ATTACHMENT A
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

NPDES CALCULATIONS BASED ON THE CALIFORNIA TOXIC RULE
FOR EL CENTRO PERMIT NO. CA0104426

WATER QUALITY BASED EFFLUENT LIMIT CALCULATIONS FOR FRESHWATER

WQBELs Calculation Summary

Facility Name:	El Centro WWTP
NPDES Number:	CA0104426
Session ID:	34
Session Name:	Fresh water Run No. 1
User Name:	Carmj
Session Date:	5/31/02

	AMEL(ug/l)	MDEL(ug/l)
4,4'-DDE	5.900E-4	1.184E-3
4,4'-DDT	5.900E-4	1.184E-3
Bis (2-Ethylhexyl) Phthalate	5.9000	11.8409
Selenium (Se)	4.0933	8.2150

Period used for effluent data: From 3/1/01 to 12/11/01
Period used for ambient data: From 3/27/01 to 12/11/01

STREAM CONDITIONS:

Ambient TSS (mg/l):	120
Ambient Hardness (mg/l CaCO3):	580
Ambient pH (SU):	7.2

MIXING CONDITIONS:

Acute Receiving Water Flow (cfs):	1
Facility Maximum Daily Flow (MGD):	1
Acute Dilution Ratio:	0
Chronic Receiving Water Flow (cfs):	1
Facility 4-day avg Daily max flow (MGD):	1
Chronic Dilution Ratio:	0
Human Health Receiving Water Flow (cfs):	1
Long Term Mean Flow (MGD):	1
Human Health Dilution Ratio:	0

ATTACHMENT A
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

NPDES CALCULATIONS BASED ON THE CALIFORNIA TOXIC RULE
FOR EL CENTRO PERMIT NO. CA0104426

WATER QUALITY BASED EFFLUENT LIMIT CALCULATIONS FOR FRESHWATER

WQBELs Calculation Summary

Facility Name:	El Centro WWTP
NPDES Number:	CA0104426
Session ID:	35
Session Name:	Freshwater Run 2
User Name:	Carmj
Session Date:	5/31/02

	AMEL(ug/l)	MDEL(ug/l)
4,4'-DDE	5.900E-4	1.184E-3
4,4'-DDT	5.900E-4	1.184E-3
Bis (2-Ethylhexyl) Phthalate	5.9000	11.8409
Selenium (Se)	4.0933	8.2150

Period used for effluent data: From 3/1/01 to 12/11/01
Period used for ambient data: From 3/27/01 to 12/11/01

STREAM CONDITIONS:

Ambient TSS (mg/l):	21
Ambient Hardness (mg/l CaCO3):	490
Ambient pH (SU):	7.4

MIXING CONDITIONS:

Acute Receiving Water Flow (cfs):	1
Facility Maximum Daily Flow (MGD):	1
Acute Dilution Ratio:	0
Chronic Receiving Water Flow (cfs):	1
Facility 4-day avg Daily max flow (MGD):	1
Chronic Dilution Ratio:	0
Human Health Receiving Water Flow (cfs):	1
Long Term Mean Flow (MGD):	1
Humean Health Dilution Ratio:	0

ATTACHMENT A
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

NPDES CALCULATIONS BASED ON THE CALIFORNIA TOXIC RULE
FOR EL CENTRO PERMIT NO. CA0104426

WATER QUALITY BASED EFFLUENT LIMIT CALCULATIONS FOR FRESHWATER

WQBELs Calculation Summary

Facility Name:	El Centro WWTP
NPDES Number:	CA0104426
Session ID:	36
Session Name:	Fresh water run 3
User Name:	Carmj
Session Date:	6/3/02

	AMEL(ug/l)	MDEL(ug/l)
4,4'-DDE	5.900E-4	1.184E-3
4,4'-DDT	5.900E-4	1.184E-3
Bis (2-Ethylhexyl) Phthalate	5.9000	11.8409
Selenium (Se)	4.0933	8.2150

Period used for effluent data: From 3/1/01 to 12/11/01
Period used for ambient data: From 3/27/01 to 12/11/01

STREAM CONDITIONS:

Ambient TSS (mg/l):	21
Ambient Hardness (mg/l CaCO3):	740
Ambient pH (SU):	7.4

MIXING CONDITIONS:

Acute Receiving Water Flow (cfs):	1
Facility Maximum Daily Flow (MGD):	1
Acute Dilution Ratio:	0
Chronic Receiving Water Flow (cfs):	1
Facility 4-day avg Daily max flow (MGD):	1
Chronic Dilution Ratio:	0
Human Health Receiving Water Flow (cfs):	1
Long Term Mean Flow (MGD):	1
Human Health Dilution Ratio:	0

ATTACHMENT A
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

NPDES CALCULATIONS BASED ON THE CALIFORNIA TOXIC RULE
FOR EL CENTRO PERMIT NO. CA0104426

WATER QUALITY BASED EFFLUENT LIMIT CALCULATIONS FOR FRESHWATER

WQBELs Calculation Summary

Facility Name:	El Centro WWTP
NPDES Number:	CA0104426
Session ID:	37
Session Name:	Fresh water run 4
User Name:	Carmj
Session Date:	6/3/02

	AMEL(ug/l)	MDEL(ug/l)
4,4'-DDE	5.900E-4	1.184E-3
4,4'-DDT	5.900E-4	1.184E-3
Bis (2-Ethylhexyl) Phthalate	5.9000	11.8409
Selenium (Se)	4.0933	8.2150

Period used for effluent data: From 3/1/01 to 12/11/01
Period used for ambient data: From 3/27/01 to 12/11/01

STREAM CONDITIONS:

Ambient TSS (mg/l):	21
Ambient Hardness (mg/l CaCO3):	830
Ambient pH (SU):	7.8

MIXING CONDITIONS:

Acute Receiving Water Flow (cfs):	1
Facility Maximum Daily Flow (MGD):	1
Acute Dilution Ratio:	0
Chronic Receiving Water Flow (cfs):	1
Facility 4-day avg Daily max flow (MGD):	1
Chronic Dilution Ratio:	0
Human Health Receiving Water Flow (cfs):	1
Long Term Mean Flow (MGD):	1
Human Health Dilution Ratio:	0

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

NPDES CALCULATIONS BASED ON THE CALIFORNIA TOXIC RULE
FOR EL CENTRO PERMIT NO. CA0104426

WATER QUALITY BASED EFFLUENT LIMIT CALCULATIONS FOR SALT WATER

WQBELs Calculation Summary

Facility Name:	El Centro WWTP
NPDES Number:	CA0104426
Session ID:	39
Session Name:	SW 1
User Name:	Carmj
Session Date:	6/3/02

	AMEL(ug/l)	MDEL(ug/l)
4,4'-DDE	5.900E-4	1.184E-3
4,4'-DDT	5.900E-4	1.184E-3
Bis (2-Ethylhexyl) Phthalate	5.9000	11.8409
Copper (Cu)	2.3917	4.8000
Nickel (Ni)	6.7130	13.4727

Period used for effluent data: From 3/1/01 to 12/11/01
Period used for ambient data: From 3/27/01 to 12/11/01

STREAM CONDITIONS:

Ambient TSS (mg/l):	120
Ambient Hardness (mg/l CaCO3):	580
Ambient pH (SU):	7.2

MIXING CONDITIONS:

Acute Receiving Water Flow (cfs):	1
Facility Maximum Daily Flow (MGD):	1
Acute Dilution Ratio:	0
Chronic Receiving Water Flow (cfs):	1
Facility 4-day avg Daily max flow (MGD):	1
Chronic Dilution Ratio:	0
Human Health Receiving Water Flow (cfs):	1
Long Term Mean Flow (MGD):	1
Human Health Dilution Ratio:	0

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

NPDES CALCULATIONS BASED ON THE CALIFORNIA TOXIC RULE
FOR EL CENTRO PERMIT NO. CA0104426

WATER QUALITY BASED EFFLUENT LIMIT CALCULATIONS FOR SALT WATER

WQBELs Calculation Summary

Facility Name:	El Centro WWTP
NPDES Number:	CA0104426
Session ID:	40
Session Name:	SW 2
User Name:	Carmj
Session Date:	6/3/02

	AMEL(ug/l)	MDEL(ug/l)
4,4'-DDE	5.900E-4	1.184E-3
4,4'-DDT	5.900E-4	1.184E-3
Bis (2-Ethylhexyl) Phthalate	5.9000	11.8409
Copper (Cu)	2.3917	4.8000
Nickel (Ni)	6.7130	13.4727

Period used for effluent data: From 3/1/01 to 12/11/01
Period used for ambient data: From 3/27/01 to 12/11/01

STREAM CONDITIONS:

Ambient TSS (mg/l):	21
Ambient Hardness (mg/l CaCO3):	490
Ambient pH (SU):	7.4

MIXING CONDITIONS:

Acute Receiving Water Flow (cfs):	1
Facility Maximum Daily Flow (MGD):	1
Acute Dilution Ratio:	0
Chronic Receiving Water Flow (cfs):	1
Facility 4-day avg Daily max flow (MGD):	1
Chronic Dilution Ratio:	0
Human Health Receiving Water Flow (cfs):	1
Long Term Mean Flow (MGD):	1
Human Health Dilution Ratio:	0

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

NPDES CALCULATIONS BASED ON THE CALIFORNIA TOXIC RULE
FOR EL CENTRO PERMIT NO. CA0104426

WATER QUALITY BASED EFFLUENT LIMIT CALCULATIONS FOR SALT WATER

WQBELs Calculation Summary

Facility Name:	El Centro WWTP
NPDES Number:	CA0104426
Session ID:	41
Session Name:	SW 3
User Name:	Carmj
Session Date:	6/3/02

	AMEL(ug/l)	MDEL(ug/l)
4,4'-DDE	5.900E-4	1.184E-3
4,4'-DDT	5.900E-4	1.184E-3
Bis (2-Ethylhexyl) Phthalate	5.9000	11.8409
Copper (Cu)	2.3917	4.8000
Nickel (Ni)	6.7130	13.4727

Period used for effluent data: From 3/1/01 to 12/11/01
Period used for ambient data: From 3/27/01 to 12/11/01

STREAM CONDITIONS:

Ambient TSS (mg/l):	21
Ambient Hardness (mg/l CaCO3):	740
Ambient pH (SU):	7.4

MIXING CONDITIONS:

Acute Receiving Water Flow (cfs):	1
Facility Maximum Daily Flow (MGD):	1
Acute Dilution Ratio:	0
Chronic Receiving Water Flow (cfs):	1
Facility 4-day avg Daily max flow (MGD):	1
Chronic Dilution Ratio:	0
Human Health Receiving Water Flow (cfs):	1
Long Term Mean Flow (MGD):	1
Human Health Dilution Ratio:	0

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

NPDES CALCULATIONS BASED ON THE CALIFORNIA TOXIC RULE
FOR EL CENTRO PERMIT NO. CA0104426

WATER QUALITY BASED EFFLUENT LIMIT CALCULATIONS FOR SALT WATER

WQBELs Calculation Summary

Facility Name:	El Centro WWTP
NPDES Number:	CA0104426
Session ID:	42
Session Name:	SW 4
User Name:	Carmj
Session Date:	6/3/02

	AMEL(ug/l)	MDEL(ug/l)
4,4'-DDE	5.900E-4	1.184E-3
4,4'-DDT	5.900E-4	1.184E-3
Bis (2-Ethylhexyl) Phthalate	5.9000	11.8409
Copper (Cu)	2.3917	4.8000
Nickel (Ni)	6.7130	13.4727

Period used for effluent data: From 3/1/01 to 12/11/01
Period used for ambient data: From 3/27/01 to 12/11/01

STREAM CONDITIONS:

Ambient TSS (mg/l):	21
Ambient Hardness (mg/l CaCO3):	830
Ambient pH (SU):	7.8

MIXING CONDITIONS:

Acute Receiving Water Flow (cfs):	1
Facility Maximum Daily Flow (MGD):	1
Acute Dilution Ratio:	0
Chronic Receiving Water Flow (cfs):	1
Facility 4-day avg Daily max flow (MGD):	1
Chronic Dilution Ratio:	0
Human Health Receiving Water Flow (cfs):	1
Long Term Mean Flow (MGD):	1
Humean Health Dilution Ratio:	0

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

NPDES CALCULATIONS BASED ON THE CALIFORNIA TOXIC RULE
FOR EL CENTRO PERMIT NO. CA0104426

COMPLIANCE SUMMARY REPORT

Compliance Summary Report

Facility Name:	El Centro WWTP
NPDES Number:	CA0104426
Session ID:	34
Session Name:	Fresh water Run No. 1
User Name:	Carmj
Session Date:	5/31/02

4,4'-DDE MDEL (ug/l) = 1.184094E-03 ML (ug/l) = 0.05

Value	Detect	Date	Compliance
0.002	False	3/27/01	Compliant with PMP
0.002	False	5/10/01	Compliant with PMP
0.002	False	9/24/01	Compliant with PMP
0.002	False	12/11/01	Compliant with PMP

4,4'-DDT MDEL (ug/l) = 1.184094E-03 ML (ug/l) = 0.01

Value	Detect	Date	Compliance
0.006	False	3/27/01	Compliant with PMP
0.006	False	5/10/01	Compliant with PMP
0.006	False	9/24/01	Compliant with PMP
0.006	False	12/11/01	Compliant with PMP

Bis (2-Ethylhexyl) Phthalate MDEL (ug/l) = 3.61249 ML (ug/l) = 5

Value	Detect	Date	Compliance
19	True	3/27/01	Non Compliant

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

NPDES CALCULATIONS BASED ON THE CALIFORNIA TOXIC RULE
FOR EL CENTRO PERMIT NO. CA0104426

COMPLIANCE SUMMARY REPORT

Compliance Summary Report

Facility Name:	El Centro WWTP
NPDES Number:	CA0104426
Session ID:	39
Session Name:	SW 1
User Name:	Carmj
Session Date:	6/3/02

4,4'-DDE MDEL (ug/l) = 1.184094E-03 ML (ug/l) = 0.05

Value	Detect	Date	Compliance
0.002	False	3/27/01	Compliant with PMP
0.002	False	5/10/01	Compliant with PMP
0.002	False	9/24/01	Compliant with PMP
0.002	False	12/11/01	Compliant with PMP

4,4'-DDT MDEL (ug/l) = 1.184094E-03 ML (ug/l) = 0.01

Value	Detect	Date	Compliance
0.006	False	3/27/01	Compliant with PMP
0.006	False	5/10/01	Compliant with PMP
0.006	False	9/24/01	Compliant with PMP
0.006	False	12/11/01	Compliant with PMP

Bis (2-Ethylhexyl) Phthalate MDEL (ug/l) = 11.84094 ML (ug/l) = 5

Value	Detect	Date	Compliance
19	True	3/27/01	Non Compliant

Copper (Cu) MDEL (ug/l) = 4.8 ML (ug/l) = 0.5

Value	Detect	Date	Compliance
4.9	True	3/27/01	Non Compliant
6.6	True	9/24/01	Non Compliant
8.2	True	12/11/01	Non Compliant

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

NPDES CALCULATIONS BASED ON THE CALIFORNIA TOXIC RULE
FOR EL CENTRO PERMIT NO. CA0104426

REASONAL POTENTIAL ASSESSMENT REPORT

REASONABLE POTENTIAL ASSESSMENT

Facility Name : El Centro WWTP
NPDES Number : CA0104426

CAPWTT Session ID : 34
CAPWTT Session Name : Fresh water Run No. 1
CAPWTT Session Date : 5/31/02

Pollutant : 4,4'-DDE
ISWP Criteria : 5.90000E-04 ug/l
WQBEL Required?: YES

EFFLUENT DATA SUMMARY:
This pollutant was not detected in 4 observations. The MEC is set to the lowest detection limit.

MEC = 0.002 ug/L (nondetect) requiring analysis of ambient data.

AMBIENT DATA SUMMARY:
This pollutant was detected 2 times out of 4 observations. The B is set to the maximum detected value.

B = 0.014 ug/l

REASONABLE POTENTIAL:
B (detect) is GREATER THAN the criterion requiring an effluent limitation for 4,4'-DDE.

Pollutant : 4,4'-DDT
ISWP Criteria : 5.90000E-04 ug/l
WQBEL Required?: YES

EFFLUENT DATA SUMMARY:
This pollutant was not detected in 4 observations. The MEC is set to the lowest detection limit.

MEC = 0.006 ug/L (nondetect) requiring analysis of ambient data.

AMBIENT DATA SUMMARY:
This pollutant was detected 1 times out of 4 observations. The B is set to the maximum detected value.

B = 0.008 ug/l

REASONABLE POTENTIAL:
B (detect) is GREATER THAN the criterion requiring an effluent limitation for 4,4'-DDT.

Pollutant : Bis (2-Ethylhexyl) Phthalate
ISWP Criteria : 1.800 ug/l
WQBEL Required?: YES

EFFLUENT DATA SUMMARY:
This pollutant was detected 1 times out of 4 observations. The MEC is set to the maximum detected value.

MEC = 19 ug/L (detect)

REASONABLE POTENTIAL:
MEC is GREATER THAN the criterion requiring an effluent limitation for Bis (2-Ethylhexyl) Phthalate.

Pollutant : Selenium (Se)
ISWP Criteria : 5.000 ug/l
WQBEL Required?: YES

EFFLUENT DATA SUMMARY:
This pollutant was detected 4 times out of 4 observations. The MEC is set to the maximum detected value.

MEC = 8 ug/L (detect)

REASONABLE POTENTIAL:
MEC is GREATER THAN the criterion requiring an effluent limitation for Selenium (Se).

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

NPDES CALCULATIONS BASED ON THE CALIFORNIA TOXIC RULE
FOR EL CENTRO PERMIT NO. CA0104426

REASONAL POTENTIAL ASSESSMENT REPORT

REASONABLE POTENTIAL ASSESSMENT

Facility Name : El Centro WWTP
NPDES Number : CA0104426

CAPWTT Session ID : 39
CAPWTT Session Name : SW 1
CAPWTT Session Date : 6/3/02

Pollutant : 4,4'-DDE
ISWP Criteria : 5.90000E-04 ug/l
WQBEL Required?: YES

EFFLUENT DATA SUMMARY:
This pollutant was not detected in 4 observations. The MEC is set to the lowest detection limit.

MEC = 0.002 ug/L (nondetect) requiring analysis of ambient data.

AMBIENT DATA SUMMARY:
This pollutant was detected 2 times out of 4 observations. The B is set to the maximum detected value.

B = 0.014 ug/l

REASONABLE POTENTIAL:
B (detect) is GREATER THAN the criterion requiring an effluent limitation for 4,4'-DDE.

Pollutant : 4,4'-DDT
ISWP Criteria : 5.90000E-04 ug/l
WQBEL Required?: YES

EFFLUENT DATA SUMMARY:
This pollutant was not detected in 4 observations. The MEC is set to the lowest detection limit.

MEC = 0.006 ug/L (nondetect) requiring analysis of ambient data.

AMBIENT DATA SUMMARY:
This pollutant was detected 1 times out of 4 observations. The B is set to the maximum detected value.

B = 0.008 ug/l

REASONABLE POTENTIAL:
B (detect) is GREATER THAN the criterion requiring an effluent limitation for 4,4'-DDT.

Pollutant : Bis (2-Ethylhexyl) Phthalate
ISWP Criteria : 5.900 ug/l
WQBEL Required?: YES

EFFLUENT DATA SUMMARY:
This pollutant was detected 1 times out of 4 observations. The MEC is set to the maximum detected value.

MEC = 19 ug/L (detect)

REASONABLE POTENTIAL:
MEC is GREATER THAN the criterion requiring an effluent limitation for Bis (2-Ethylhexyl) Phthalate.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
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NPDES CALCULATIONS BASED ON THE CALIFORNIA TOXIC RULE
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REASONAL POTENTIAL ASSESSMENT REPORT

Pollutant : Copper (Cu)
ISWP Criteria : 3.100 ug/l
WQBEL Required?: YES

EFFLUENT DATA SUMMARY:
This pollutant was detected 4 times out of 4 observations. The MEC is set to the maximum detected value.

MEC = 8.2 ug/L (detect)

REASONABLE POTENTIAL:
MEC is GREATER THAN the criterion requiring an effluent limitation for Copper (Cu).

Pollutant : Nickel (Ni)
ISWP Criteria : 8.200 ug/l
WQBEL Required?: YES

EFFLUENT DATA SUMMARY:
This pollutant was detected 4 times out of 4 observations. The MEC is set to the maximum detected value.

MEC = 7 ug/L (detect) and is LESS THAN the criterion requiring analysis of ambient data.

AMBIENT DATA SUMMARY:
This pollutant was detected 4 times out of 4 observations. The B is set to the maximum detected value.

B = 11 ug/l

REASONABLE POTENTIAL:
B (detect) is GREATER THAN the criterion requiring an effluent limitation for Nickel (Ni).

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
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NPDES CALCULATIONS BASED ON THE CALIFORNIA TOXIC RULE
FOR EL CENTRO PERMIT NO. CA0104426

CRITERIA CALCULATION SUMMARY FOR METALS & POLLUTANTS

CRITERIA CALCULATION SUMMARY FOR METALS & POLLUTANTS WITH SSOs

Facility Name : El Centro WWTP
NPDES Number : CA0104426

CAPWTT Session ID : 34
CAPWTT Session Name : Fresh water Run No. 1
CAPWTT Session Date : 5/31/02

Ambient TSS (mg/l) : 120
Ambient Hardness (mg/l CaCO3) : 580
Ambient pH (SU) : 7.2

Selenium (Se)
EPA CF Factors

CF Acute : 1
CF Chronic : 1

Acute Criteria (ug/l) : NA
Chronic Criteria (ug/l) : 5
Human Health Criteria (ug/l) : NA

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

NPDES CALCULATIONS BASED ON THE CALIFORNIA TOXIC RULE
FOR EL CENTRO PERMIT NO. CA0104426

CRITERIA CALCULATION SUMMARY FOR METALS & POLLUTANTS

CRITERIA CALCULATION SUMMARY FOR METALS & POLLUTANTS WITH SSOs

Facility Name : El Centro WWTP
NPDES Number : CA0104426

CAPWTT Session ID : 39
CAPWTT Session Name : SW 1
CAPWTT Session Date : 6/3/02

Ambient TSS (mg/l) : 120
Ambient Hardness (mg/l CaCO3) : 580
Ambient pH (SU) : 7.2

Copper (Cu)
EPA CF Factors

CF Acute : 0.83
CF Chronic : 0.83

Acute Criteria (ug/l) : 4.8
Chronic Criteria (ug/l) : 3.1
Human Health Criteria (ug/l) : NA

Nickel (Ni)
EPA CF Factors

CF Acute : 0.99
CF Chronic : 0.99

Acute Criteria (ug/l) : 74
Chronic Criteria (ug/l) : 8.2
Human Health Criteria (ug/l) : 4600

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

NPDES CALCULATIONS BASED ON THE CALIFORNIA TOXIC RULE
FOR EL CENTRO PERMIT NO. CA0104426

CALCULATIONS FOR AMEL AND MDEL

PART 1 CALCULATION OF EFFLUENT CONCENTRATION ALLOWANCES (ECA)

For each water quality criterion/objective, calculate the effluent concentration allowance (*ECA*) using the following steady-state mass balance equation:

ECA = C + D (C - B) when *C > B*, and
ECA = C when *C <=B*,

where *C* = the priority pollutant criterion/objective, adjusted (as described in section 1.2), if necessary, for hardness, pH, and translators (as described in section 1.4.1);
D = the dilution credit (as determined in section 1.4.2); and
B = the ambient background concentration. The ambient background concentration shall be the observed maximum as determined in accordance with section 1.4.3.1 with the exception that an *ECA* calculated from a priority pollutant criterion/objective that is intended to protect human health from carcinogenic effects shall use the ambient background concentration as an arithmetic mean determined in accordance with section 1.4.3.2.

The concentration units for *C* and *B* must be identical. Both *C* and *B* shall be expressed as total recoverable, unless inappropriate. The dilution credit is unitless.

VALUES USED IN ECA CALCULATON

Pollutant	Ambient B	C Acute	D Acute	ECA Acute	C Chronic	D Chronic	ECA Chronic	C HH	D HH	ECA HH
4,4'-DDE	0.014	NA	0.000	NA	NA	0.000	NA	5.9E-4	0.000	5.9E-4
4,4'-DDT	0.008	.130	0.00	.130	0.001	0.000	0.001	5.9E-4	0.000	5.9E-4
Bis (2-Ethyhexl) Phthalate	2.00	NA	0.000	NA	NA	0.000	NA	5.900	0.000	5.9
Copper	15.00	4.800	0.000	4.800	3.100	0.000	3.100	NA	0.000	NA
Nickel	11.00	74	0.000	74	8.2	0.000	8.2	4600	0.000	4600
Selenium	10.00	NA	0.000	NA	5.000	0.000	5.000	NA	0.00	NA

FOR 4,4'-DDE (acute)
$ECA_{ACUTE} = C_{ACUTE} + D_{ACUTE} \times (C_{ACUTE} - \text{Ambient B})$
$ECA_{ACUTE} = NA$

FOR 4,4'-DDE (chronic)
$ECA_{CHRONIC} = C_{CHRONIC} + D_{CHRONIC} \times (C_{CHRONIC} - \text{Ambient B})$
$ECA_{CHRONIC} = NA$

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

NPDES CALCULATIONS BASED ON THE CALIFORNIA TOXIC RULE
FOR EL CENTRO PERMIT NO. CA0104426

CALCULATIONS FOR AMEL AND MDEL

FOR 4,4'-DDT (acute)
$ECA_{ACUTE} = C_{ACUTE} + D_{ACUTE} \times (C_{ACUTE} - \text{Ambient B})$
$ECA_{ACUTE} = 0.13$

FOR 4,4'-DDT (chronic)
$ECA_{CHRONIC} = C_{CHRONIC} + D_{CHRONIC} \times (C_{CHRONIC} - \text{Ambient B})$
$ECA_{CHRONIC} = 0.001$

FOR BIS (2-ETHYHEXL) PHTHALATE (acute)
$ECA_{ACUTE} = C_{ACUTE} + D_{ACUTE} \times (C_{ACUTE} - \text{Ambient B})$
$ECA_{ACUTE} = NA$

FOR BIS (2-ETHYHEXL) PHTHALATE (chronic)
$ECA_{CHRONIC} = C_{CHRONIC} + D_{CHRONIC} \times (C_{CHRONIC} - \text{Ambient B})$
$ECA_{CHRONIC} = NA$

FOR COPPER (acute)
$ECA_{ACUTE} = C_{ACUTE} + D_{ACUTE} \times (C_{ACUTE} - \text{Ambient B})$
$ECA_{ACUTE} = 4.8$

FOR COPPER (chronic)
$ECA_{CHRONIC} = C_{CHRONIC} + D_{CHRONIC} \times (C_{CHRONIC} - \text{Ambient B})$
$ECA_{CHRONIC} = 3.1$

FOR NICKEL (acute)
$ECA_{ACUTE} = C_{ACUTE} + D_{ACUTE} \times (C_{ACUTE} - \text{Ambient B})$
$ECA_{ACUTE} = 74.0$

FOR NICKEL (chronic)
$ECA_{CHRONIC} = C_{CHRONIC} + D_{CHRONIC} \times (C_{CHRONIC} - \text{Ambient B})$
$ECA_{CHRONIC} = 8.2$

FOR SELENIUM (acute)
$ECA_{ACUTE} = C_{ACUTE} + D_{ACUTE} \times (C_{ACUTE} - \text{Ambient B})$
$ECA_{ACUTE} = NA$

FOR SELENIUM (chronic)
$ECA_{CHRONIC} = C_{CHRONIC} + D_{CHRONIC} \times (C_{CHRONIC} - \text{Ambient B})$
$ECA_{CHRONIC} = 5.00$

Pollutant	ECA_{Acute} (µg/L)	$ECA_{Chronic}$ (µg/L)
4,4'-DDE	NA	NA
4,4'-DDT	0.130	0.001
Bis (2-Ethyhexl) Phthalate	NA	NA
Copper	4.8	3.1
Nickel	74	8.2
Selenium	NA	5.00

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CALCULATIONS FOR AMEL AND MDEL

STEP 2 CALCULATIONS OF LONG TERM AVERAGES (LTA)

For each *ECA* based on an aquatic life criterion/objective, determine the long-term average discharge condition (*LTA*) by multiplying the *ECA* with a factor (multiplier) that adjusts for effluent variability. The multiplier shall be calculated as described below, or shall be found in Table 1. To use Table 1, the *coefficient of variation (*CV*) for the effluent pollutant concentration data must first be calculated. If (a) the number of effluent data points is less than ten, or (b) at least 80 percent of the data are reported as not detected, the *CV* shall be set equal to 0.6. When calculating *CV* in this procedure, if an effluent data point is below the detection limit for the pollutant in that sample, one-half of the detection limit shall be used as a value in the calculations. Multipliers for acute and chronic criteria/objectives that correspond to the *CV* can then be found in Table 1.

Cv	WLa Multipliers		
	95th percentile	99 percentile	
0.1	0.853	0.797	
0.2	0.736	0.643	
0.3	0.644	0.527	
0.4	0.571	0.44	**Acute**
0.5	0.514	0.373	
0.6	0.468	0.321	
0.7	0.432	0.281	
0.8	0.403	0.249	
0.9	0.379	0.224	**Table 5-1**
1	0.360	0.204	
1.1	0.344	0.187	
1.2	0.330	0.174	
1.3	0.319	0.162	
1.4	0.310	0.153	
1.5	0.302	0.144	
1.6	0.296	0.137	
1.7	0.290	0.131	
1.8	0.285	0.126	
1.9	0.281	0.121	
2	0.277	0.117	

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CALCULATIONS FOR AMEL AND MDEL

Cv	WLa Multipliers		
	95th percentile	99 percentile	
0.1	0.922	0.891	
0.2	0.853	0.797	
0.3	0.791	0.715	
0.4	0.736	0.643	**Chronic**
0.5	0.687	0.581	
0.6	0.644	0.527	
0.7	0.606	0.481	
0.8	0.571	0.440	
0.9	0.541	0.404	**Table 5-1**
1	0.514	0.373	
1.1	0.490	0.345	
1.2	0.468	0.321	
1.3	0.449	0.300	
1.4	0.432	0.281	
1.5	0.417	0.264	
1.6	0.403	0.249	
1.7	0.390	0.236	
1.8	0.379	0.224	
1.9	0.369	0.214	
2	0.360	0.204	

LTA Equations

$LTA_{Acute} = ECA_{Acute} * ECA\ multiplier_{Acute\ 99}$ (from Table 1)

$LTA_{Chronic} = ECA_{Chronic} * ECA\ multiplier_{Chronic\ 99}$ (from Table 1)

VALUES USED IN LTA CALCULATON

Pollutant	CV Q	Sigma	Mult Acute	Mult Chronic	LTA Acute	LTA Chronic	LTA Min
4,4'-DDE	0.600	0.555	0.321	0.527	NA	NA	NA
4,4'-DDT	0.600	0.555	0.321	0.527	0.042	5.27E-4	0.001
Bis (2-Ethylhexyl) Phthalate	0.600	0.555	0.321	0.527	NA	NA	NA
Copper	0.600	0.555	0.321	0.527	1.541	1.635	1.541
Nickel	0.600	0.555	0.321	0.527	23.75	4.324	4.324
Selenium	0.600	0.555	0.321	0.527	NA	2.637	2.637

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CALCULATIONS FOR AMEL AND MDEL

VALUES USED FOR ECA_{Acute} and $ECA_{Chronic}$

Pollutant	ECA_{Acute} (µg/L)	$ECA_{Chronic}$ (µg/L)
4,4'-DDE	NA	NA
4,4'-DDT	0.130	0.001
Bis (2-Ethyhexl) Phthalate	NA	NA
Copper	4.8	3.1
Nickel	74	8.2
Selenium	NA	5.00

FOR 4,4'-DDE (acute)

$LTA_{ACUTE} = ECA_{ACUTE} \times ECA\ multiplier_{Acute\ 99}$

$LTA_{ACUTE} = NA$

FOR 4,4'-DDE (chronic)

$LTA_{CHRONIC} = ECA_{CHRONIC} \times ECA\ multiplier_{Chronic\ 99}$

$LTA_{CHRONIC} = NA$

FOR 4,4'-DDT (acute)

$LTA_{ACUTE} = ECA_{ACUTE} \times ECA\ multiplier_{Acute\ 99}$

$LTA_{ACUTE} = 0.130 \times 0.321 = 0.042$

FOR 4,4'-DDT (chronic)

$LTA_{CHRONIC} = ECA_{CHRONIC} \times ECA\ multiplier_{Chronic\ 99}$

$LTA_{CHRONIC} = 0.001 \times 0.527 = 0.00052731$

FOR BIS (2-ETHYLHEXYL) PHTHALATE (acute)

$LTA_{ACUTE} = ECA_{ACUTE} \times ECA\ multiplier_{Acute\ 99}$

$LTA_{ACUTE} = NA$

FOR BIS (2-ETHYLHEXYL) PHTHALATE (chronic)

$LTA_{CHRONIC} = ECA_{CHRONIC} \times ECA\ multiplier_{Chronic\ 99}$

$LTA_{CHRONIC} = NA$

FOR COPPER (acute)

$LTA_{ACUTE} = ECA_{ACUTE} \times ECA\ multiplier_{Acute\ 99}$

$LTA_{ACUTE} = 4.8 \times .321 = 1.54$

FOR COPPER (chronic)

$LTA_{CHRONIC} = ECA_{CHRONIC} \times ECA\ multiplier_{Chronic\ 99}$

$LTA_{CHRONIC} = 3.1 \times .527 = 1.63$

FOR NICKEL (acute)

$LTA_{ACUTE} = ECA_{ACUTE} \times ECA\ multiplier_{Acute\ 99}$

$LTA_{ACUTE} = 74 \times 0.321 = 23.754$

FOR NICKEL (chronic)

$LTA_{CHRONIC} = ECA_{CHRONIC} \times ECA\ multiplier_{Chronic\ 99}$

$LTA_{CHRONIC} = 8.2 \times 0.521 = 4.27$

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CALCULATIONS FOR AMEL AND MDEL

FOR SELENIUM (acute)

$LTA_{ACUTE} = ECA_{ACUTE} \times ECA\ multiplier_{Acute\ 99}$

$LTA_{ACUTE} = NA$

FOR SELENIUM (chronic)

$LTA_{CHRONIC} = ECA_{CHRONIC} \times ECA\ multiplier_{Chronic\ 99}$

$LTA_{CHRONIC} = 5 \times 0.527 = 2.637$

Select the lowest (most limiting) of the *LTA*s for the pollutant derived in *Step 2*.

Pollutant	LTA_{Acute} (µg/L)	$LTA_{Chronic}$ (µg/L)
4,4'-DDE	NA	NA
4,4'-DDT		0.001
Bis (2-Ethylhexyl) Phthalate	NA	NA
Copper	1.54	
Nickel		4.324
Selenium		2.637

CALCULATIONS FOR AMEL AND MDEL

STEP 3 CALCULATIONS OF AVERAGE MONTHLY EFFLUENT LIMITATION (AMEL) AND MAXIMUM DAILY EFFLUENT LIMITATION (MDEL)

Calculate water quality-based effluent limitations (an *average monthly effluent limitation, AMEL, and a *maximum daily effluent limitation, MDEL) by multiplying the most limiting *LTA* (as selected in *Step 2*) with a factor (multiplier) that adjusts for the averaging periods and exceedance frequencies of the criteria/objectives and the effluent limitations, and the effluent monitoring frequency as follows:

$AMEL_{\text{aquatic life}} = LTA * AMEL_{\text{multiplier95}}$ (from Table 5-2)
$MDEL_{\text{aquatic life}} = LTA * MDEL_{\text{multiplier99}}$ (from Table 5-2)

The AMEL and MDEL multipliers shall be calculated as described below, or shall be found in Table 5-2 using the previously calculated *CV* and the monthly sampling frequency (*n*) of the pollutant in the effluent. If the sampling frequency is four times a month or less, *n* shall be set equal to 4. For this method only, maximum daily effluent limitations shall be used for publicly-owned treatment works (POTWs) in place of average weekly limitations.

Cv	LTA multipliers		**Maximum Daily Limit MDL**
	95th percentile	99 percentile	
0.1	1.170	1.25	
0.2	1.360	1.55	
0.3	1.550	1.9	
0.4	1.750	2.27	
0.5	1.950	2.68	
0.6	2.130	3.11	
0.7	2.310	3.56	
0.8	2.480	4.01	**Table 5-2**
0.9	2.640	4.46	
1	2.780	4.9	
1.1	2.910	5.34	
1.2	3.030	5.76	
1.3	3.130	6.17	
1.4	3.230	6.56	
1.5	3.310	6.93	
1.6	3.380	7.29	
1.7	3.450	7.63	
1.8	3.510	7.95	
1.9	3.560	8.26	
2	3.600	8.55	

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CALCULATIONS FOR AMEL AND MDEL

Cv	LTA Multipliers									
	95th percentile					99 percentile				
	n=1	n=2	n=4	n=10	n=30	n=1	n=2	n=4	n=10	n=30
0.1	1.170	1.12	1.08	1.06	1.03	1.25	1.18	1.121	1.08	1.04
0.2	1.360	1.25	1.17	1.12	1.06	1.55	1.37	1.25	1.16	1.09
0.3	1.550	1.38	1.26	1.18	1.09	1.9	1.59	1.4	1.24	1.13
0.4	1.750	1.52	1.36	1.25	1.12	2.27	1.83	1.55	1.33	1.18
0.5	1.950	1.66	1.45	1.31	1.16	2.68	2.09	1.72	1.42	1.23
0.6	2.130	1.8	1.55	1.38	1.19	3.11	2.37	1.9	1.52	1.28
0.7	2.310	1.94	1.65	1.45	1.22	3.56	2.66	2.08	1.62	1.33
0.8	2.480	2.07	1.75	1.52	1.26	4.01	2.96	2.27	1.73	1.39
0.9	2.640	2.2	1.85	1.59	1.29	4.46	3.28	2.48	1.84	1.44
1	2.780	2.33	1.95	1.66	1.33	4.9	3.59	2.68	1.96	1.5
1.1	2.910	2.45	2.04	1.73	1.36	5.34	3.91	2.9	2.07	1.56
1.2	3.030	2.56	2.13	1.8	1.39	5.76	4.23	3.11	2.19	1.62
1.3	3.130	2.67	2.23	1.87	1.43	6.17	4.55	3.34	2.32	1.68
1.4	3.230	2.77	2.31	1.94	1.47	6.56	4.86	3.56	2.45	1.74
1.5	3.310	2.86	2.4	2	1.5	6.93	5.17	3.78	2.58	1.8
1.6	3.380	2.95	2.48	2.07	1.54	7.29	5.47	4.01	2.71	1.87
1.7	3.450	3.03	2.56	2.14	1.57	7.63	5.77	4.23	2.84	1.93
1.8	3.510	3.1	2.64	2.2	1.61	7.95	6.06	4.46	2.98	2
1.9	3.560	3.17	2.71	2.27	1.64	8.26	6.34	4.68	3.12	2.07
2	3.600	3.23	2.78	2.33	1.68	8.55	6.61	4.9	3.26	2.14

Average Monthly Limit (AML) Table 5-2

For the applicable human health criterion/objective, set the AMEL equal to the *ECA* (from *Step 1*).

AMELhuman health = ECA
To calculate the MDEL for a human health criterion/objective, multiply the *ECA* by the ratio of the MDEL multiplier to the AMEL multiplier.

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VALUES USED IN AMEL MDEL CALCULATON

Pollutant	LTA Min	CV Q	N samp	AMEL Mult	AMEL Aqua	MDEL Mult	MDEL Aqua	AMEL HH	MDEL/AMEL	MDEL HH
4,4'-DDE	NA	0.600	4.000	1.553	NA	3.116	NA	.00059	2.0069	0.001
4,4'-DDT	0.001	0.600	4.000	1.553	8.18E-4	3.116	0.002	.00059	2.0069	0.001
Bis (2-Ethylhexyl) Phthalate	NA	0.600	4.000	1.553	NA	3.116	NA	5.9	2.0069	11.841
Copper	1.541	0.600	4.000	1.553	2.392	3.116	4.8	NA	2.0069	NA
Nickel	4.324	0.600	4.000	1.553	NA	3.116	NA	0.051	2.0069	0.102
Selenium	2.637	0.600	4.000	1.553	4.093	3.116	8.215	NA	2.0069	NA

FOR 4,4'-DDE

$AMEL_{human\ health} = ECA$
$AMEL_{human\ health} = 0.00059\ \mu g/L$

$MDEL_{human\ health} = ECA \times MDEL_{multiplier}/AMEL_{multiplier}$
$MDEL_{human\ health} = 0.00059 \times (2.0069) = 0.001\ \mu g/L$

FOR 4,4'-DDT

$AMEL_{human\ health} = ECA$
$AMEL_{human\ health} = 0.00059\ \mu g/L$

$MDEL_{human\ health} = ECA \times MDEL_{multiplier}/AMEL_{multiplier}$
$MDEL_{human\ health} = 0.00059 \times (2.0069) = 0.001\ \mu g/L$

FOR BIS (2-ETHYLHEXYL) PHTHALATE

$AMEL_{human\ health} = ECA$
$AMEL_{human\ health} = 5.9\ \mu g/L$

$MDEL_{human\ health} = ECA \times MDEL_{multiplier}/AMEL_{multiplier}$
$MDEL_{human\ health} = 5.9 \times (2.0069) = 11.841\ \mu g/L$

FOR COPPER

$AMEL_{aquatic\ life} = LTA * AMEL_{multiplier95}$
$AMEL_{aquatic\ life} = 1.541 \times 1.553 = 2.392\ \mu g/L$

$MDEL_{aquatic\ life} = LTA * MDEL_{multiplier99}$
$MDEL_{aquatic\ life} = 1.541 \times 3.116 = 4.8\ \mu g/L$

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CALCULATIONS FOR AMEL AND MDEL

FOR NICKEL

$AMEL_{\text{aquatic life}} = LTA * AMEL_{\text{multiplier95}}$
$AMEL_{\text{aquatic life}} = 4.32 \times 1.553 = 6.713 \mu g/L$

$MDEL_{\text{aquatic life}} = LTA * MDEL_{\text{multiplier99}}$
$MDEL_{\text{aquatic life}} = 4.32 \times 3.116 = 13.473\ \mu g/L$

FOR SELENIUM

$AMEL_{\text{aquatic life}} = LTA * AMEL_{\text{multiplier95}}$
$AMEL_{\text{aquatic life}} = 2.637 \times 1.553 = 4.09\ \mu g/L$

$MDEL_{\text{aquatic life}} = LTA * MDEL_{\text{multiplier99}}$
$MDEL_{\text{aquatic life}} = 2.637 \times 3.116 = 8.21\ \mu g/L$

Pollutant	AMEL (µg/L)	MDEL (µg/L)
4,4'-DDE	0.00059	0.001
4,4'-DDT	0.00059	0.001
Bis (2-Ethylhexyl) Phthalate	5.9	11.841
Copper	2.39	4.80
Nickel	6.713	13.473
Selenium	4.0933	8.215