AVE DETROIT 48224		CAMI	RETAIL
PRO WASH COIN LAUNDRY 12400 MORANG DETROIT 48224	80968	CAMI	COIN LAUNDRY
PROGRESSIVE PLUMBING SUPPLY 3516 CADIEUX ROAD DETROIT 48224		CAMI	RETAIL
PURAN ELECTRICAL SERVICES 17139 SIOUX STREET DETROIT 48224		CAMI	ELECTRICAL CONTRACTOR
PUT'N ON THE DOG 15616 HARPER DETROIT 48224		CAMI	PET GROOMER
QUALITY AUTO 12301 MORANG DETROIT 48224	80985	CMIN	AUTO REPAIR

**SURVEY REPORT – AREA 3  
EAST-CENTRAL DETROIT AREA**

<b>Facility Name Address City, Zip Code</b>	<b>Facility ID</b>	<b>Status</b>	<b>Description</b>
QUI-KE DRY CLEANERS 16612 E. WARREN DETROIT 48224		CMIN	DRY CLEANERS
RAY LAETHEM BUICK GMC 17677 MACK AVE DETROIT 48224		CMIN	CAR RENTAL / OIL CHANGE
RED BOW TIE DRY CLEANERS 16393 E. WARREN DETROIT 48224	81128	CMIN	DRY CLEANERS
RG&GR FUNERAL HOME SERVICES 15251 HARPER DETROIT 48224		CAMI	FUNERAL SERVICES
RICHARD'S AUTO REPAIR 1274 WHITTIER STREET DETROIT 48224		CMIN	AUTO REPAIR
RIFAI FUEL INC. 17230 HARPER AVE DETROIT 48224		CAMI	GAS STATION
RITE AID 17170 HARPER AVE DETROIT 48224		CAMI	PHARMACY STORE
RIVERVIEW HEALTH & REHAB NORTH 18300 E. WARREN AVE DETROIT 48224		CAMI	ASSISTED LIVING FACILITY
ROYAL AUTO CLINIC 16500 E. WARREN DETROIT 48224	93950	CMIN	AUTO REPAIR
SANA MINI MART 17100 HARPER DETROIT		CAMI	RETAIL STORE
SANDERS DRY CLEANERS 15923 E. WARREN AVE DETROIT 48224		CMIN	DRY CLEANING

**SURVEY REPORT – AREA 3  
EAST-CENTRAL DETROIT AREA**

<b>Facility Name Address City, Zip Code</b>	<b>Facility ID</b>	<b>Status</b>	<b>Description</b>
SANTORO AUTO & TRUCK REPAIR 15232 HARPER DETROIT 48224	81429	CMIN	AUTO & TRUCK REPAIR
SARAH'S TAX SERVICES 17426 HARPER DETROIT 48224		CAMI	TAX PREP SERVICE
SECOND MILE CENTER 18391 MORANG AVE DETROIT 48205		CAMI	RELIGIOUS CENTER
SEVEN SEVEN PARTY STORE 15146 HAARPER DETROIT 48224		CAMI	PAARTY STORE
SHERWIN WILLIAMS 17100 E. WARREN DETROIT 48224	85824	CMIN	PAINT SALES
ST JOSEPH MANOR HFALLC 4800 CADIEUX ROAD DETROIT 48224		CAMI	ASSISTED LIVING
SUCCESS INTERNATIONAL 10067 GRAYTON STREET DETROIT 48224		CAMI	RETAIL STORE
SUNOCO 17100 HARPER DETROIT 48224		CAMI	GAS STATION
SWEETWATER EXPRESS 16849 HARPER DETROIT 48224		CAMI	RESTAURANT
TERRY'S CAKES DETROIT 16311 E. WARREN AVE DETROIT 48224		CAMI	BAKERY
THE CRAFT CAFÉ DETROIT 15641 E. WARREN DETROIT 48224		CAMI	COFFEE SHOP

**SURVEY REPORT – AREA 3  
EAST-CENTRAL DETROIT AREA**

<b>Facility Name Address City, Zip Code</b>	<b>Facility ID</b>	<b>Status</b>	<b>Description</b>
THE MACK ATHLETIC COMPLEX 4300 MARSEILLES STREET DETROIT 48224		CAMI	ATHLETIC CENTER
TOP AUTOMOTIVE 16025 E. WARREN AVE DETROIT 48224		CMIN	AUTO REPAIR
ULTIMATE TIRES 15040 E. WARREN AVE DETROIT 48224		CAMI	TIRE SHOP
ULTIMATE TIRES 15040 E. WARREN AVE DETROIT 48224		CAMI	TIRE SHOP
UNIVERSAL MACOMB AMBULANCE SERVICE 17611 E. WARREN DETROIT 48224	89451	CMIN	AMBULANCE SERVICE
VALVOLINE INSTANT OIL CHANGE 16335 MACK AVE. DETROIT 48224		CAMI	QUICK OIL CHANGE SHOP
VERY CHIC COUTURE & DÉCOR 16237 MACK AVE. DETROIT 48224		CAMI	BOUTIQUE
VOGUE MARKET 9200 CADIEUX DETROIT 48224		CAMI	GROCERY
W & C ENTERPRISE 4890 GRAYTON STREET DETROIT 48224		CAMI	CLOTHING STORE
WARREN & CADIEUX MECHANIC & TIRE 17155 E. WARREN DETROIT 48224	93974	CMIN	AUTO REPAIR
WARREN BEAUTY SUPPLY 16654 E. WARREN DETROIT 48224		CAMI	RETAIL

**SURVEY REPORT – AREA 3  
EAST-CENTRAL DETROIT AREA**

<b>Facility Name Address City, Zip Code</b>	<b>Facility ID</b>	<b>Status</b>	<b>Description</b>
WARREN TRANSMISSION 15851 E. WARREN AVE DETROIT 48224		CMIN	AUTO REPAIR
WESTERN UNION 15801 E. WARREN DETROIT 48224		CAMI	MONEY TRANSFER SERVICE
WHITTIER MINI MART INC. 10542 WHITTIER AVE. DETROIT 48224		CAMI	MARKET PLACE
WHITTIER PLACE CAFÉ 10223 WHITTIER AVE. DETROIT 48224		CAMI	COFFEE SHOP
WHOLESALE OIL & GAS SUPPLY COMPANY 9918 WHITTIER AVE. DETROIT 48224		CAMI	AIR CONDITIONING CONTRACTOR
WINE BASKET PARTY SHOP 16450 E. WARREN DETROIT 48224		CAMI	RETAIL
42ND STREET MEN'S CUSTOM CLOTHING 17301 MACK AVE. DETROIT 48224		CAMI	CLOTHING STORE