

Antidegradation Examples For an Outstanding State Resource Water or Exceptional Use Water

New Industrial Discharger

A new manufacturing facility will have the following pollutants limited in their permit: Copper, Lead, Nickel, TCE and Zinc.

Discharger Design Flow = 2.0 MGD

Stream Design Flow = 56.0 MGD

The limits based on the De minimis Lowering of water quality are:

Table 1  
De minimis Limits

<u>Parameter</u>	<u>Quantity or Loading</u>		<u>Units</u>	<u>Quality or Concentration</u>		<u>Units</u>	<u>Basis</u>
	<u>Monthly Average</u>	<u>Daily Maximum</u>		<u>Monthly Average</u>	<u>Daily Maximum</u>		
<b>Copper</b>	0.3	0.6	lbs/day	18.0	36.0	ug/l	WQBEL
<b>Lead</b>	0.32	0.63	lbs/day	19.0	38.0	ug/l	WQBEL
<b>Nickel</b>	1.7	3.3	lbs/day	100.0	200.0	ug/l	WQBEL
<b>Zinc</b>	2.3	4.7	lbs/day	140.0	280.0	ug/l	WQBEL
<b>TCE</b>	----	0.08	lbs/day	----	5.0	ug/l	DTBEL

The limits for Copper, Lead, Nickel and Zinc are equal to the WQBELs calculated using no dilution. The limits for TCE are based on the Default Technology Based Effluent Limit which is more stringent than the WQBEL calculated using no dilution.

If the discharger agrees to accept effluent limits that are less than or equal to these limits, the discharge will not be considered to be a significant lowering of water quality and no further antidegradation review will be required.

If the discharger wants or needs to discharge any of these substances at a level that is greater than the limits based on the De minimis, then they must submit an antidegradation demonstration application unless the activity causing the new or increased discharge is considered by rule to not be a significant lowering of water quality.

If the activity causing the new or increased discharge is considered by rule to not be a significant lowering of water quality, then they must submit an Exemption Justification.

Existing Industrial Discharger

An existing manufacturing facility has the following pollutants in their discharge: Copper, Lead, Nickel, TCE and Zinc.

Discharger Design Flow = 2.0 MGD  
Stream Design Flow = 56.0 MGD

The existing permit limits are:

Table 2  
Existing Limits

Parameter	Quantity or Loading		Units	Quality or Concentration		Units	Basis
	Monthly Average	Daily Maximum		Monthly Average	Daily Maximum		
<b>Copper</b>	0.57	1.15	lbs/day	34.0	69.0	ug/l	WQBEL
<b>Lead</b>	3.39	6.8	lbs/day	203.0	408.0	ug/l	WQBEL
<b>Nickel</b>	18.2	36.4	lbs/day	1090.0	2180.0	ug/l	WQBEL
<b>Zinc</b>	4.5	9.2	lbs/day	270.0	550.0	ug/l	WQBEL
<b>TCE</b>	----	0.08	lbs/day	----	5.0	ug/l	TBEL

The discharger proposes to double their existing operations and their discharge flow from 2 MGD to 4 MGD.

The limits for the increase based on the De minimis Lowering of water quality are:

Table 3  
De minimis Limits for the Increase

Parameter	Quantity or Loading		Units	Quality or Concentration		Units	Basis
	Monthly Average	Daily Maximum		Monthly Average	Daily Maximum		
<b>Copper</b>	0.3	0.6	lbs/day	18.0	36.0	ug/l	WQBEL
<b>Lead</b>	0.32	0.63	lbs/day	19.0	38.0	ug/l	WQBEL
<b>Nickel</b>	1.7	3.3	lbs/day	100.0	200.0	ug/l	WQBEL
<b>Zinc</b>	2.3	4.7	lbs/day	140.0	280.0	ug/l	WQBEL
<b>TCE</b>	----	0.08	lbs/day	----	5.0	ug/l	DTBEL

The final effluent limits will need to be the following to meet the De minimis:

Table 4  
Existing Limits + De minimis Limits for the Increase

Parameter	Quantity or Loading		Units	Quality or Concentration		Units	Basis
	Monthly Average	Daily Maximum		Monthly Average	Daily Maximum		
<b>Copper</b>	0.87	1.75	lbs/day	26.0	52.5	ug/l	Existing + WQBEL
<b>Lead</b>	3.39	6.8	lbs/day	102.0	204.0	ug/l	Existing + WQBEL
<b>Nickel</b>	18.2	36.4	lbs/day	546.0	1091.0	ug/l	Existing + WQBEL

<b>Zinc</b>	6.8	13.9	lbs/day	204.0	417.0	ug/l	Existing + WQBEL
<b>TCE</b>	----	0.16	lbs/day	----	5.0	ug/l	Existing + DTBEL

If the discharger agrees to accept effluent limits that are less than or equal to these limits, the discharge will not be considered to be a significant lowering of water quality and no further action will be required. If the discharger wants or needs to discharge any of these substances at a level that is greater than the limits based on the De minimis, then they must submit an antidegradation demonstration application unless the activity causing the new or increased discharge is considered by rule to not be a significant lowering of water quality.

If the activity causing the new or increased discharge is considered by rule to not be a significant lowering of water quality, then they must submit an Exemption Justification.

New Sanitary Discharger

A new Regional Sewer District has been formed to treat wastewater from two small towns that have been on septic systems. The RSD is building a new 0.5 MGD extended aeration treatment system to treat the wastewater from the two small towns. The receiving stream has a design flow of 1 MGD.

The limits based on the De minimis Lowering of water quality are:

Table 5

De minimis Limits

<u>Parameter</u>	<u>Quantity or Loading</u>		<u>Units</u>	<u>Quality or Concentration</u>		<u>Units</u>	<u>Basis</u>
	<u>Monthly Average</u>	<u>Daily Maximum</u>		<u>Monthly Average</u>	<u>Weekly Average</u>		
<b>CBOD<sub>5</sub></b>	41.7	62.6	lbs/day	10.0	15.0	mg/l	DTBEL
<b>TSS</b>	41.7	62.6	lbs/day	10.0	15.0	mg/l	DTBEL
<b>Ammonia as N</b>	4.6	6.9	lbs/day	1.1	1.65	mg/l	DTBEL
<b>Phosphorus</b>	4.2	----	lbs/day	1.0	----	mg/l	DTBEL

The effluent limits for ammonia as N, CBOD, TSS and Phosphorus are based on the Default Technology Based Effluent Limits.

If the discharger agrees to accept effluent limits that are less than or equal to these limits, the discharge will not be considered to be a significant lowering of water quality and no further action will be required.

If the discharger wants or needs to discharge any of these substances at a level that is greater than the limits based on the De minimis, then they must submit an antidegradation demonstration application unless the activity causing the new or increased discharge is considered by rule to not be a significant lowering of water quality.

If the activity causing the new or increased discharge is considered by rule to not be a significant lowering of water quality, then they must submit an Exemption Justification.

Existing Sanitary Discharger

An existing community is expanding their existing extended aeration treatment system from 5 MGD to 7.0 MGD to treat the wastewater from the expansion of the population in the community. The receiving stream has a design flow of 55 MGD.

The existing effluent limits based on a discharge design flow of 5.0 MGD are:

Table 6  
Existing Limits

<u>Parameter</u>	<u>Quantity or Loading</u>		<u>Units</u>	<u>Quality or Concentration</u>		<u>Units</u>	<u>Basis</u>
	<u>Monthly Average</u>	<u>Daily Maximum</u>		<u>Monthly Average</u>	<u>Weekly Average</u>		
<b>CBOD<sub>5</sub></b>	1042.5	1668	lbs/day	25.0	40.0	mg/l	TBEL
<b>TSS</b>	1251	1876.5	lbs/day	30.0	45.0	mg/l	TBEL
<b>Ammonia as N</b>							
<b>Summer</b>	130.1	196.0	lbs/day	3.12	4.7	mg/l	WQBEL
<b>Winter</b>	249.0	354.5	lbs/day	5.97	8.5	mg/l	WQBEL
<b>Phosphorus</b>	No Limits						WQBEL

The limits for the increase in flow of 2 MGD based on the De minimis Lowering of water quality are:

Table 7  
De minimis Limits for the Increase

<u>Parameter</u>	<u>Quantity or Loading</u>		<u>Units</u>	<u>Quality or Concentration</u>		<u>Units</u>	<u>Basis</u>
	<u>Monthly Average</u>	<u>Daily Maximum</u>		<u>Monthly Average</u>	<u>Weekly Average</u>		
<b>CBOD<sub>5</sub></b>	166.8	250.2	lbs/day	10.0	15.0	mg/l	DTBEL
<b>TSS</b>	166.8	250.2	lbs/day	10.0	15.0	mg/l	DTBEL
<b>Ammonia as N</b>							
<b>as N</b>	18.3	27.5	lbs/day	1.1	1.65	mg/l	WQBEL
<b>Phosphorus</b>	16.7	----	lbs/day	1.0	----	mg/l	DTBEL

The final effluent limits will need to be the following to meet the De minimis = Existing mass + De minimis Increase in mass reflected in the change in concentration limits:

Table 8

Existing Limits + De minimis Limits for the Increase

<u>Parameter</u>	<u>Quantity or Loading</u>		<u>Units</u>	<u>Quality or Concentration</u>		<u>Units</u>	<u>Basis</u>
	<u>Monthly Average</u>	<u>Daily Maximum</u>		<u>Monthly Average</u>	<u>Weekly Average</u>		
<b>CBOD<sub>5</sub></b>	1209.3	1918.2	lbs/day	20.7	32.9	mg/l	Existing + DTBEL
<b>TSS</b>	1417.8	2117.7	lbs/day	24.3	36.3	mg/l	Existing + DTBEL
<b>Ammonia as N</b>							
<b>Summer</b>	148.4	223.5	lbs/day	2.54	3.8	mg/l	Existing + WQBEL
<b>Winter</b>	267.3	382.0	lbs/day	4.6	6.5	mg/l	Existing + WQBEL
<b>Phosphorus</b>	58.4	----	lbs/day	1.0	-----	mg/l	Existing + DTBEL

If the discharger agrees to accept effluent limits that are less than or equal to these limits, the discharge will not be considered to be a significant lowering of water quality and no further action will be required. If the discharger wants or needs to discharge any of these substances at a level that is greater than the limits based on the De minimis, then they must submit an antidegradation demonstration application unless the activity causing the new or increased discharge is considered by rule to not be a significant lowering of water quality. If the activity causing the new or increased discharge is considered by rule to not be a significant lowering of water quality, then they must submit an Exemption Justification.