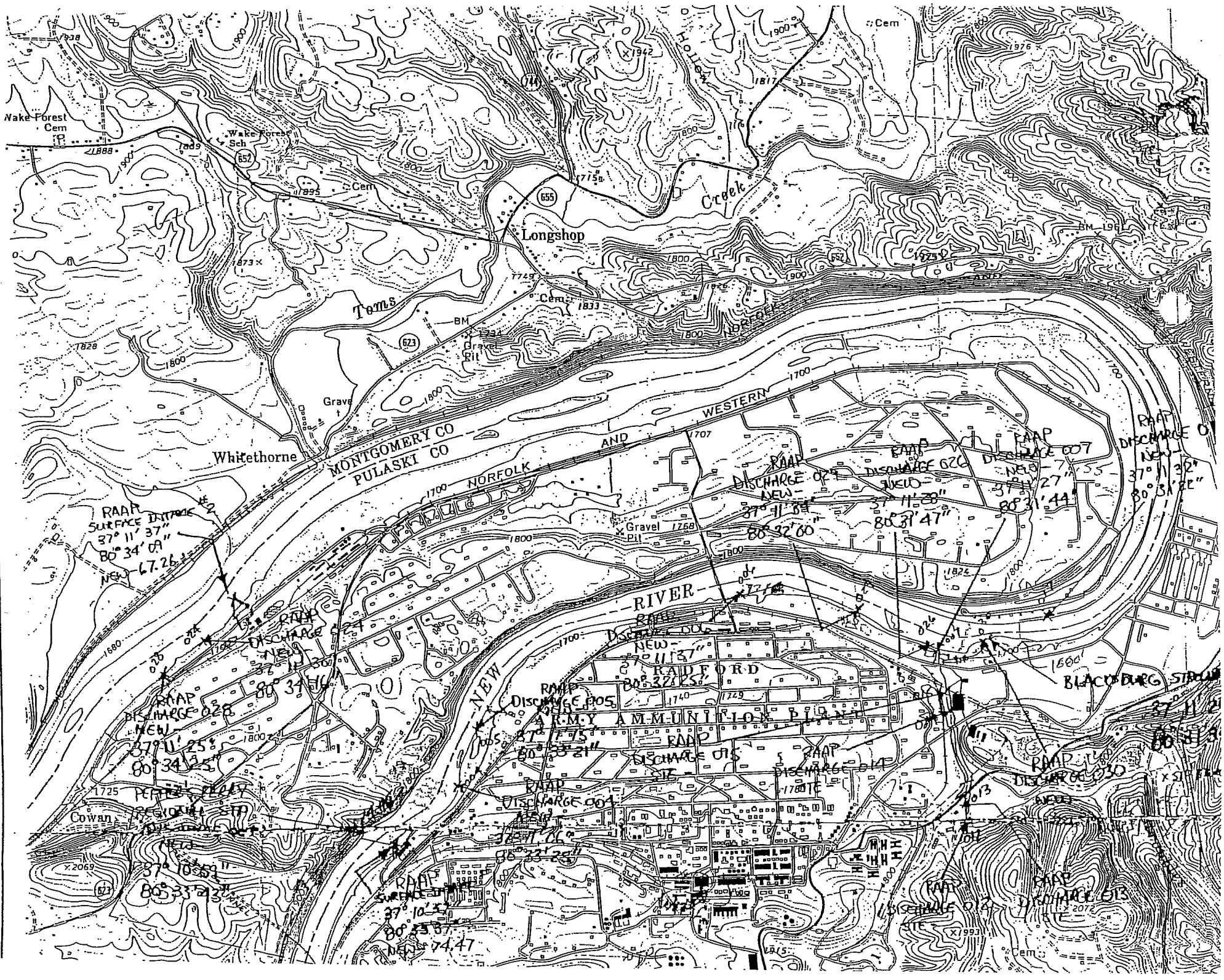
Attachments

A. USGS Topographic Map
B. Flow Frequency Memorandum
C. Site Visit Report
D. Ambient Water Quality Information
   - 2008 305b Watershed Summary Report
   - STORET Data (Station 9-NEW081.72)
E. Wasteload and Limit Calculations
   - Mixing Zone Calculations
   - Wasteload Allocation Spreadsheet
   - STATS Program Results
   - DO Model Results
F. Historical Limit Development
G. TMP Justification Memorandum
H. NPDES Permit Rating Worksheet

Attachment A

USGS Topographical Map



Wake Forest Cem
Wake Forest Sch
Longshop
Toms
Creek
Gravel Pit
Whitethorne
MONTGOMERY CO
PULASKI CO
NORFOLK AND WESTERN
NEW RIVER
RADFORD ARMY AMMUNITION PLANT
Cowan
RAAP SURFACE DISTANCE 37° 11' 37" 80° 34' 09" NEW 67.26
RAAP DISCHARGE 024 NEW 37° 11' 30" 80° 34' 16"
RAAP DISCHARGE 028 NEW 37° 11' 25" 80° 34' 25"
RAAP DISCHARGE 005 37° 11' 15" 80° 33' 21"
RAAP DISCHARGE 004 NEW 37° 11' 26" 80° 33' 28"
RAAP DISCHARGE 015 SITE
RAAP DISCHARGE 014 SITE
RAAP DISCHARGE 029 NEW 37° 11' 34" 80° 32' 60"
RAAP DISCHARGE 026 NEW 37° 11' 28" 80° 31' 47"
RAAP DISCHARGE 007 NEW 37° 11' 27" 80° 31' 44"
RAAP DISCHARGE 030 NEW
RAAP DISCHARGE 012 SITE
RAAP DISCHARGE 013 SITE
RAAP SURFACE DISTANCE 37° 10' 57" 80° 33' 37" NEW 74.47
BLACKSBURG STROUD

3

Attachment B

Flow Frequency Memorandum

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION
West Central Regional Office
3019 Peters Creek Road Roanoke, Virginia 24019

SUBJECT: Flow Frequency Determination
Radford Army Ammunition Plant - VA0000248

FROM: Kevin Harlow, WCRO

DATE: February 22, 2010

This memo is an update of the previous flow frequency determination memo from dated January 16, 2005 concerning the subject VPDES permit. The Radford Army Ammunition Plant (RAAP) discharges via several outfalls on the New River and two outfalls on the Stroubles Creek. All of these outfalls are located near Radford, VA. Stream flow frequencies are required for several outfalls for use by the permit writer in developing effluent limitations for the VPDES permit.

The USGS has operated a continuous record gage on the New River at Radford, VA (#0317100) since 1940. The gage is approximately 6.0 miles upstream of the RAAP intake #1. The flow frequencies for the gage and discharge point are presented below. The values at the discharge points were calculated using drainage area proportions and account for the known withdrawals located between the gage and the outfalls. This analysis does not address any other withdrawals, discharges, or springs which may influence the flow in the New River between the gage and the downstream-most outfall (028) for RAAP.

New River at Radford, VA (#03171000):

Drainage Area = 2,748 mi^2

1Q10 = 465 MGD	High Flow 1Q10 = 543 MGD
7Q10 = 573 MGD	High Flow 7Q10 = 782 MGD
30Q5 = 737 MGD	HM = 1519 MGD
30Q10 = 659 MGD	High Flow 30Q10 = 1073 MGD
ANN AVG = 2453MGD	

The high flow months are January through May.

Using drainage area proportions, the river flows were projected to just above outfall 004. The withdrawals by the Radford Army Ammunition Plant (RAAP) intake #1 (Bldg. 408) and the Blacksburg, Christiansburg, VPI Water Authority (BCVPIWA) and the discharges from the Peppers Ferry STP and Christiansburg STP were incorporated into the analysis. The minimum discharged by the Peppers Ferry STP was 2.80 MGD. The withdrawal data for RAAP and the BCVPIWA were taken from the Virginia Water Use Data System for the period 2004-2009. The maximum withdrawal for RAAP #1 was 17.65 MGD while the BCVPIWA maximum withdrawal was 10.2 MGD.

New River above RAAP Outfall 004

Drainage Area = 2,791.27 mi^2

1Q10 = 449 MGD	High Flow 1Q10 = 528 MGD
7Q10 = 559 MGD	High Flow 7Q10 = 771 MGD
30Q5 = 725 MGD	HM = 1520 MGD
30Q10 = 646 MGD	High Flow 30Q10 = 1067 MGD
ANN AVG = 2468 MGD	

Projecting 004 flows to 005,

New River above RAAP Outfall 005:

Drainage Area = 2,791.541 mi^2

1Q10 = 449 MGD	High Flow 1Q10 = 528 MGD
7Q10 = 559 MGD	High Flow 7Q10 = 771 MGD
30Q5 = 725 MGD	HM = 1520 MGD
30Q10 = 646 MGD	High Flow 30Q10 = 1067 MGD
ANN AVG = 2469 MGD	

Projecting 005 flows to 006,

New River above RAAP Outfall 006:

Drainage Area = 2,791.541 mi^2

1Q10 = 449 MGD	High Flow 1Q10 = 528 MGD
7Q10 = 559 MGD	High Flow 7Q10 = 771 MGD
30Q5 = 726 MGD	HM = 1520 MGD
30Q10 = 646 MGD	High Flow 30Q10 = 1067 MGD
ANN AVG = 2469 MGD	

Projecting 006 flows to 029,

New River above RAAP Outfall 029:

Drainage Area = 2,792.557 mi^2

1Q10 = 449 MGD	High Flow 1Q10 = 529 MGD
7Q10 = 559 MGD	High Flow 7Q10 = 771 MGD
30Q5 = 726 MGD	HM = 1520 MGD
30Q10 = 646 MGD	High Flow 30Q10 = 1067 MGD
ANN AVG = 2469 MGD	

Projecting 029 flows to 026,

New River above RAAP Outfall 026:

Drainage Area = 2,792.712 mi^2

1Q10 = 449 MGD	High Flow 1Q10 = 529 MGD
7Q10 = 559 MGD	High Flow 7Q10 = 771 MGD
30Q5 = 726 MGD	HM = 1520 MGD
30Q10 = 646 MGD	High Flow 30Q10 = 1067 MGD
ANN AVG = 2470 MGD	

Projecting 026 flows to 007,

New River above RAAP Outfall 007:

Drainage Area = 2,792.726 mi^2

1Q10 = 449 MGD	High Flow 1Q10 = 529 MGD
7Q10 = 559 MGD	High Flow 7Q10 = 771 MGD
30Q5 = 726 MGD	HM = 1520 MGD
30Q10 = 646 MGD	High Flow 30Q10 = 1067 MGD
ANN AVG = 2470 MGD	

Downstream of Outfall 007, Stroubles Creek enters the New River. RAAP operates two outfalls on the Stroubles Creek which require flow frequencies. The flows in Stroubles Creek were determined using the USGS continuous record gage on the Walker Creek at Bane, VA (#03173000) and drainage area proportions. This analysis does not address any withdrawals, discharges, or springs which may influence the flows in Stroubles Creek upstream of the discharge points.

Walker Creek at Bane, VA (#03173000):

Drainage Area = 305 mi^2

1Q10 = 19 MGD	High Flow 1Q10 = 29 MGD
7Q10 = 21 MGD	High Flow 7Q10 = 37 MGD
30Q5 = 26 MGD	HM = 72 MGD
30Q10 = 24 MGD	High Flow 30Q10 = 56 MGD
ANN AVG = 207 MGD	

Stroubles Creek at Outfall 012:

Drainage Area = 23.47 mi^2

1Q10 = 1.5 MGD	High Flow 1Q10 = 2.2 MGD
7Q10 = 1.6 MGD	High Flow 7Q10 = 2.8 MGD
30Q5 = 2.0 MGD	HM = 5.5 MGD
30Q10 = 1.8 MGD	High Flow 30Q10 = 4.3 MGD
ANN AVG = 16 MGD	

Projecting 012 flows to 014,

Stroubles Creek at Outfall 014:

Drainage Area = 24.19 mi^2

1Q10 =	1.5 MGD	High Flow 1Q10 =	2.3 MGD
7Q10 =	1.7 MGD	High Flow 7Q10 =	2.9 MGD
30Q5 =	2.1 MGD	HM =	5.7 MGD
30Q10 =	1.9 MGD	High Flow 30Q10 =	4.4 MGD
ANN AVG = 16 MGD			

Adding the Stroubles Creek flow and drainage area to 007:

New River below Stroubles Creek:

Drainage Area = 2816.966 mi^2

1Q10 =	451 MGD	High Flow 1Q10 =	531 MGD
7Q10 =	561 MGD	High Flow 7Q10 =	774 MGD
30Q5 =	728 MGD	HM =	1526 MGD
30Q10 =	648 MGD	High Flow 30Q10 =	1072 MGD
ANN AVG = 2486 MGD			

Using drainage area proportions, the flows were projected to a point just above outfall 024. The RAAP #2 intake is located just upstream of 024. The maximum withdrawal during the last five years was MGD during August 1983 while the maximum high flow period withdrawal was 1.62 MGD. Lower Stroubles WWTP discharges into the New River between the New River below Stroubles Creek and Outfall 024. The minimum discharge from Lower Stroubles since 2007 was 3.92 MGD.

New River above RAAP Outfall 024:

Drainage Area = 2,862.931 mi^2

1Q10 =	463 MGD	High Flow 1Q10 =	545 MGD
7Q10 =	576 MGD	High Flow 7Q10 =	794 MGD
30Q5 =	747 MGD	HM =	1562 MGD
30Q10 =	666 MGD	High Flow 30Q10 =	1097 MGD
ANN AVG = 2535 MGD			

Projecting 024 flows to 028,

New River above RAAP Outfall 028:

Drainage Area = 2,862.946 mi^2

1Q10 =	463 MGD	High Flow 1Q10 =	545 MGD
7Q10 =	576 MGD	High Flow 7Q10 =	794 MGD
30Q5 =	747 MGD	HM =	1562 MGD
30Q10 =	666 MGD	High Flow 30Q10 =	1097 MGD
ANN AVG = 2535 MGD			

WITHDRAWAL DATA

System	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann	Ann/365	MaxDay
BCVPI-WTP	2004	196.4	208.7	208.6	214.6	211.2	193.1	205.3	216.8	224.7	215.4	200.9	196.3	2492	6.83	8.70
BCVPI-WTP	2005	195.8	195.7	201.3	212.4	206.4	208.6	206.7	216.4	235.7	231.1	202.0	209.9	2522	6.91	10.20
BCVPI-WTP	2006	210.3	207.4	216.1	218.2	215.1	210.6	204.3	227.1	215.3	212.5	199.2	189.2	2525	6.92	Unk
BCVPI-WTP	2007	199.0	197.6	204.7	197.1	202.1	198.9	209.0	240.6	239.3	236.6	193.4	193.7	4812	13.18	9.50
BCVPI-WTP	2008	208.0	203.4	209.6	209.1	197.0	203.3	203.2	228.6	218.7	218.1	207.7	197.6	2504	6.86	9.50
BCVPI-WTP	2009	194.0	191.7	201.2	203.3	202.5	194.1	198.8	189.4	219.3	212.0	193.2	190.3	2390	6.55	8.70
RAAP WTP 1	2008	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00
RAAP WTP 1	2009	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00
RAAP WTP 1	2007	464.4	442.6	497.5	464.7	484.8	492.6	470.7	394.8	491.8	495.4	487.1	447.4	5634	15.44	16.05
RAAP WTP 1	2006	508.0	390.8	467.6	445.5	473.7	464.5	473.8	488.4	502.9	487.8	474.0	491.3	5668	15.53	17.65
RAAP WTP 1	2004	463.0	440.0	445.0	427.0	420.0	419.0	369.0	444.0	432.0	437.0	414.0	423.0	5133	14.06	16.00
RAAP WTP 1	2005	773.2	699.5	754.1	809.8	845.8	880.4	849.2	840.2	733.8	805.6	763.1	766.5	9521	26.09	30.00
RAAP WTP 2	2009	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00
RAAP WTP 2	2007	37.3	36.2	38.5	35.8	36.0	32.5	35.8	37.5	35.9	38.1	36.9	45.1	446	1.22	1.45
RAAP WTP 2	2006	36.1	29.6	33.4	31.3	31.9	32.9	35.0	37.7	37.5	44.0	44.8	40.6	435	1.19	1.62
RAAP WTP 2	2005	29.7	26.4	28.8	27.3	28.6	29.7	30.9	31.7	31.1	32.4	34.1	38.5	369	1.01	1.36
RAAP WTP 2	2004	37.0	27.0	28.0	27.0	28.0	27.0	27.0	30.0	28.0	28.0	28.0	32.0	347	0.95	1.50
RAAP WTP 2	2008	44.6	39.6	40.9	38.4	39.4	32.8	34.4	40.2	30.6	32.6	32.0	35.1	441	1.21	1.58

Attachment C

Site Visit Report

COMMONWEALTH of VIRGINIA

L. Preston Bryant, Jr.
Secretary of Natural

David K. Paylor
Director

DEPARTMENT OF ENVIRONMENTAL QUALITY
Blue Ridge Regional Office
www.deq.virginia.gov

Steven A. Dietrich
Regional Director

Lynchburg Office
7705 Timberlake Road
Lynchburg, Virginia 24502
(434) 582-5120
Fax (434) 582-5125

Roanoke Office
3019 Peters Creek Road
Roanoke, Virginia 24019
(540) 562-6700
Fax (540) 562-6725

August 26, 2009

Ms. Paige W. Holt
Environmental Manager
Alliant Techsystems, Inc.
P.O. Box 1
Radford, VA 24143-0100

LTC Andy Munero
Commanding Officer
Radford Army Ammunition Plant
P.O. Box 1
Radford, VA 24143-0100

Re: Technical and Laboratory Inspection Reports
Radford Army Ammunition Plant, Bioplant Wastewater Treatment Facilities
VPDES Permit No. VA0000248

Dear Ms. Holt & LTC Munero:

Attached for your review are copies of the technical and laboratory inspection reports for the Radford Army Ammunition Plant, Bioplant wastewater treatment facilities and Central Laboratory. The inspections were conducted on June 18, 2009.

Please review the reports carefully. Note there are no recommendations for action associated with the technical report and there were no deficiencies noted during the laboratory inspection.

If you have any questions regarding these reports or the actions required, please contact me at the Blue Ridge Regional Office - Roanoke (540-562-6740).

Sincerely,

Troy Nipper
Enforcement/ Compliance Specialist, Senior

Attachments

Copies: S. C. Hale, file - DEQ/WCRO
S. G. Stell - DEQ/OWC (EPA Copy)

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
West Central Regional Office
3019 Peters Creek Road, Roanoke, Virginia 24019
(540) 562-6700 Fax (540) 562-6725
www.deq.virginia.gov

L. Preston Bryant, Jr.
Secretary of Natural Resources

David K. Paylor
Director

Steven A. Dietric
Regional Directo

September 16, 2008

LTC Jon Drushal
Commanding Officer
Radford Army Ammunition Plant
P.O. Box 1
Radford, VA 24143-0100

Re: Technical and Laboratory Inspection Reports
Radford Army Ammunition Plant, Bioplant Wastewater Treatment Facilities
VPDES Permit No. VA0000248

Dear Colonel Drushal:

Attached for your review are copies of the technical and laboratory inspection reports for the Radford Army Ammunition Plant, Bioplant wastewater treatment facilities and Central Laboratory. I conducted the inspections on July 14, 2008.

Please note that page 5 of the technical report summarizes one recommendation for action related to the wastewater treatment system. We request that you respond to this office **within 15 days** on this recommendation and provide details of actions taken and/or proposed to correct the deficiencies. All proposed actions must also include a schedule for completion.

With regard to the laboratory inspection, a deficiency was noted with the Laboratory Records section. The deficiency is discussed in detail on the first page of the laboratory report.

In view of the significance attached to proper sampling and analysis of samples for use in complying with the terms of the facility's permit, please review the attached report and make the required corrections. **Within 15 days**, you are required to submit a letter documenting that corrective action has been taken.

Also, I would like to inform you of the new electronic option now available for submission of your facility's Discharge Monitoring Report (DMR) data. The Department of Environmental Quality (DEQ) now offers electronic DMR (e-DMR) submittal as an alternative to the current paper DMR submittal process. Using an electronic process for submitting effluent quality data can represent significant labor savings while increasing the timeliness, accuracy, and overall reliability of this information. The e-DMR software utilizes a universal file format to provide quick and easy transmission of data, and provides three methods for online data reporting. For more information on the e-DMR reporting system, including the participation package download, answers to frequently asked questions, and link to the e-DMR demonstration site, please visit the following website; http://www.deq.virginia.gov/water/edmrfaq.html.

If you have any questions regarding these reports or the actions required, please contact me at the West Central Regional Office, Roanoke (540-562-6829).

Sincerely,

Gerald A. Duff
Compliance Inspector Senior

Attachments

Copies: S. C. Hale, file - DEQ/WCRO
S. G. Stell - DEQ/OWC (EPA Copy)
LTC Jon Drushal - Radford Army Ammunition Plant

PLANT OPERATION AND MAINTENANCE

1. Class and number of certified operators: (facility wide) — **I – 9 (5 assigned to Bioplant), II – 9, III – 9, IV - 1 One Class I is usually at the Bioplant. If not, a Class I operator can be paged**
2. Hours per day plant is manned: — **24 hours/day, 7 days/week**
3. Describe adequacy of staffing. — [X] Good [ ] Average [ ] Poor
4. Does the plant have an established program for training personnel? [X] Yes [ ] No
5. Describe the adequacy of the training program. — [X] Good* [ ] Average [ ] Poor
6. Are preventive maintenance tasks scheduled? — [X] Yes [ ] No
7. Describe the adequacy of maintenance. — [X] Good [ ] Average [ ] Poor
8. Does the plant experience any organic/hydraulic overloading? — [ ] Yes [X] No
   If yes, identify cause and impact on plant:
9. Any bypassing since last inspection? — [ ] Yes [X] No
10. Is the standby electric generator operational? — [X] Yes* [ ] No [ ] NA
11. Is the STP alarm system operational? — [X] Yes [ ] No [ ] NA
12. How often is the standby generator exercised? **Weekly**
    Power Transfer Switch? **Once/six months** Alarm System? **Weekly**
13. When was the cross connection control device last tested on the potable water service? **07/25/2008**
14. Is sludge being disposed in accordance with the approved sludge disposal plan? — [X] Yes* [ ] No
15. Is septage received by the facility? — [ ] Yes [X] No
    Is septage loading controlled? — [ ] Yes [ ] No [X] NA
    Are records maintained? — [ ] Yes [ ] No [X] NA
16. Overall appearance of facility: — [X] Good [ ] Average [ ] Poor

Comments:

5. **The training consists of the Sacramento 100-Hour Course, VPI short school, HAZMAT transportation, and a mandatory annual safety training program.**

10. **The facility has two (2) power sources provided to the facility from AEP. In addition, the facility has installed a standby emergency generator capable of powering the influent pumps.**

14. **Sludge from this process is brought to the local transfer station and disposed of at the New River Resource Authority in Dublin, VA.**

* Responses with this symbol should be of particular concern and the investigator may want to address the problem in more detail in the Comments Section.

file

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
West Central Regional Office
3019 Peters Creek Road, Roanoke, Virginia 24019
Telephone (540) 562-6700, Fax (540) 562-6725
www.deq.virginia.gov

L. Preston Bryant, Jr
Secretary of Natural Resources

David K. Paylor
Director

Steven A. Dietrich
Regional Director

September 10, 2007

Lt. Col. Jon R. Drushal
RAAP
Rt. 114
P.O. Box 1
Radford, VA 24141

P. W. Holt
Alliant TechSystems
Rt. 114
P.O. Box 1
Radford, VA 24141

Re: Technical Inspection Report for Ancillary Outfalls
Radford Army Ammunition Plant
VPDES Permit No. VA0000248 (Outfalls 401, 004, 005, 006, 007, 012, 014, 017, 024)

Dear Lt. Colonel Drushal and Ms. Holt:

Attached for your review is a copy of the technical inspection report for the wastewater treatment facilities associated with the above referenced outfalls at the Radford Army Ammunition Plant. The inspection was conducted on July 19, 2007.

Please note that page 5 of the technical inspection report summarizes the recommendations for action related to the inspection of the treatment systems. We request that you respond to this office within **15 days** on these recommendations and provide details of actions taken and/or proposed to correct the deficiencies. For any proposed action, please provide a schedule of completion for the item.

Also, I would like to inform you of the new electronic option now available for submission of your facility's Discharge Monitoring Report (DMR) data. The Department of Environmental Quality (DEQ) now offers electronic DMR (e-DMR) submittal as an alternative to the current paper DMR submittal process. Using an electronic process for submitting effluent quality data can represent significant labor savings while increasing the timeliness, accuracy, and overall reliability of this information. The e-DMR software utilizes a universal file format to provide quick and easy transmission of data, and provides three methods for online data reporting. For more information on the e-DMR reporting system, including the participation package download, answers to frequently asked questions, and link to the e-DMR demonstration site, please visit the following website; http://www.deq.virginia.gov/water/edmrfaq.html.

Should you have any questions regarding the report, please contact me at the West Central Regional Office, Roanoke at (540) 562-6722.

Sincerely,

Ryan L. Hendrix
Compliance Inspector Senior

Attachments

Copies: S. C. Hale, R. L. Hendrix, File – DEQ/WCRO
S. G. Stell – DEQ/OWC

Problems identified at last inspection:	Corrected	Not Corrected
1. The P.S. 401 mixer appears to have a warped shaft. Submit a plan of action to repair or replace the unit and, if necessary include a schedule to complete the project.	[X]	[ ]
2. The grass/brush needs removed from the berms of the P.S. 005 sludge drying/ storage area. Notify this office when this project has been completed and/or submit a schedule to complete this project.	[X]	[ ]
3. The P.S. 017 basin has been replaced with a larger basin that is approximately 10 ft. deep. The overflow area is unlined and lacking rip rap. It is recommended that the overflow be lined with some type of material to prevent erosion in the event of a discharge.	[X]	[ ]
4. The brush and grass on the berms of the P.S. 024 ponds are in need of cutting. Notify this office when this project has been completed and/or submit a schedule to complete this project.	[X]	[ ]

SUMMARY

Comments:

— **The estimated flow reporting for outfall 004 should be checked occasionally to verify accuracy (i.e. bucket and stop watch method).**

Recommendations for action:

— **The vegetation and debris around the PS 004 outfall needs to be removed and maintained to ensure representative sampling can be achieved. Submit documentation confirming the removal of this material.**

— **Since the oleum plant is no longer in operation, certain systems designed to treat the wastewater at PS 005 are no longer in operation. The neutralization system and the sludge drying/storage pit are no longer functional. Subsequently, the Operations and Maintenance (O&M) manual for PS 005 requires updating to demonstrate this operational modification. Please make the necessary O&M revisions to address these issues and submit the revisions to Kevin Harlow, Environmental Engineer, for approval.**

— **The dikes surrounding the sedimentation basins on PS 004, PS 005, PS 017, and PS 024 are overgrown with vegetation. The vegetation needs to be maintained more frequently, so the dikes can be readily and frequently inspected for burrowing animals and any other conditions which may compromise their integrity. Submit a plan of action and schedule to address this issue.**

s identified at last inspection:	Corrected	Not Corrected
wo pumps (#3 and #5) at the influent pump station were leaking and the drive shafts wobbling. This problem was identified during the last inspection.	[X]	[ ]
Two diffusers in the east side of the EQ remain broken from the previous inspection. Air continues to blow out at the influent end of the diffuser lines causing the second line of diffusers to receive no air.	[X]	[ ]
3. Repair or replace the leaking generator radiator.	[X]	[ ]
4. Store the nutrient supplement diaphragm transfer pump located behind the pH adjustment building when the unit is not in use.	[X]	[ ]
5. Repair or replace the broken chain drive for the out of order outdoor rotating biological contactor (RBC) and return to service.	[X]	[ ]

SUMMARY

Recommendations for action:

1. **Repair the leaking check valve for the #4 pump at the influent pump station.**

ARTMENT OF ENVIRONMENTAL QUALITY – WEST CENTRAL REGIONAL OFFICE
LABOF ORY INSPECTION REPORT SUM ARY
10/01

ITY ME:	Radford Army Ammunition Plant Bioplant and Central Laboratories	VPDES NO:	VA0000248	INSPECTION DATE:	07/14/2008

LABORATORY RATING		NO DEFICIENCIES
	X	DEFICIENCIES

LABORATORY RECORDS

A deficiency was noted with the Laboratory Records section. The following item must be corrected.

- The analytical test method for the temperature parameter currently employed by the Bioplant staff must be cited on the bench sheets. A letter from Lou Martin dated June 4, 2007 indicated this deficiency had been corrected. Based on the bench sheets provided to the inspector, this deficiency remains. Please cite one of the currently approved methods for this parameter on the facility's bench sheets. Currently approved tests are from Standard Methods for the Examination of Water and Wastewater, #2550, for the 18th, 19th, 20th, 21st Editions or #2550-00 for the online version. The particular edition in use by the facility's staff must be cited on the bench sheets. Please submit a photocopy of one completed pH Meter Maintenance/Measurement bench sheet showing all corrected actions have been taken.

GENERAL SAMPLING AND ANALYSIS

No deficiencies were noted with the General Sampling and Analysis section.

LABORATORY EQUIPMENT

No deficiencies were noted with the Laboratory Equipment section.

PARAMETER SUMMARY

pH

No deficiencies were noted for the analysis of the pH parameter.

pH Automated Electrode

No deficiencies were noted for the analysis of the pH Automated Electrode parameter.

Temperature

No deficiencies were noted for the analysis of the Temperature parameter.

Attachment D

Ambient Water Quality Information

- STORET Data (Station 4ASRE022.71)
- 2008 305b Watershed Summary Report (Excerpt)

STORET Data
Station_ID 9-NEW081.72 Stat. Desc. RT. 11 BRIDGE AT RADFORD

Dry Season

Date	pH	Temp (C)	Hardness
11/4/97	7.77	13.9	57.3
11/20/97	7.9	9	
12/2/97	7.81	7	
6/4/98	7.84	19	
7/28/98	7.78	23.4	
8/12/98	7.79	23.4	
9/1/98	7.73	23.3	
10/20/98	7.98	17.1	
11/17/98	7.78	12.8	
12/8/98	7.38	12.4	
6/22/99	7.92	18.5	
7/26/99	7.9	22.5	
8/17/99	7.71	23	
9/21/99	7.9	19.1	
10/13/99	7.84	16.9	
11/16/99	7.51	9	
6/26/00	7.68	20.9	62
7/26/00	7.55	20.6	72.6
8/16/00	7.63	23.7	72.4
9/19/00	7.49	19.1	75.9
10/18/00	7.71	16.2	83.4
11/29/00	8.01	8.5	63.3
12/27/00	8.3	6.5	65.4
6/25/01	7.27	17.3	114
7/17/01	8.1	21.8	52.1
8/15/01	7.61	22.1	68.9
9/11/01	7.72	21.4	57.6
10/25/01	8.33	17.5	40.1
12/18/01	8.48	10.6	44.5
6/25/02	7.28	19.79	79.2
7/30/02	7.23	23.08	74.5
8/20/02	7.23	22.9	62.1
9/19/02	7.61	21.75	101
10/31/02	7.13	13.2	68.7
11/20/02	7.6	10.55	106
12/12/02	7.64	7.02	69.1
6/12/03	7.79	17.26	103
8/19/03	7.37	22.46	
10/27/03	7.72	14.41	
12/22/03	7.6	8.2	
6/22/04	7.47	20.9	
8/25/04	7.63	23.3	
10/27/04	7.1	14.3	
12/1/04	7.45	11.11	
6/7/05	7.8	17.7	
8/10/05	7.2	24	
10/27/05	7.8	13.1	
12/19/05	7.5	5.4	
6/8/06	7	17.6	
8/14/06	7.6	23.2	
10/5/06	7.2	18.9	
12/14/06	8.2	6.2	
7/17/07	7.7	23.1	
9/27/07	8.2	22.2	
11/29/07	8.1	9.7	

Wet Season

Date	pH	Temp (C)	Hardness
1/22/98	7.65	6	
2/12/98	8.23	5.5	
3/19/98	8	7.9	
4/15/98	7.71	12.4	
5/11/98	8.04	14.1	
1/28/99	7.89	6.4	
2/10/99	8.16	6.3	
3/30/99	8.51	8.1	
4/26/99	8.18	12.5	
5/10/99	8.2	13.8	
1/26/00	7.52	1.9	65.1
2/14/00	7.61	4.3	60.9
3/29/00	7.94	11.4	61
4/6/00	7.99	10.6	59
5/24/00	7.9	16.3	92
1/17/01	8.21	3.3	75.3
2/6/01	8.4	8.2	155
3/8/01	8.49	6.1	28.1
4/10/01	7.89	13.1	73.4
5/17/01	8.09	13.5	112
1/23/02	8.01	6	67.8
2/25/02	8.24	8.1	47
3/18/02	8.09	8.5	109
4/30/02	7.72	13.59	81.2
5/30/02	7.58	16.98	89.3
1/22/03	8.05	4.93	93.8
2/11/03	8.23	3.1	73.4
3/10/03	7.93	8.27	91.4
4/10/03	8.12	10.56	178
2/18/04	7.75	5.14	
4/21/04	7.59	13.73	
2/17/05	8.06	4.63	
4/19/05	8.11	12.08	
2/21/06	7.8	5.1	
4/6/06	6.8	9.2	
1/17/07	8	7.1	
3/20/07	8.2	8.8	
5/9/07	8.3	14.8	
1/23/08	8	5.6	
3/5/08	8.1	5.9	

Statistic	pH	Temp (C)	Hardness
Average			78.19
10th %'ile	7.32		
90th %'ile	8.22		
90% (Wet)		13.83	
90% (Dry)		23.26	

Due Date	CburgSTP	LowerStroubles	Peppers Ferry
10-Jan-2007	1.93	5.09	4.40
10-Feb-2007	2.25	6.11	5.10
10-Mar-2007	2.03	5.84	4.00
10-Apr-2007	2.47	6.52	4.90
10-May-2007	2.32	6.07	4.50
10-Jun-2007	2.07	5.05	3.50
10-Jul-2007	2.01	4.16	3.30
10-Aug-2007	2.21	4.04	3.20
10-Sep-2007	1.76	4.58	2.80
10-Oct-2007	1.91	5.15	3.00
10-Nov-2007	2.32	5.37	3.90
10-Dec-2007	1.78	4.84	3.20
10-Jan-2008	1.93	4.42	3.30
10-Feb-2008	1.87	4.78	3.60
10-Mar-2008	1.98	5.51	4.10
10-Apr-2008	1.98	4.97	3.80
10-May-2008	2.24	6.05	4.70
10-Jun-2008	1.98	4.86	3.80
10-Jul-2008	1.83	3.92	3.00
10-Aug-2008	1.96	4.05	3.20
10-Sep-2008	2.07	4.26	3.50
10-Oct-2008	2.12	5.13	3.80
10-Nov-2008	1.89	5.05	3.70
10-Dec-2008	1.97	4.75	3.70
10-Jan-2009	2.31	4.77	4.40
10-Feb-2009	2.30	5.00	3.70
10-Mar-2009	1.93	5.15	4.30
10-Apr-2009	2.58	5.72	5.90
10-May-2009	2.38	5.56	5.30
10-Jun-2009	3.93	6.31	6.10
10-Jul-2009	3.56	5.81	6.80
10-Aug-2009	2.77	4.47	3.60
10-Sep-2009	2.17	4.78	3.30
10-Oct-2009	2.29	4.83	3.80
10-Nov-2009	2.18	5.14	3.80
10-Dec-2009	2.79	6.07	5.10
10-Jan-2010	3.69	7.17	7.40
10-Feb-2010	3.30	6.55	6.90
Minimum	1.76	3.92	2.80

STORET Data - Station 09-NEW081.72
Parameters with Water Quality Standards

Parameter_Name	Count	Average
ANTIMONYSB,DISS UG/L	2	0.00
ARSENIC AS,DISS UG/L	2	0.35
CADMIUM CD,DISS UG/L	2	0.00
CHLORIDE TOTAL MG/L	43	7.96
CHROMIUMCR,DISS UG/L	2	0.18
COPPER CU,DISS UG/L	2	0.65
LEAD PB,DISS UG/L	2	0.00
MANGNESEMN,DISS UG/L	2	14.32
MERCURY HG,DISS UG/L	1	0.00
NICKEL NI,DISS UG/L	2	0.39
NO3-N TOTAL MG/L	66	0.89
SILVER AG,DISS UG/L	2	0.00
SULFATE SO4-TOT MG/L	43	7.87
THALLIUMTL,DISS UG/L	2	0.00
ZINC ZN,DISS UG/L	2	3.68

2008 Impaired Waters

Categories 4 and 5 by DCR Watershed*

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

New River Basin

Fact Sheet prepared for DCR Watershed: N22*

Cause Group Code: **N29R-01-PCB** **New River, Claytor Lake, Peak Creek and Reed Creek**

Location: The impairment begins at the I-77 bridge crossing the New River and extends downstream to the VA/WVA State Line and includes the tributaries Peak Creek and Reed Creek as described below.

City / County: Giles Co. Montgomery Co. Pulaski Co. Radford City

Use(s): Fish Consumption

Cause(s) / VA Category: PCB in Fish Tissue/ 5A

The Virginia Department of Health (VDH) issued a fish consumption advisory on August 6, 2001 for polychlorinated biphenyls (PCBs) for the lower portion of the New River (Rt. 114 Bridge downstream to the VA / WVA State Line - 52.0 miles) based on fish tissue collections from Carp. An Advisory extension to Claytor dam was issued 8/06/2003 (11.47 miles) recommends that no carp be consumed in these waters and no more than two meals per month of flathead and channel catfish. The VDH PCB Fish Consumption Advisory was further extended upstream on the New River (13 miles) to the I-77 Bridge to include the lower portions of Peak Creek (4.95 miles), Reed Creek (16.35 miles) and Claytor Lake (4,287 acres) on 12/02/2004. The VDH advises consumption should not exceed two meals per month for carp and smallmouth bass. The VDH level of concern is 50 parts per billion (ppb) in fish tissue.

There are eight fish tissue collection sites within the 2008 data window reporting exceedences of the WQS based 54 ppb fish tissue value (TV). These data are reviewed by the VDH in making an advisory determination. A complete listing of collection sites and associated fish tissue data are available at http://www.deq.virginia.gov/fishtissue/fishtissue.html. A more detailed presentation of the data can also be found using an interactive mapping application at http://gisweb.deq.state.va.us/. The VDH Advisory information is also available via the web at http://www.vdh.virginia.gov/Epidemiology/PublicHealthToxicology/Advisories/.

Assessment Unit / Water Name / Description	Cause Category / Name		Cycle First Listed	TMDL Schedule	Size
VAW-N22R_NEW01A00 / New River Lower 1 / The New River mainstem from the confluence of Back Creek downstream to the Watershed Boundary at the Montgomery / Giles County Line.	5A	PCB in Fish Tissue	2002	2014	3.47
VAW-N22R_NEW02A00 / New River Lower 2 / New River mainstem from the Radford Army Arsenal Plant downstream intake near Whitethorne downstream to the confluence of Back Creek.	5A	PCB in Fish Tissue	2002	2014	2.88
VAW-N22R_NEW03A00 / New River Middle 1 / New River mainstem from the confluence of Stroubles Creek downstream to the Radford Army Arsenal Plant downstream water intake near Whitethorne.	5A	PCB in Fish Tissue	2002	2014	4.52
VAW-N22R_NEW04A00 / New River Middle 2 / New River mainstem from the Radford Army Arsenal Plant upstream intake/Pepper's Ferry Region POTW outfall downstream to the confluence of Stroubles Creek.	5A	PCB in Fish Tissue	2002	2014	2.35
VAW-N22R_NEW05A00 / New River Upper / New River mainstem from the Blacksburg /Christiansburg /VPI Authority intake at Rt. 114 downstream to the Radford Army Arsenal Plant upstream intake / Pepper's Ferry Regional POTW outfall.	5A	PCB in Fish Tissue	2002	2014	1.77

2008 Impaired Waters

Categories 4 and 5 by DCR Watershed*

New River Basin

Fact Sheet prepared for DCR Watershed: N22*

Assessment Unit / Water Name / Description	Cause Category / Name	Cycle First Listed	TMDL Schedule	Size
VAW-N22R_NEW06A00 / New River Upper 2 / New River mainstem from the Watershed Boundary at the Crab Creek confluence downstream to the Blacksburg /Christiansburg /VPI Authority intake.	5A PCB in Fish Tissue	2006	2014	1.73

New River, Claytor Lake, Peak Creek and Reed Creek **DCR Watershed: N22***	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCB in Fish Tissue - Total Impaired Size by Water Type:			**16.72**

Sources:

Source Unknown

*Header Information: Location, City/County, Cause/VA Category and Narratives; describe the entire extent of the Impairment. Sizes presented are for Assessment Units (AUs) lying within the DCR Watershed boundary noted above.

Attachment E

Wasteload and Limit Calculations

- Mixing Zone Calculations (MIXER)
- Wasteload Allocation Spreadsheet
- STATS Program Results
- DO Model

RAAP; VA0000248; Form 2C Data with Water Quality Standards

Param	Units	004	005	006	007	014	024	026	029
Copper, Tot.	ug/l				26.7				12.7
Iron, Tot.	mg/l		0.102	0.144	0.305			0.15	
Lead, Tot.	ug/l				1.2				26.2
Manganese, Tot.	mg/l				0.055				
Nickel, Tot.	ug/l				38.7				10
Zinc, Tot.	ug/l				10				19.9
2,4-Dinitrotoluene	ug/l								38.9
Ammonia	mg/l							13.6	
Bis(2-Ethylhexyl) Phthalate	mg/l	0.035							
Chromium, Tot.	ug/l				9.5				5
Fecal	col/100ml	29							
Sulfate	mg/l	38.6	7	13.3	1260	32.2		43.4	76.9

VA0000248 - Form 2F Data for Parameters with Water Quality Standards

Param	Units	004	012	014	041	050	054
Ammonia	mg/L				0.27	0.25	
Chrom VI, Diss.	mg/l	0.003	0.002		0.003		0.002
Copper, Tot.	mg/l						
Lead, Tot.	mg/l						
Nickel, Tot.	mg/l						
Zinc, Diss	mg/l					0.054	
Zinc, Tot.	mg/l					0.095	

VA0000248 - OCPSF Flows
Outfalls 007 & 029

Month	029 Flow (gal/day)	029 OCPSF Flow (gal/day)	007 Flow (gal/day)	007 OCPSF Flow (gal/day)	007 non-OCPSF Flow (gal/day)
Jun-05	899291	636281	4489797	2606473	1883324
Jul-05	760072	537492	3915387	1400047	2515340
Aug-05	852921	613435	4770291	2674945	2095346
Sep-05	737919	531941	4796800	2833788	1963012
Oct-05	849969	640287	4945807	3055013	1890794
Nov-05	1041009	816119	4592533	2941763	1650770
Dec-05	1116211	896751	3711516	2317151	1394365
Jan-06	1208911	974774	4168000	2614363	1553637
Feb-06	1203581	956365	4399786	2694349	1705437
Mar-06	1141504	907666	4902162	2960088	1942074
Apr-06	952730	731660	4189833	2885088	1304745
May-06	912564	671746	3624871	2660985	963886
Jun-06	921099	590886	5013800	3128181	1885619
Jul-06	918756	705676	4343484	2311247	2032237
Aug-06	820639	612439	4169000	2811575	1357425
Sep-06	906980	697621	4882233	2627486	2254747
Oct-06	941808	681310	4883968	2873827	2010141
Nov-06	1087913	826969	4505300	2434110	2071190
Dec-06	1080432	808220	4517733	2426062	2091671
Jan-07	1263958	1063731	4533613	2279303	2254310
Feb-07	1216571	1029713	4434214	2343072	2091142
Mar-07	1203107	1036180	4605354	2347877	2257477
Apr-07	1040604	855202	4473866	1959062	2514804
May-07	877592	743578	4304903	1982083	2322820
Jun-07	817560	702578	4883534	2310750	2572784
Jul-07	899003	792507	4924097	2648805	2275292
Aug-07	710099	627265	2769258	1658983	1110275
Sep-07	767456	641898	5177267	2548739	2628528
Oct-07	835556	655811	4935548	2526839	2408709
Nov-07	847429	671404	4265467	2356148	1909319
Dec-07	796076	627690	3990258	2124763	1865495
Jan-08	937345	709758	4602967	2265790	2337177
Feb-08	862821	682865	4250635	2182921	2067714
Mar-08	820027	654729	4308967	2400811	1908156
Apr-08	815723	635693	4566433	2364714	2201719
May-08	757906	563772	4665419	2289114	2376305
Jun-08	739511	488928	4603867	2110667	2493200
Jul-08	879861	617535	3657709	1869967	1787742
Aug-08	822786	551278	4813613	2416548	2397065
Sep-08	650157	464092	4737800	2329186	2408614
Oct-08	791351	598312	4989033	2332980	2656053
Nov-08	802355	651129	4705767	2147632	2558135
Dec-08	1120685	984027	4129742	1929029	2200713
Jan-09	1143765	991510	4373387	2221201	2152186
Feb-09	979988	836628	4182071	2214219	1967852
Mar-09	1028401	882473	4121774	2113565	2008209
Apr-09	886130	705643	3939833	2311725	1628108
Average	929109	729863	4441887	2400916	2040972

Mixing Zone Predictions for VA0000248 - 004

Effluent Flow = 0.04 MGD
Stream 7Q10 = 559 MGD
Stream 30Q10 = 646 MGD
Stream 1Q10 = 449 MGD
Stream slope = 0.001 ft/ft
Stream width = 550 ft
Bottom scale = 3
Channel scale = 1

Mixing Zone Predictions @ 7Q10

Depth = 2.1898 ft
Length = 149513.22 ft
Velocity = .7185 ft/sec
Residence Time = 2.4084 days

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than 83.04% of the 7Q10 is used.

Mixing Zone Predictions @ 30Q10

Depth = 2.389 ft
Length = 138982.26 ft
Velocity = .7611 ft/sec
Residence Time = 2.1135 days

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than 94.63% of the 30Q10 is used.

Mixing Zone Predictions @ 1Q10

Depth = 1.9193 ft
Length = 166987.39 ft
Velocity = .6585 ft/sec
Residence Time = 70.4429 hours

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than 1.42% of the 1Q10 is used.

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: RAAP - Outfall 004 Permit No.: VA0000248

Receiving Stream: New River Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO3) =	78	mg/L
90% Temperature (Annual) =	23.3	deg C
90% Temperature (Wet season) =	13.8	deg C
90% Maximum pH =	8.22	SU
10% Maximum pH =	7.32	SU
Tier Designation (1 or 2) =	2	
Public Water Supply (PWS) Y/N? =	y	
Trout Present Y/N? =	y	
Early Life Stages Present Y/N? =	y	

Stream Flows

1Q10 (Annual) =	449	MGD
7Q10 (Annual) =	559	MGD
30Q10 (Annual) =	646	MGD
1Q10 (Wet season) =	528	MGD
30Q10 (Wet season)	1067	MGD
30Q5 =	725	MGD
Harmonic Mean =	1520	MGD

Mixing Information

Annual - 1Q10 Mix =	1.42	%
- 7Q10 Mix =	83.04	%
- 30Q10 Mix =	94.63	%
Wet Season - 1Q10 Mix =	100	%
- 30Q10 Mix =	100	%

Effluent Information

Mean Hardness (as CaCO3) =	78	mg/L
90% Temp (Annual) =	23.3	deg C
90% Temp (Wet season) =	13.8	deg C
90% Maximum pH =	8.22	SU
10% Maximum pH =	7.32	SU
Discharge Flow =	0.04	MGD

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenapthene	0	--	--	6.7E+02	9.9E+02	--	--	1.2E+07	1.8E+07	--	--	6.7E+01	9.9E+01	--	--	1.2E+06	1.8E+06	--	--	1.2E+06	1.8E+06
Acrolein	0	--	--	6.1E+00	9.3E+00	--	--	1.1E+05	1.7E+05	--	--	6.1E-01	9.3E-01	--	--	1.1E+04	1.7E+04	--	--	1.1E+04	1.7E+04
Acrylonitrile[c]	0	--	--	5.1E-01	2.5E+00	--	--	1.9E+04	9.5E+04	--	--	5.1E-02	2.5E-01	--	--	1.9E+03	9.5E+03	--	--	1.9E+03	9.5E+03
Aldrin [c]	0	3.0E+00	--	4.9E-04	5.0E-04	4.8E+02	--	1.9E+01	1.9E+01	7.5E-01	--	4.9E-05	5.0E-05	8.4E+03	--	1.9E+00	1.9E+00	4.8E+02	--	1.9E+00	1.9E+00
Ammonia-N (mg/l) (Yearly)	0	3.68E+00	9.86E-01	--	--	5.9E+02	1.5E+04	--	--	9.20E-01	2.46E-01	--	--	1.0E+04	4.0E+03	--	--	5.9E+02	4.0E+03	--	--
Ammonia-N (mg/l) (High Flow)	0	3.68E+00	1.74E+00	--	--	4.9E+04	4.6E+04	--	--	9.20E-01	4.34E-01	--	--	1.2E+04	1.2E+04	--	--	1.2E+04	1.2E+04	--	--
Anthracene	0	--	--	8.3E+03	4.0E+04	--	--	1.5E+08	7.3E+08	--	--	8.3E+02	4.0E+03	--	--	1.5E+07	7.3E+07	--	--	1.5E+07	7.3E+07
Antimony	0	--	--	5.6E+00	6.4E+02	--	--	1.0E+05	1.2E+07	--	--	5.6E-01	6.4E+01	--	--	1.0E+04	1.2E+06	--	--	1.0E+04	1.2E+06
Arsenic	0.35	3.4E+02	1.5E+02	1.0E+01	--	5.4E+04	1.7E+06	1.7E+05	--	8.5E+01	3.8E+01	1.3E+00	--	9.5E+05	5.2E+05	1.7E+04	--	5.4E+04	5.2E+05	1.7E+04	--
Barium	0	--	--	2.0E+03	--	--	--	3.6E+07	--	--	--	2.0E+02	--	--	--	3.6E+06	--	--	--	3.6E+06	--
Benzene [c]	0	--	--	2.2E+01	5.1E+02	--	--	8.4E+05	1.9E+07	--	--	2.2E+00	5.1E+01	--	--	8.4E+04	1.9E+06	--	--	8.4E+04	1.9E+06
Benzidine[c]	0	--	--	8.6E-04	2.0E-03	--	--	3.3E+01	7.6E+01	--	--	8.6E-05	2.0E-04	--	--	3.3E+00	7.6E+00	--	--	3.3E+00	7.6E+00
Benzo (a) anthracene [c]	0	--	--	3.8E-02	1.8E-01	--	--	1.4E+03	6.8E+03	--	--	3.8E-03	1.8E-02	--	--	1.4E+02	6.8E+02	--	--	1.4E+02	6.8E+02
Benzo (b) fluoranthene [c]	0	--	--	3.8E-02	1.8E-01	--	--	1.4E+03	6.8E+03	--	--	3.8E-03	1.8E-02	--	--	1.4E+02	6.8E+02	--	--	1.4E+02	6.8E+02
Benzo (k) fluoranthene [c]	0	--	--	3.8E-02	1.8E-01	--	--	1.4E+03	6.8E+03	--	--	3.8E-03	1.8E-02	--	--	1.4E+02	6.8E+02	--	--	1.4E+02	6.8E+02
Benzo (a) pyrene [c]	0	--	--	3.8E-02	1.8E-01	--	--	1.4E+03	6.8E+03	--	--	3.8E-03	1.8E-02	--	--	1.4E+02	6.8E+02	--	--	1.4E+02	6.8E+02
Bis2-Chloroethyl Ether[c]	0	--	--	3.0E-01	5.3E+00	--	--	1.1E+04	2.0E+05	--	--	3.0E-02	5.3E-01	--	--	1.1E+03	2.0E+04	--	--	1.1E+03	2.0E+04
Bis2-Chloroisopropyl Ether	0	--	--	1.4E+03	6.5E+04	--	--	2.5E+07	1.2E+09	--	--	1.4E+02	6.5E+03	--	--	2.5E+06	1.2E+08	--	--	2.5E+06	1.2E+08
Bis 2-Ethylhexyl Phthalate[c]	0	--	--	1.2E+01	2.2E+01	--	--	4.6E+05	8.4E+05	--	--	1.2E+00	2.2E+00	--	--	4.6E+04	8.4E+04	--	--	4.6E+04	8.4E+04
Bromoform [c]	0	--	--	4.3E+01	1.4E+03	--	--	1.6E+06	5.3E+07	--	--	4.3E+00	1.4E+02	--	--	1.6E+05	5.3E+06	--	--	1.6E+05	5.3E+06
Butylbenzylphthalate	0	--	--	1.5E+03	1.9E+03	--	--	2.7E+07	3.4E+07	--	--	1.5E+02	1.9E+02	--	--	2.7E+06	3.4E+06	--	--	2.7E+06	3.4E+06
Cadmium	0	3.0E+00	9.3E-01	5.0E+00	--	4.8E+02	1.1E+04	9.1E+04	--	7.4E-01	2.3E-01	5.0E-01	--	8.3E+03	3.3E+03	9.1E+03	--	4.8E+02	3.3E+03	9.1E+03	--
Carbon Tetrachloride [c]	0	--	--	2.3E+00	1.6E+01	--	--	8.7E+04	6.1E+05	--	--	2.3E-01	1.6E+00	--	--	8.7E+03	6.1E+04	--	--	8.7E+03	6.1E+04
Chlordane [c]	0	2.4E+00	4.3E-03	8.0E-03	8.1E-03	3.8E+02	5.0E+01	3.0E+02	3.1E+02	6.0E-01	1.1E-03	8.0E-04	8.1E-04	6.7E+03	1.5E+01	3.0E+01	3.1E+01	3.8E+02	1.5E+01	3.0E+01	3.1E+01
Chloride	7960	8.6E+05	2.3E+05	2.5E+05	--	1.4E+08	2.6E+09	4.4E+09	--	2.2E+05	6.3E+04	3.2E+04	--	2.4E+09	7.8E+08	4.4E+08	--	1.4E+08	7.8E+08	4.4E+08	--
TRC	0	1.9E+01	1.1E+01	--	--	3.0E+03	1.3E+05	--	--	4.8E+00	2.8E+00	--	--	5.3E+04	3.8E+04	--	--	3.0E+03	3.8E+04	--	--
Chlorobenzene	0	--	--	1.3E+02	1.6E+03	--	--	2.4E+06	2.9E+07	--	--	1.3E+01	1.6E+02	--	--	2.4E+05	2.9E+06	--	--	2.4E+05	2.9E+06

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane[c]	0	--	--	4.0E+00	1.3E+02	--	--	1.5E+05	4.9E+06	--	--	4.0E-01	1.3E+01	--	--	1.5E+04	4.9E+05	--	--	1.5E+04	4.9E+05
Chloroform	0	--	--	3.4E+02	1.1E+04	--	--	6.2E+06	2.0E+08	--	--	3.4E+01	1.1E+03	--	--	6.2E+05	2.0E+07	--	--	6.2E+05	2.0E+07
2-Chloronaphthalene	0	--	--	1.0E+03	1.6E+03	--	--	1.8E+07	2.9E+07	--	--	1.0E+02	1.6E+02	--	--	1.8E+06	2.9E+06	--	--	1.8E+06	2.9E+06
2-Chlorophenol	0	--	--	8.1E+01	1.5E+02	--	--	1.5E+06	2.7E+06	--	--	8.1E+00	1.5E+01	--	--	1.5E+05	2.7E+05	--	--	1.5E+05	2.7E+05
Chlorpyrifos	0	8.3E-02	4.1E-02	--	--	1.3E+01	4.8E+02	--	--	2.1E-02	1.0E-02	--	--	2.3E+02	1.4E+02	--	--	1.3E+01	1.4E+02	--	--
Chromium III	0	4.6E+02	6.0E+01	--	--	7.5E+04	7.0E+05	--	--	1.2E+02	1.5E+01	--	--	1.3E+06	2.1E+05	--	--	7.5E+04	2.1E+05	--	--
Chromium VI	0	1.6E+01	1.1E+01	--	--	2.6E+03	1.3E+05	--	--	4.0E+00	2.8E+00	--	--	4.5E+04	3.8E+04	--	--	2.6E+03	3.8E+04	--	--
Chromium, Total	0.18	--	--	1.0E+02	--	--	--	1.8E+06	--	--	--	1.0E+01	--	--	--	1.8E+05	--	--	--	1.8E+05	--
Chrysene[c]	0	--	--	3.8E-03	1.8E-02	--	--	1.4E+02	6.8E+02	--	--	3.8E-04	1.8E-03	--	--	1.4E+01	6.8E+01	--	--	1.4E+01	6.8E+01
Copper	0.65	1.1E+01	7.2E+00	1.3E+03	--	1.6E+03	7.7E+04	2.4E+07	--	3.1E+00	2.3E+00	1.3E+02	--	2.8E+04	2.3E+04	2.4E+06	--	1.6E+03	2.3E+04	2.4E+06	--
Cyanide, Free	0	2.2E+01	5.2E+00	1.4E+02	1.6E+04	3.5E+03	6.0E+04	2.5E+06	2.9E+08	5.5E+00	1.3E+00	1.4E+01	1.6E+03	6.2E+04	1.8E+04	2.5E+05	2.9E+07	3.5E+03	1.8E+04	2.5E+05	2.9E+07
DDD[c]	0	--	--	3.1E-03	3.1E-03	--	--	1.2E+02	1.2E+02	--	--	3.1E-04	3.1E-04	--	--	1.2E+01	1.2E+01	--	--	1.2E+01	1.2E+01
DDE[c]	0	--	--	2.2E-03	2.2E-03	--	--	8.4E+01	8.4E+01	--	--	2.2E-04	2.2E-04	--	--	8.4E+00	8.4E+00	--	--	8.4E+00	8.4E+00
DDT[c]	0	1.1E+00	1.0E-03	2.2E-03	2.2E-03	1.8E+02	1.2E+01	8.4E+01	8.4E+01	2.8E-01	2.5E-04	2.2E-04	2.2E-04	3.1E+03	3.5E+00	8.4E+00	8.4E+00	1.8E+02	3.5E+00	8.4E+00	8.4E+00
Demeton	0	--	1.0E-01	--	--	--	1.2E+03	--	--	--	2.5E-02	--	--	--	3.5E+02	--	--	--	3.5E+02	--	--
Diazinon	0	1.7E-01	1.7E-01	--	--	2.7E+01	2.0E+03	--	--	4.3E-02	4.3E-02	--	--	4.8E+02	5.9E+02	--	--	2.7E+01	5.9E+02	--	--
Dibenz(a,h)anthracene[c]	0	--	--	3.8E-02	1.8E-01	--	--	1.4E+03	6.8E+03	--	--	3.8E-03	1.8E-02	--	--	1.4E+02	6.8E+02	--	--	1.4E+02	6.8E+02
1,2-Dichlorobenzene	0	--	--	4.2E+02	1.3E+03	--	--	7.6E+06	2.4E+07	--	--	4.2E+01	1.3E+02	--	--	7.6E+05	2.4E+06	--	--	7.6E+05	2.4E+06
1,3-Dichlorobenzene	0	--	--	3.2E+02	9.6E+02	--	--	5.8E+06	1.7E+07	--	--	3.2E+01	9.6E+01	--	--	5.8E+05	1.7E+06	--	--	5.8E+05	1.7E+06
1,4-Dichlorobenzene	0	--	--	6.3E+01	1.9E+02	--	--	1.1E+06	3.4E+06	--	--	6.3E+00	1.9E+01	--	--	1.1E+05	3.4E+05	--	--	1.1E+05	3.4E+05
3,3-Dichlorobenzidine[c]	0	--	--	2.1E-01	2.8E-01	--	--	8.0E+03	1.1E+04	--	--	2.1E-02	2.8E-02	--	--	8.0E+02	1.1E+03	--	--	8.0E+02	1.1E+03
Dichlorobromomethane[c]	0	--	--	5.5E+00	1.7E+02	--	--	2.1E+05	6.5E+06	--	--	5.5E-01	1.7E+01	--	--	2.1E+04	6.5E+05	--	--	2.1E+04	6.5E+05
1,2-Dichloroethane[c]	0	--	--	3.8E+00	3.7E+02	--	--	1.4E+05	1.4E+07	--	--	3.8E-01	3.7E+01	--	--	1.4E+04	1.4E+06	--	--	1.4E+04	1.4E+06
1,1-Dichloroethylene	0	--	--	3.3E+02	7.1E+03	--	--	6.0E+06	1.3E+08	--	--	3.3E+01	7.1E+02	--	--	6.0E+05	1.3E+07	--	--	6.0E+05	1.3E+07
1,2-trans-dichloroethylene	0	--	--	1.4E+02	1.0E+04	--	--	2.5E+06	1.8E+08	--	--	1.4E+01	1.0E+03	--	--	2.5E+05	1.8E+07	--	--	2.5E+05	1.8E+07
2,4-Dichlorophenol	0	--	--	7.7E+01	2.9E+02	--	--	1.4E+06	5.3E+06	--	--	7.7E+00	2.9E+01	--	--	1.4E+05	5.3E+05	--	--	1.4E+05	5.3E+05
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	1.0E+02	--	--	--	1.8E+06	--	--	--	1.0E+01	--	--	--	1.8E+05	--	--	--	1.8E+05	--
1,2-Dichloropropane[c]	0	--	--	5.0E+00	1.5E+02	--	--	1.9E+05	5.7E+06	--	--	5.0E-01	1.5E+01	--	--	1.9E+04	5.7E+05	--	--	1.9E+04	5.7E+05
1,3-Dichloropropene[c]	0	--	--	3.4E+00	2.1E+02	--	--	1.3E+05	8.0E+06	--	--	3.4E-01	2.1E+01	--	--	1.3E+04	8.0E+05	--	--	1.3E+04	8.0E+05
Dieldrin[c]	0	2.4E-01	5.6E-02	5.2E-04	5.4E-04	3.8E+01	6.5E+02	2.0E+01	2.1E+01	6.0E-02	1.4E-02	5.2E-05	5.4E-05	6.7E+02	2.0E+02	2.0E+00	2.1E+00	3.8E+01	2.0E+02	2.0E+00	2.1E+00
Diethyl Phthalate	0	--	--	1.7E+04	4.4E+04	--	--	3.1E+08	8.0E+08	--	--	1.7E+03	4.4E+03	--	--	3.1E+07	8.0E+07	--	--	3.1E+07	8.0E+07
2,4-Dimethylphenol	0	--	--	3.8E+02	8.5E+02	--	--	6.9E+06	1.5E+07	--	--	3.8E+01	8.5E+01	--	--	6.9E+05	1.5E+06	--	--	6.9E+05	1.5E+06
Dimethyl Phthalate	0	--	--	2.7E+05	1.1E+06	--	--	4.9E+09	2.0E+10	--	--	2.7E+04	1.1E+05	--	--	4.9E+08	2.0E+09	--	--	4.9E+08	2.0E+09
Di-n-Butyl Phthalate	0	--	--	2.0E+03	4.5E+03	--	--	3.6E+07	8.2E+07	--	--	2.0E+02	4.5E+02	--	--	3.6E+06	8.2E+06	--	--	3.6E+06	8.2E+06
2,4 Dinitrophenol	0	--	--	6.9E+01	5.3E+03	--	--	1.3E+06	9.6E+07	--	--	6.9E+00	5.3E+02	--	--	1.3E+05	9.6E+06	--	--	1.3E+05	9.6E+06
2-Methyl-4,6-Dinitrophenol	0	--	--	1.3E+01	2.8E+02	--	--	2.4E+05	5.1E+06	--	--	1.3E+00	2.8E+01	--	--	2.4E+04	5.1E+05	--	--	2.4E+04	5.1E+05
2,4-Dinitrotoluene[c]	0	--	--	1.1E+00	3.4E+01	--	--	4.2E+04	1.3E+06	--	--	1.1E-01	3.4E+00	--	--	4.2E+03	1.3E+05	--	--	4.2E+03	1.3E+05
Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin	0	--	--	5.0E-08	5.1E-08	--	--	9.1E-04	9.2E-04	--	--	5.0E-09	5.1E-09	--	--	9.1E-05	9.2E-05	--	--	9.1E-05	9.2E-05
1,2-Diphenylhydrazine[c]	0	--	--	3.6E-01	2.0E+00	--	--	1.4E+04	7.6E+04	--	--	3.6E-02	2.0E-01	--	--	1.4E+03	7.6E+03	--	--	1.4E+03	7.6E+03
Alpha-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	3.5E+01	6.5E+02	1.1E+06	1.6E+06	5.5E-02	1.4E-02	6.2E+00	8.9E+00	6.2E+02	2.0E+02	1.1E+05	1.6E+05	3.5E+01	2.0E+02	1.1E+05	1.6E+05
Beta-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	3.5E+01	6.5E+02	1.1E+06	1.6E+06	5.5E-02	1.4E-02	6.2E+00	8.9E+00	6.2E+02	2.0E+02	1.1E+05	1.6E+05	3.5E+01	2.0E+02	1.1E+05	1.6E+05
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	3.5E+01	6.5E+02	--	--	5.5E-02	1.4E-02	--	--	6.2E+02	2.0E+02	--	--	3.5E+01	2.0E+02	--	--
Endosulfan Sulfate	0	--	--	6.2E+01	8.9E+01	--	--	1.1E+06	1.6E+06	--	--	6.2E+00	8.9E+00	--	--	1.1E+05	1.6E+05	--	--	1.1E+05	1.6E+05
Endrin	0	8.6E-02	3.6E-02	5.9E-02	6.0E-02	1.4E+01	4.2E+02	1.1E+03	1.1E+03	2.2E-02	9.0E-03	5.9E-03	6.0E-03	2.4E+02	1.3E+02	1.1E+02	1.1E+02	1.4E+01	1.3E+02	1.1E+02	1.1E+02
Endrin Aldehyde	0	--	--	2.9E-01	3.0E-01	--	--	5.3E+03	5.4E+03	--	--	2.9E-02	3.0E-02	--	--	5.3E+02	5.4E+02	--	--	5.3E+02	5.4E+02

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	5.3E+02	2.1E+03	--	--	9.6E+06	3.8E+07	--	--	5.3E+01	2.1E+02	--	--	9.6E+05	3.8E+06	--	--	9.6E+05	3.8E+06
Fluoranthene	0	--	--	1.3E+02	1.4E+02	--	--	2.4E+06	2.5E+06	--	--	1.3E+01	1.4E+01	--	--	2.4E+05	2.5E+05	--	--	2.4E+05	2.5E+05
Fluorene	0	--	--	1.1E+03	5.3E+03	--	--	2.0E+07	9.6E+07	--	--	1.1E+02	5.3E+02	--	--	2.0E+06	9.6E+06	--	--	2.0E+06	9.6E+06
Foaming Agents	0	--	--	5.0E+02	--	--	--	9.1E+06	--	--	--	5.0E+01	--	--	--	9.1E+05	--	--	--	9.1E+05	--
Guthion	0	--	1.0E-02	--	--	--	1.2E+02	--	--	--	2.5E-03	--	--	--	3.5E+01	--	--	--	3.5E+01	--	--
Heptachlor [c]	0	5.2E-01	3.8E-03	7.9E-04	7.9E-04	8.3E+01	4.4E+01	3.0E+01	3.0E+01	1.3E-01	9.5E-04	7.9E-05	7.9E-05	1.5E+03	1.3E+01	3.0E+00	3.0E+00	8.3E+01	1.3E+01	3.0E+00	3.0E+00
Heptachlor Epoxide[c]	0	5.2E-01	3.8E-03	3.9E-04	3.9E-04	8.3E+01	4.4E+01	1.5E+01	1.5E+01	1.3E-01	9.5E-04	3.9E-05	3.9E-05	1.5E+03	1.3E+01	1.5E+00	1.5E+00	8.3E+01	1.3E+01	1.5E+00	1.5E+00
Hexachlorobenzene[c]	0	--	--	2.8E-03	2.9E-03	--	--	1.1E+02	1.1E+02	--	--	2.8E-04	2.9E-04	--	--	1.1E+01	1.1E+01	--	--	1.1E+01	1.1E+01
Hexachlorobutadiene[c]	0	--	--	4.4E+00	1.8E+02	--	--	1.7E+05	6.8E+06	--	--	4.4E-01	1.8E+01	--	--	1.7E+04	6.8E+05	--	--	1.7E+04	6.8E+05
Hexachlorocyclohexane Alpha-BHC[c]	0	--	--	2.6E-02	4.9E-02	--	--	9.9E+02	1.9E+03	--	--	2.6E-03	4.9E-03	--	--	9.9E+01	1.9E+02	--	--	9.9E+01	1.9E+02
Hexachlorocyclohexane Beta BHC[c]	0	--	--	9.1E-02	1.7E-01	--	--	3.5E+03	6.5E+03	--	--	9.1E-03	1.7E-02	--	--	3.5E+02	6.5E+02	--	--	3.5E+02	6.5E+02
Hexachlorocyclohexane Gamma-BHC[c] (Lindane)	0	9.5E-01	--	9.8E-01	1.8E+00	1.5E+02	--	3.7E+04	6.8E+04	2.4E-01	--	9.8E-02	1.8E-01	2.7E+03	--	3.7E+03	6.8E+03	1.5E+02	--	3.7E+03	6.8E+03
Hexachlorocyclopentadiene	0	--	--	4.0E+01	1.1E+03	--	--	7.3E+05	2.0E+07	--	--	4.0E+00	1.1E+02	--	--	7.3E+04	2.0E+06	--	--	7.3E+04	2.0E+06
Hexachloroethane[c]	0	--	--	1.4E+01	3.3E+01	--	--	5.3E+05	1.3E+06	--	--	1.4E+00	3.3E+00	--	--	5.3E+04	1.3E+05	--	--	5.3E+04	1.3E+05
Hydrogen Sulfide	0	--	2.0E+00	--	--	--	2.3E+04	--	--	--	5.0E-01	--	--	--	7.0E+03	--	--	--	7.0E+03	--	--
Indeno (1,2,3-cd) pyrene [c]	0	--	--	3.8E-02	1.8E-01	--	--	1.4E+03	6.8E+03	--	--	3.8E-03	1.8E-02	--	--	1.4E+02	6.8E+02	--	--	1.4E+02	6.8E+02
Iron	0	--	--	3.0E+02	--	--	--	5.4E+06	--	--	--	3.0E+01	--	--	--	5.4E+05	--	--	--	5.4E+05	--
Isophorone[c]	0	--	--	3.5E+02	9.6E+03	--	--	1.3E+07	3.6E+08	--	--	3.5E+01	9.6E+02	--	--	1.3E+06	3.6E+07	--	--	1.3E+06	3.6E+07
Kepone	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--
Lead	0	8.7E+01	9.8E+00	1.5E+01	--	1.4E+04	1.1E+05	2.7E+05	--	2.2E+01	2.5E+00	1.5E+00	--	2.4E+05	3.4E+04	2.7E+04	--	1.4E+04	3.4E+04	2.7E+04	--
Malathion	0	--	1.0E-01	--	--	--	1.2E+03	--	--	--	2.5E-02	--	--	--	3.5E+02	--	--	--	3.5E+02	--	--
Manganese	14.32	--	--	5.0E+01	--	--	--	6.5E+05	--	--	--	1.8E+01	--	--	--	6.5E+04	--	--	--	6.5E+04	--
Mercury	0	1.4E+00	7.7E-01	--	--	2.2E+02	8.9E+03	--	--	3.5E-01	1.9E-01	--	--	3.9E+03	2.7E+03	--	--	2.2E+02	2.7E+03	--	--
Methyl Bromide	0	--	--	4.7E+01	1.5E+03	--	--	8.5E+05	2.7E+07	--	--	4.7E+00	1.5E+02	--	--	8.5E+04	2.7E+06	--	--	8.5E+04	2.7E+06
Methylene Chloride [c]	0	--	--	4.6E+01	5.9E+03	--	--	1.7E+06	2.2E+08	--	--	4.6E+00	5.9E+02	--	--	1.7E+05	2.2E+07	--	--	1.7E+05	2.2E+07
Methoxychlor	0	--	3.0E-02	1.0E+02	--	--	3.5E+02	1.8E+06	--	--	7.5E-03	1.0E+01	--	--	1.0E+02	1.8E+05	--	--	1.0E+02	1.8E+05	--
Mirex	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--
Nickel	0.39	1.5E+02	1.6E+01	6.1E+02	4.6E+03	2.4E+04	1.9E+05	1.1E+07	8.3E+07	3.7E+01	4.4E+00	6.1E+01	4.6E+02	4.1E+05	5.6E+04	1.1E+06	8.3E+06	2.4E+04	5.6E+04	1.1E+06	8.3E+06
Nitrate (as N)	890	--	--	1.0E+04	--	--	--	1.7E+08	--	--	--	1.8E+03	--	--	--	1.7E+07	--	--	--	1.7E+07	--
Nitrobenzene	0	--	--	1.7E+01	6.9E+02	--	--	3.1E+05	1.3E+07	--	--	1.7E+00	6.9E+01	--	--	3.1E+04	1.3E+06	--	--	3.1E+04	1.3E+06
N-Nitrosodimethylamine[c]	0	--	--	6.9E-03	3.0E+01	--	--	2.6E+02	1.1E+06	--	--	6.9E-04	3.0E+00	--	--	2.6E+01	1.1E+05	--	--	2.6E+01	1.1E+05
N-Nitrosodiphenylamine[c]	0	--	--	3.3E+01	6.0E+01	--	--	1.3E+06	2.3E+06	--	--	3.3E+00	6.0E+00	--	--	1.3E+05	2.3E+05	--	--	1.3E+05	2.3E+05
N-Nitrosodi-n-propylamine[c]	0	--	--	5.0E-02	5.1E+00	--	--	1.9E+03	1.9E+05	--	--	5.0E-03	5.1E-01	--	--	1.9E+02	1.9E+04	--	--	1.9E+02	1.9E+04
Nonylphenol	0	2.8E+01	6.6E+00	--	--	4.5E+03	7.7E+04	--	--	7.0E+00	1.7E+00	--	--	7.9E+04	2.3E+04	--	--	4.5E+03	2.3E+04	--	--
Parathion	0	6.5E-02	1.3E-02	--	--	1.0E+01	1.5E+02	--	--	1.6E-02	3.3E-03	--	--	1.8E+02	4.5E+01	--	--	1.0E+01	4.5E+01	--	--
PCB Total[c]	0	--	1.4E-02	6.4E-04	6.4E-04	--	1.6E+02	2.4E+01	2.4E+01	--	3.5E-03	6.4E-05	6.4E-05	--	4.9E+01	2.4E+00	2.4E+00	--	4.9E+01	2.4E+00	2.4E+00
Pentachlorophenol [c]	0	1.2E+01	9.2E+00	2.7E+00	3.0E+01	1.9E+03	1.1E+05	1.0E+05	1.1E+06	3.0E+00	2.3E+00	2.7E-01	3.0E+00	3.4E+04	3.2E+04	1.0E+04	1.1E+05	1.9E+03	3.2E+04	1.0E+04	1.1E+05
Phenol	0	--	--	1.0E+04	8.6E+05	--	--	1.8E+08	1.6E+10	--	--	1.0E+03	8.6E+04	--	--	1.8E+07	1.6E+09	--	--	1.8E+07	1.6E+09
Pyrene	0	--	--	8.3E+02	4.0E+03	--	--	1.5E+07	7.3E+07	--	--	8.3E+01	4.0E+02	--	--	1.5E+06	7.3E+06	--	--	1.5E+06	7.3E+06
Radionuclides	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gross Alpha Activity (pCi/L)	0	--	--	1.5E+01	--	--	--	2.7E+05	--	--	--	1.5E+00	--	--	--	2.7E+04	--	--	--	2.7E+04	--
Beta and Photon Activity (mrem/yr)	0	--	--	4.0E+00	4.0E+00	--	--	7.3E+04	7.3E+04	--	--	4.0E-01	4.0E-01	--	--	7.3E+03	7.3E+03	--	--	7.3E+03	7.3E+03
Radium 226 + 228 (pCi/L)	0	--	--	5.0E+00	--	--	--	9.1E+04	--	--	--	5.0E-01	--	--	--	9.1E+03	--	--	--	9.1E+03	--
Uranium (ug/l)	0	--	--	3.0E+01	--	--	--	5.4E+05	--	--	--	3.0E+00	--	--	--	5.4E+04	--	--	--	5.4E+04	--

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	1.7E+02	4.2E+03	3.2E+03	5.8E+04	3.1E+06	7.6E+07	5.0E+00	1.3E+00	1.7E+01	4.2E+02	5.6E+04	1.7E+04	3.1E+05	7.6E+06	3.2E+03	1.7E+04	3.1E+05	7.6E+06
Silver	0	2.3E+00	--	--	--	3.6E+02	--	--	--	5.6E-01	--	--	--	6.3E+03	--	--	--	3.6E+02	--	--	--
Sulfate	7870	--	--	2.5E+05	--	--	--	4.4E+09	--	--	--	3.2E+04	--	--	--	4.4E+08	--	--	--	4.4E+08	--
1,1,2,2-Tetrachloroethane[c]	0	--	--	1.7E+00	4.0E+01	--	--	6.5E+04	1.5E+06	--	--	1.7E-01	4.0E+00	--	--	6.5E+03	1.5E+05	--	--	6.5E+03	1.5E+05
Tetrachloroethylene[c]	0	--	--	6.9E+00	3.3E+01	--	--	2.6E+05	1.3E+06	--	--	6.9E-01	3.3E+00	--	--	2.6E+04	1.3E+05	--	--	2.6E+04	1.3E+05
Thallium	0	--	--	2.4E-01	4.7E-01	--	--	4.4E+03	8.5E+03	--	--	2.4E-02	4.7E-02	--	--	4.4E+02	8.5E+02	--	--	4.4E+02	8.5E+02
Toluene	0	--	--	5.1E+02	6.0E+03	--	--	9.2E+06	1.1E+08	--	--	5.1E+01	6.0E+02	--	--	9.2E+05	1.1E+07	--	--	9.2E+05	1.1E+07
Total dissolved solids	0	--	--	5.0E+05	--	--	--	9.1E+09	--	--	--	5.0E+04	--	--	--	9.1E+08	--	--	--	9.1E+08	--
Toxaphene [c]	0	7.3E-01	2.0E-04	2.8E-03	2.8E-03	1.2E+02	2.3E+00	1.1E+02	1.1E+02	1.8E-01	5.0E-05	2.8E-04	2.8E-04	2.0E+03	7.0E-01	1.1E+01	1.1E+01	1.2E+02	7.0E-01	1.1E+01	1.1E+01
Tributyltin	0	4.6E-01	7.2E-02	--	--	7.4E+01	8.4E+02	--	--	1.2E-01	1.8E-02	--	--	1.3E+03	2.5E+02	--	--	7.4E+01	2.5E+02	--	--
1,2,4-Trichlorobenzene	0	--	--	3.5E+01	7.0E+01	--	--	6.3E+05	1.3E+06	--	--	3.5E+00	7.0E+00	--	--	6.3E+04	1.3E+05	--	--	6.3E+04	1.3E+05
1,1,2-Trichloroethane[c]	0	--	--	5.9E+00	1.6E+02	--	--	2.2E+05	6.1E+06	--	--	5.9E-01	1.6E+01	--	--	2.2E+04	6.1E+05	--	--	2.2E+04	6.1E+05
Trichloroethylene [c]	0	--	--	2.5E+01	3.0E+02	--	--	9.5E+05	1.1E+07	--	--	2.5E+00	3.0E+01	--	--	9.5E+04	1.1E+06	--	--	9.5E+04	1.1E+06
2,4,6-Trichlorophenol [c]	0	--	--	1.4E+01	2.4E+01	--	--	5.3E+05	9.1E+05	--	--	1.4E+00	2.4E+00	--	--	5.3E+04	9.1E+04	--	--	5.3E+04	9.1E+04
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	5.0E+01	--	--	--	9.1E+05	--	--	--	5.0E+00	--	--	--	9.1E+04	--	--	--	9.1E+04	--
Vinyl Chloride[c]	0	--	--	2.5E-01	2.4E+01	--	--	9.5E+03	9.1E+05	--	--	2.5E-02	2.4E+00	--	--	9.5E+02	9.1E+04	--	--	9.5E+02	9.1E+04
Zinc	3.68	9.5E+01	9.6E+01	7.4E+03	2.6E+04	1.5E+04	1.1E+06	1.3E+08	4.7E+08	2.6E+01	2.7E+01	7.4E+02	2.6E+03	2.6E+05	3.2E+05	1.3E+07	4.7E+07	1.5E+04	3.2E+05	1.3E+07	4.7E+07

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information. Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	1.0E+04
Arsenic	1.7E+04
Barium	3.6E+06
Cadmium	1.9E+02
Chromium III	3.0E+04
Chromium VI	1.0E+03
Copper	6.4E+02
Iron	5.4E+05
Lead	5.6E+03
Manganese	6.5E+04
Mercury	9.0E+01
Nickel	9.5E+03
Selenium	1.3E+03
Silver	1.4E+02
Zinc	5.9E+03

Note: do not use QL's lower than the minimum QL's provided in agency guidance

4/12/2010 2:13:29 PM

Facility = VA0000248 - 004
Chemical = Bis(2-Ethylhexyl) Phthalate
Chronic averaging period = 4
WLAa =
WLAc = 46000
Q.L. = 10
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 35
Variance = 441
C.V. = 0.6
97th percentile daily values = 85.1696
97th percentile 4 day average = 58.2326
97th percentile 30 day average= 42.2118
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

35

Mixing Zone Predictions for VA0000248 - 005

Effluent Flow = .45 MGD
Stream 7Q10 = 559 MGD
Stream 30Q10 = 646 MGD
Stream 1Q10 = 449 MGD
Stream slope = 0.001 ft/ft
Stream width = 400 ft
Bottom scale = 3
Channel scale = 1

Mixing Zone Predictions @ 7Q10

Depth = 2.6577 ft
Length = 67061.83 ft
Velocity = .8146 ft/sec
Residence Time = .9528 days

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used.

Mixing Zone Predictions @ 30Q10

Depth = 2.8998 ft
Length = 62311.77 ft
Velocity = .8627 ft/sec
Residence Time = .836 days

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used.

Mixing Zone Predictions @ 1Q10

Depth = 2.329 ft
Length = 74941.09 ft
Velocity = .7468 ft/sec
Residence Time = 27.8739 hours

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than 3.59% of the 1Q10 is used.

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: RAAP - Outfall 005 Permit No.: VA0000248

Receiving Stream: New River

Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO3) =	78	mg/L
90% Temperature (Annual) =	23.3	deg C
90% Temperature (Wet season) =	13.8	deg C
90% Maximum pH =	8.22	SU
10% Maximum pH =	7.32	SU
Tier Designation (1 or 2) =	2	
Public Water Supply (PWS) Y/N? =	y	
Trout Present Y/N? =	y	
Early Life Stages Present Y/N? =	y	

Stream Flows

1Q10 (Annual) =	449	MGD
7Q10 (Annual) =	559	MGD
30Q10 (Annual) =	646	MGD
1Q10 (Wet season) =	528	MGD
30Q10 (Wet season)	1067	MGD
30Q5 =	725	MGD
Harmonic Mean =	1520	MGD

Mixing Information

Annual - 1Q10 Mix =	3.59	%
- 7Q10 Mix =	100	%
- 30Q10 Mix =	100	%
Wet Season - 1Q10 Mix =	100	%
- 30Q10 Mix =	100	%

Effluent Information

Mean Hardness (as CaCO3) =	122	mg/L
90% Temp (Annual) =	22.4	deg C
90% Temp (Wet season) =	22.4	deg C
90% Maximum pH =	8.6	SU
10% Maximum pH =	7.1	SU
Discharge Flow =	0.45	MGD

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenapthene	0	--	--	6.7E+02	9.9E+02	--	--	1.1E+06	1.6E+06	--	--	6.7E+01	9.9E+01	--	--	1.1E+05	1.6E+05	--	--	1.1E+05	1.6E+05
Acrolein	0	--	--	6.1E+00	9.3E+00	--	--	9.8E+03	1.5E+04	--	--	6.1E-01	9.3E-01	--	--	9.8E+02	1.5E+03	--	--	9.8E+02	1.5E+03
Acrylonitrile[c]	0	--	--	5.1E-01	2.5E+00	--	--	1.7E+03	8.4E+03	--	--	5.1E-02	2.5E-01	--	--	1.7E+02	8.4E+02	--	--	1.7E+02	8.4E+02
Aldrin [c]	0	3.0E+00	--	4.9E-04	5.0E-04	1.1E+02	--	1.7E+00	1.7E+00	7.5E-01	--	4.9E-05	5.0E-05	7.5E+02	--	1.7E-01	1.7E-01	1.1E+02	--	1.7E-01	1.7E-01
Ammonia-N (mg/l) (Yearly)	0	3.63E+00	9.86E-01	--	--	1.3E+02	1.4E+03	--	--	9.19E-01	2.46E-01	--	--	9.2E+02	3.5E+02	--	--	1.3E+02	3.5E+02	--	--
Ammonia-N (mg/l) (High Flow)	0	3.68E+00	1.74E+00	--	--	4.3E+03	4.1E+03	--	--	9.19E-01	4.34E-01	--	--	1.1E+03	1.0E+03	--	--	1.1E+03	1.0E+03	--	--
Anthracene	0	--	--	8.3E+03	4.0E+04	--	--	1.3E+07	6.4E+07	--	--	8.3E+02	4.0E+03	--	--	1.3E+06	6.4E+06	--	--	1.3E+06	6.4E+06
Antimony	0	--	--	5.6E+00	6.4E+02	--	--	9.0E+03	1.0E+06	--	--	5.6E-01	6.4E+01	--	--	9.0E+02	1.0E+05	--	--	9.0E+02	1.0E+05
Arsenic	0.35	3.4E+02	1.5E+02	1.0E+01	--	1.3E+04	1.9E+05	1.6E+04	--	8.5E+01	3.8E+01	1.3E+00	--	8.5E+04	4.7E+04	1.6E+03	--	1.3E+04	4.7E+04	1.6E+03	--
Barium	0	--	--	2.0E+03	--	--	--	3.2E+06	--	--	--	2.0E+02	--	--	--	3.2E+05	--	--	--	3.2E+05	--
Benzene [c]	0	--	--	2.2E+01	5.1E+02	--	--	7.4E+04	1.7E+06	--	--	2.2E+00	5.1E+01	--	--	7.4E+03	1.7E+05	--	--	7.4E+03	1.7E+05
Benzidine[c]	0	--	--	8.6E-04	2.0E-03	--	--	2.9E+00	6.8E+00	--	--	8.6E-05	2.0E-04	--	--	2.9E-01	6.8E-01	--	--	2.9E-01	6.8E-01
Benzo (a) anthracene [c]	0	--	--	3.8E-02	1.8E-01	--	--	1.3E+02	6.1E+02	--	--	3.8E-03	1.8E-02	--	--	1.3E+01	6.1E+01	--	--	1.3E+01	6.1E+01
Benzo (b) fluoranthene [c]	0	--	--	3.8E-02	1.8E-01	--	--	1.3E+02	6.1E+02	--	--	3.8E-03	1.8E-02	--	--	1.3E+01	6.1E+01	--	--	1.3E+01	6.1E+01
Benzo (k) fluoranthene [c]	0	--	--	3.8E-02	1.8E-01	--	--	1.3E+02	6.1E+02	--	--	3.8E-03	1.8E-02	--	--	1.3E+01	6.1E+01	--	--	1.3E+01	6.1E+01
Benzo (a) pyrene [c]	0	--	--	3.8E-02	1.8E-01	--	--	1.3E+02	6.1E+02	--	--	3.8E-03	1.8E-02	--	--	1.3E+01	6.1E+01	--	--	1.3E+01	6.1E+01
Bis2-Chloroethyl Ether[c]	0	--	--	3.0E-01	5.3E+00	--	--	1.0E+03	1.8E+04	--	--	3.0E-02	5.3E-01	--	--	1.0E+02	1.8E+03	--	--	1.0E+02	1.8E+03
Bis2-Chloroisopropyl Ether	0	--	--	1.4E+03	6.5E+04	--	--	2.3E+06	1.0E+08	--	--	1.4E+02	6.5E+03	--	--	2.3E+05	1.0E+07	--	--	2.3E+05	1.0E+07
Bis 2-Ethylhexyl Phthalate[c]	0	--	--	1.2E+01	2.2E+01	--	--	4.1E+04	7.4E+04	--	--	1.2E+00	2.2E+00	--	--	4.1E+03	7.4E+03	--	--	4.1E+03	7.4E+03
Bromoform [c]	0	--	--	4.3E+01	1.4E+03	--	--	1.5E+05	4.7E+06	--	--	4.3E+00	1.4E+02	--	--	1.5E+04	4.7E+05	--	--	1.5E+04	4.7E+05
Butylbenzylphthalate	0	--	--	1.5E+03	1.9E+03	--	--	2.4E+06	3.1E+06	--	--	1.5E+02	1.9E+02	--	--	2.4E+05	3.1E+05	--	--	2.4E+05	3.1E+05
Cadmium	0	3.0E+00	9.3E-01	5.0E+00	--	1.1E+02	1.2E+03	8.1E+03	--	7.4E-01	2.3E-01	5.0E-01	--	7.4E+02	2.9E+02	8.1E+02	--	1.1E+02	2.9E+02	8.1E+02	--
Carbon Tetrachloride [c]	0	--	--	2.3E+00	1.6E+01	--	--	7.8E+03	5.4E+04	--	--	2.3E-01	1.6E+00	--	--	7.8E+02	5.4E+03	--	--	7.8E+02	5.4E+03
Chlordane [c]	0	2.4E+00	4.3E-03	8.0E-03	8.1E-03	8.8E+01	5.3E+00	2.7E+01	2.7E+01	6.0E-01	1.1E-03	8.0E-04	8.1E-04	6.0E+02	1.3E+00	2.7E+00	2.7E+00	8.8E+01	1.3E+00	2.7E+00	2.7E+00
Chloride	7960	8.6E+05	2.3E+05	2.5E+05	--	3.1E+07	2.8E+08	3.9E+08	--	2.2E+05	6.3E+04	3.2E+04	--	2.1E+08	6.9E+07	3.9E+07	--	3.1E+07	6.9E+07	3.9E+07	--
TRC	0	1.9E+01	1.1E+01	--	--	7.0E+02	1.4E+04	--	--	4.8E+00	2.8E+00	--	--	4.7E+03	3.4E+03	--	--	7.0E+02	3.4E+03	--	--
Chlorobenzene	0	--	--	1.3E+02	1.6E+03	--	--	2.1E+05	2.6E+06	--	--	1.3E+01	1.6E+02	--	--	2.1E+04	2.6E+05	--	--	2.1E+04	2.6E+05

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane[c]	0	--	--	4.0E+00	1.3E+02	--	--	1.4E+04	4.4E+05	--	--	4.0E-01	1.3E+01	--	--	1.4E+03	4.4E+04	--	--	1.4E+03	4.4E+04
Chloroform	0	--	--	3.4E+02	1.1E+04	--	--	5.5E+05	1.8E+07	--	--	3.4E+01	1.1E+03	--	--	5.5E+04	1.8E+06	--	--	5.5E+04	1.8E+06
2-Chloronaphthalene	0	--	--	1.0E+03	1.6E+03	--	--	1.6E+06	2.6E+06	--	--	1.0E+02	1.6E+02	--	--	1.6E+05	2.6E+05	--	--	1.6E+05	2.6E+05
2-Chlorophenol	0	--	--	8.1E+01	1.5E+02	--	--	1.3E+05	2.4E+05	--	--	8.1E+00	1.5E+01	--	--	1.3E+04	2.4E+04	--	--	1.3E+04	2.4E+04
Chlorpyrifos	0	8.3E-02	4.1E-02	--	--	3.1E+00	5.1E+01	--	--	2.1E-02	1.0E-02	--	--	2.1E+01	1.3E+01	--	--	3.1E+00	1.3E+01	--	--
Chromium III	0	4.7E+02	6.0E+01	--	--	1.7E+04	7.5E+04	--	--	1.2E+02	1.5E+01	--	--	1.2E+05	1.9E+04	--	--	1.7E+04	1.9E+04	--	--
Chromium VI	0	1.6E+01	1.1E+01	--	--	5.9E+02	1.4E+04	--	--	4.0E+00	2.8E+00	--	--	4.0E+03	3.4E+03	--	--	5.9E+02	3.4E+03	--	--
Chromium, Total	0.18	--	--	1.0E+02	--	--	--	1.6E+05	--	--	--	1.0E+01	--	--	--	1.6E+04	--	--	--	1.6E+04	--
Chrysene[c]	0	--	--	3.8E-03	1.8E-02	--	--	1.3E+01	6.1E+01	--	--	3.8E-04	1.8E-03	--	--	1.3E+00	6.1E+00	--	--	1.3E+00	6.1E+00
Copper	0.65	1.1E+01	7.2E+00	1.3E+03	--	3.7E+02	8.2E+03	2.1E+06	--	3.1E+00	2.3E+00	1.3E+02	--	2.5E+03	2.1E+03	2.1E+05	--	3.7E+02	2.1E+03	2.1E+05	--
Cyanide, Free	0	2.2E+01	5.2E+00	1.4E+02	1.6E+04	8.1E+02	6.5E+03	2.3E+05	2.6E+07	5.5E+00	1.3E+00	1.4E+01	1.6E+03	5.5E+03	1.6E+03	2.3E+04	2.6E+06	8.1E+02	1.6E+03	2.3E+04	2.6E+06
DDD[c]	0	--	--	3.1E-03	3.1E-03	--	--	1.0E+01	1.0E+01	--	--	3.1E-04	3.1E-04	--	--	1.0E+00	1.0E+00	--	--	1.0E+00	1.0E+00
DDE[c]	0	--	--	2.2E-03	2.2E-03	--	--	7.4E+00	7.4E+00	--	--	2.2E-04	2.2E-04	--	--	7.4E-01	7.4E-01	--	--	7.4E-01	7.4E-01
DDT[c]	0	1.1E+00	1.0E-03	2.2E-03	2.2E-03	4.1E+01	1.2E+00	7.4E+00	7.4E+00	2.8E-01	2.5E-04	2.2E-04	2.2E-04	2.7E+02	3.1E-01	7.4E-01	7.4E-01	4.1E+01	3.1E-01	7.4E-01	7.4E-01
Demeton	0	--	1.0E-01	--	--	--	1.2E+02	--	--	--	2.5E-02	--	--	--	3.1E+01	--	--	--	3.1E+01	--	--
Diazinon	0	1.7E-01	1.7E-01	--	--	6.3E+00	2.1E+02	--	--	4.3E-02	4.3E-02	--	--	4.2E+01	5.3E+01	--	--	6.3E+00	5.3E+01	--	--
Dibenz(a,h)anthracene[c]	0	--	--	3.8E-02	1.8E-01	--	--	1.3E+02	6.1E+02	--	--	3.8E-03	1.8E-02	--	--	1.3E+01	6.1E+01	--	--	1.3E+01	6.1E+01
1,2-Dichlorobenzene	0	--	--	4.2E+02	1.3E+03	--	--	6.8E+05	2.1E+06	--	--	4.2E+01	1.3E+02	--	--	6.8E+04	2.1E+05	--	--	6.8E+04	2.1E+05
1,3-Dichlorobenzene	0	--	--	3.2E+02	9.6E+02	--	--	5.2E+05	1.5E+06	--	--	3.2E+01	9.6E+01	--	--	5.2E+04	1.5E+05	--	--	5.2E+04	1.5E+05
1,4-Dichlorobenzene	0	--	--	6.3E+01	1.9E+02	--	--	1.0E+05	3.1E+05	--	--	6.3E+00	1.9E+01	--	--	1.0E+04	3.1E+04	--	--	1.0E+04	3.1E+04
3,3-Dichlorobenzidine[c]	0	--	--	2.1E-01	2.8E-01	--	--	7.1E+02	9.5E+02	--	--	2.1E-02	2.8E-02	--	--	7.1E+01	9.5E+01	--	--	7.1E+01	9.5E+01
Dichlorobromomethane[c]	0	--	--	5.5E+00	1.7E+02	--	--	1.9E+04	5.7E+05	--	--	5.5E-01	1.7E+01	--	--	1.9E+03	5.7E+04	--	--	1.9E+03	5.7E+04
1,2-Dichloroethane[c]	0	--	--	3.8E+00	3.7E+02	--	--	1.3E+04	1.3E+06	--	--	3.8E-01	3.7E+01	--	--	1.3E+03	1.3E+05	--	--	1.3E+03	1.3E+05
1,1-Dichloroethylene	0	--	--	3.3E+02	7.1E+03	--	--	5.3E+05	1.1E+07	--	--	3.3E+01	7.1E+02	--	--	5.3E+04	1.1E+06	--	--	5.3E+04	1.1E+06
1,2-trans-dichloroethylene	0	--	--	1.4E+02	1.0E+04	--	--	2.3E+05	1.6E+07	--	--	1.4E+01	1.0E+03	--	--	2.3E+04	1.6E+06	--	--	2.3E+04	1.6E+06
2,4-Dichlorophenol	0	--	--	7.7E+01	2.9E+02	--	--	1.2E+05	4.7E+05	--	--	7.7E+00	2.9E+01	--	--	1.2E+04	4.7E+04	--	--	1.2E+04	4.7E+04
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	1.0E+02	--	--	--	1.6E+05	--	--	--	1.0E+01	--	--	--	1.6E+04	--	--	--	1.6E+04	--
1,2-Dichloropropane[c]	0	--	--	5.0E+00	1.5E+02	--	--	1.7E+04	5.1E+05	--	--	5.0E-01	1.5E+01	--	--	1.7E+03	5.1E+04	--	--	1.7E+03	5.1E+04
1,3-Dichloropropene[c]	0	--	--	3.4E+00	2.1E+02	--	--	1.1E+04	7.1E+05	--	--	3.4E-01	2.1E+01	--	--	1.1E+03	7.1E+04	--	--	1.1E+03	7.1E+04
Dieldrin[c]	0	2.4E-01	5.6E-02	5.2E-04	5.4E-04	8.8E+00	7.0E+01	1.8E+00	1.8E+00	6.0E-02	1.4E-02	5.2E-05	5.4E-05	6.0E+01	1.7E+01	1.8E-01	1.8E-01	8.8E+00	1.7E+01	1.8E-01	1.8E-01
Diethyl Phthalate	0	--	--	1.7E+04	4.4E+04	--	--	2.7E+07	7.1E+07	--	--	1.7E+03	4.4E+03	--	--	2.7E+06	7.1E+06	--	--	2.7E+06	7.1E+06
2,4-Dimethylphenol	0	--	--	3.8E+02	8.5E+02	--	--	6.1E+05	1.4E+06	--	--	3.8E+01	8.5E+01	--	--	6.1E+04	1.4E+05	--	--	6.1E+04	1.4E+05
Dimethyl Phthalate	0	--	--	2.7E+05	1.1E+06	--	--	4.4E+08	1.8E+09	--	--	2.7E+04	1.1E+05	--	--	4.4E+07	1.8E+08	--	--	4.4E+07	1.8E+08
Di-n-Butyl Phthalate	0	--	--	2.0E+03	4.5E+03	--	--	3.2E+06	7.3E+06	--	--	2.0E+02	4.5E+02	--	--	3.2E+05	7.3E+05	--	--	3.2E+05	7.3E+05
2,4 Dinitrophenol	0	--	--	6.9E+01	5.3E+03	--	--	1.1E+05	8.5E+06	--	--	6.9E+00	5.3E+02	--	--	1.1E+04	8.5E+05	--	--	1.1E+04	8.5E+05
2-Methyl-4,6-Dinitrophenol	0	--	--	1.3E+01	2.8E+02	--	--	2.1E+04	4.5E+05	--	--	1.3E+00	2.8E+01	--	--	2.1E+03	4.5E+04	--	--	2.1E+03	4.5E+04
2,4-Dinitrotoluene[c]	0	--	--	1.1E+00	3.4E+01	--	--	3.7E+03	1.1E+05	--	--	1.1E-01	3.4E+00	--	--	3.7E+02	1.1E+04	--	--	3.7E+02	1.1E+04
Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin	0	--	--	5.0E-08	5.1E-08	--	--	8.1E-05	8.2E-05	--	--	5.0E-09	5.1E-09	--	--	8.1E-06	8.2E-06	--	--	8.1E-06	8.2E-06
1,2-Diphenylhydrazine[c]	0	--	--	3.6E-01	2.0E+00	--	--	1.2E+03	6.8E+03	--	--	3.6E-02	2.0E-01	--	--	1.2E+02	6.8E+02	--	--	1.2E+02	6.8E+02
Alpha-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	8.1E+00	7.0E+01	1.0E+05	1.4E+05	5.5E-02	1.4E-02	6.2E+00	8.9E+00	5.5E+01	1.7E+01	1.0E+04	1.4E+04	8.1E+00	1.7E+01	1.0E+04	1.4E+04
Beta-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	8.1E+00	7.0E+01	1.0E+05	1.4E+05	5.5E-02	1.4E-02	6.2E+00	8.9E+00	5.5E+01	1.7E+01	1.0E+04	1.4E+04	8.1E+00	1.7E+01	1.0E+04	1.4E+04
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	8.1E+00	7.0E+01	--	--	5.5E-02	1.4E-02	--	--	5.5E+01	1.7E+01	--	--	8.1E+00	1.7E+01	--	--
Endosulfan Sulfate	0	--	--	6.2E+01	8.9E+01	--	--	1.0E+05	1.4E+05	--	--	6.2E+00	8.9E+00	--	--	1.0E+04	1.4E+04	--	--	1.0E+04	1.4E+04
Endrin	0	8.6E-02	3.6E-02	5.9E-02	6.0E-02	3.2E+00	4.5E+01	9.5E+01	9.7E+01	2.2E-02	9.0E-03	5.9E-03	6.0E-03	2.1E+01	1.1E+01	9.5E+00	9.7E+00	3.2E+00	1.1E+01	9.5E+00	9.7E+00
Endrin Aldehyde	0	--	--	2.9E-01	3.0E-01	--	--	4.7E+02	4.8E+02	--	--	2.9E-02	3.0E-02	--	--	4.7E+01	4.8E+01	--	--	4.7E+01	4.8E+01

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	5.3E+02	2.1E+03	--	--	8.5E+05	3.4E+06	--	--	5.3E+01	2.1E+02	--	--	8.5E+04	3.4E+05	--	--	8.5E+04	3.4E+05
Fluoranthene	0	--	--	1.3E+02	1.4E+02	--	--	2.1E+05	2.3E+05	--	--	1.3E+01	1.4E+01	--	--	2.1E+04	2.3E+04	--	--	2.1E+04	2.3E+04
Fluorene	0	--	--	1.1E+03	5.3E+03	--	--	1.8E+06	8.5E+06	--	--	1.1E+02	5.3E+02	--	--	1.8E+05	8.5E+05	--	--	1.8E+05	8.5E+05
Foaming Agents	0	--	--	5.0E+02	--	--	--	8.1E+05	--	--	--	5.0E+01	--	--	--	8.1E+04	--	--	--	8.1E+04	--
Guthion	0	--	1.0E-02	--	--	--	1.2E+01	--	--	--	2.5E-03	--	--	--	3.1E+00	--	--	--	3.1E+00	--	--
Heptachlor [c]	0	5.2E-01	3.8E-03	7.9E-04	7.9E-04	1.9E+01	4.7E+00	2.7E+00	2.7E+00	1.3E-01	9.5E-04	7.9E-05	7.9E-05	1.3E+02	1.2E+00	2.7E-01	2.7E-01	1.9E+01	1.2E+00	2.7E-01	2.7E-01
Heptachlor Epoxide[c]	0	5.2E-01	3.8E-03	3.9E-04	3.9E-04	1.9E+01	4.7E+00	1.3E+00	1.3E+00	1.3E-01	9.5E-04	3.9E-05	3.9E-05	1.3E+02	1.2E+00	1.3E-01	1.3E-01	1.9E+01	1.2E+00	1.3E-01	1.3E-01
Hexachlorobenzene[c]	0	--	--	2.8E-03	2.9E-03	--	--	9.5E+00	9.8E+00	--	--	2.8E-04	2.9E-04	--	--	9.5E-01	9.8E-01	--	--	9.5E-01	9.8E-01
Hexachlorobutadiene[c]	0	--	--	4.4E+00	1.8E+02	--	--	1.5E+04	6.1E+05	--	--	4.4E-01	1.8E+01	--	--	1.5E+03	6.1E+04	--	--	1.5E+03	6.1E+04
Hexachlorocyclohexane Alpha-BHC[c]	0	--	--	2.6E-02	4.9E-02	--	--	8.8E+01	1.7E+02	--	--	2.6E-03	4.9E-03	--	--	8.8E+00	1.7E+01	--	--	8.8E+00	1.7E+01
Hexachlorocyclohexane Beta BHC[c]	0	--	--	9.1E-02	1.7E-01	--	--	3.1E+02	5.7E+02	--	--	9.1E-03	1.7E-02	--	--	3.1E+01	5.7E+01	--	--	3.1E+01	5.7E+01
Hexachlorocyclohexane Gamma-BHC[c] (Lindane)	0	9.5E-01	--	9.8E-01	1.8E+00	3.5E+01	--	3.3E+03	6.1E+03	2.4E-01	--	9.8E-02	1.8E-01	2.4E+02	--	3.3E+02	6.1E+02	3.5E+01	--	3.3E+02	6.1E+02
Hexachlorocyclopentadiene	0	--	--	4.0E+01	1.1E+03	--	--	6.4E+04	1.8E+06	--	--	4.0E+00	1.1E+02	--	--	6.4E+03	1.8E+05	--	--	6.4E+03	1.8E+05
Hexachloroethane[c]	0	--	--	1.4E+01	3.3E+01	--	--	4.7E+04	1.1E+05	--	--	1.4E+00	3.3E+00	--	--	4.7E+03	1.1E+04	--	--	4.7E+03	1.1E+04
Hydrogen Sulfide	0	--	2.0E+00	--	--	--	2.5E+03	--	--	--	5.0E-01	--	--	--	6.2E+02	--	--	--	6.2E+02	--	--
Indeno (1,2,3-cd) pyrene [c]	0	--	--	3.8E-02	1.8E-01	--	--	1.3E+02	6.1E+02	--	--	3.8E-03	1.8E-02	--	--	1.3E+01	6.1E+01	--	--	1.3E+01	6.1E+01
Iron	0	--	--	3.0E+02	--	--	--	4.8E+05	--	--	--	3.0E+01	--	--	--	4.8E+04	--	--	--	4.8E+04	--
Isophorone[c]	0	--	--	3.5E+02	9.6E+03	--	--	1.2E+06	3.2E+07	--	--	3.5E+01	9.6E+02	--	--	1.2E+05	3.2E+06	--	--	1.2E+05	3.2E+06
Kepone	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--
Lead	0	8.8E+01	9.9E+00	1.5E+01	--	3.3E+03	1.2E+04	2.4E+04	--	2.2E+01	2.5E+00	1.5E+00	--	2.2E+04	3.1E+03	2.4E+03	--	3.3E+03	3.1E+03	2.4E+03	--
Malathion	0	--	1.0E-01	--	--	--	1.2E+02	--	--	--	2.5E-02	--	--	--	3.1E+01	--	--	--	3.1E+01	--	--
Manganese	14.32	--	--	5.0E+01	--	--	--	5.8E+04	--	--	--	1.8E+01	--	--	--	5.8E+03	--	--	--	5.8E+03	--
Mercury	0	1.4E+00	7.7E-01	--	--	5.2E+01	9.6E+02	--	--	3.5E-01	1.9E-01	--	--	3.5E+02	2.4E+02	--	--	5.2E+01	2.4E+02	--	--
Methyl Bromide	0	--	--	4.7E+01	1.5E+03	--	--	7.6E+04	2.4E+06	--	--	4.7E+00	1.5E+02	--	--	7.6E+03	2.4E+05	--	--	7.6E+03	2.4E+05
Methylene Chloride [c]	0	--	--	4.6E+01	5.9E+03	--	--	1.6E+05	2.0E+07	--	--	4.6E+00	5.9E+02	--	--	1.6E+04	2.0E+06	--	--	1.6E+04	2.0E+06
Methoxychlor	0	--	3.0E-02	1.0E+02	--	--	3.7E+01	1.6E+05	--	--	7.5E-03	1.0E+01	--	--	9.3E+00	1.6E+04	--	--	9.3E+00	1.6E+04	--
Mirex	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--
Nickel	0.39	1.5E+02	1.6E+01	6.1E+02	4.6E+03	5.5E+03	2.0E+04	9.8E+05	7.4E+06	3.7E+01	4.4E+00	6.1E+01	4.6E+02	3.7E+04	5.0E+03	9.8E+04	7.4E+05	5.5E+03	5.0E+03	9.8E+04	7.4E+05
Nitrate (as N)	890	--	--	1.0E+04	--	--	--	1.5E+07	--	--	--	1.8E+03	--	--	--	1.5E+06	--	--	--	1.5E+06	--
Nitrobenzene	0	--	--	1.7E+01	6.9E+02	--	--	2.7E+04	1.1E+06	--	--	1.7E+00	6.9E+01	--	--	2.7E+03	1.1E+05	--	--	2.7E+03	1.1E+05
N-Nitrosodimethylamine[c]	0	--	--	6.9E-03	3.0E+01	--	--	2.3E+01	1.0E+05	--	--	6.9E-04	3.0E+00	--	--	2.3E+00	1.0E+04	--	--	2.3E+00	1.0E+04
N-Nitrosodiphenylamine[c]	0	--	--	3.3E+01	6.0E+01	--	--	1.1E+05	2.0E+05	--	--	3.3E+00	6.0E+00	--	--	1.1E+04	2.0E+04	--	--	1.1E+04	2.0E+04
N-Nitrosodi-n-propylamine[c]	0	--	--	5.0E-02	5.1E+00	--	--	1.7E+02	1.7E+04	--	--	5.0E-03	5.1E-01	--	--	1.7E+01	1.7E+03	--	--	1.7E+01	1.7E+03
Nonylphenol	0	2.8E+01	6.6E+00	--	--	1.0E+03	8.2E+03	--	--	7.0E+00	1.7E+00	--	--	7.0E+03	2.1E+03	--	--	1.0E+03	2.1E+03	--	--
Parathion	0	6.5E-02	1.3E-02	--	--	2.4E+00	1.6E+01	--	--	1.6E-02	3.3E-03	--	--	1.6E+01	4.0E+00	--	--	2.4E+00	4.0E+00	--	--
PCB Total[c]	0	--	1.4E-02	6.4E-04	6.4E-04	--	1.7E+01	2.2E+00	2.2E+00	--	3.5E-03	6.4E-05	6.4E-05	--	4.4E+00	2.2E-01	2.2E-01	--	4.4E+00	2.2E-01	2.2E-01
Pentachlorophenol [c]	0	1.2E+01	9.2E+00	2.7E+00	3.0E+01	4.4E+02	1.1E+04	9.1E+03	1.0E+05	3.0E+00	2.3E+00	2.7E-01	3.0E+00	3.0E+03	2.9E+03	9.1E+02	1.0E+04	4.4E+02	2.9E+03	9.1E+02	1.0E+04
Phenol	0	--	--	1.0E+04	8.6E+05	--	--	1.6E+07	1.4E+09	--	--	1.0E+03	8.6E+04	--	--	1.6E+06	1.4E+08	--	--	1.6E+06	1.4E+08
Pyrene	0	--	--	8.3E+02	4.0E+03	--	--	1.3E+06	6.4E+06	--	--	8.3E+01	4.0E+02	--	--	1.3E+05	6.4E+05	--	--	1.3E+05	6.4E+05
Radionuclides	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gross Alpha Activity (pCi/L)	0	--	--	1.5E+01	--	--	--	2.4E+04	--	--	--	1.5E+00	--	--	--	2.4E+03	--	--	--	2.4E+03	--
Beta and Photon Activity (mrem/yr)	0	--	--	4.0E+00	4.0E+00	--	--	6.4E+03	6.4E+03	--	--	4.0E-01	4.0E-01	--	--	6.4E+02	6.4E+02	--	--	6.4E+02	6.4E+02
Radium 226 + 228 (pCi/L)	0	--	--	5.0E+00	--	--	--	8.1E+03	--	--	--	5.0E-01	--	--	--	8.1E+02	--	--	--	8.1E+02	--
Uranium (ug/l)	0	--	--	3.0E+01	--	--	--	4.8E+04	--	--	--	3.0E+00	--	--	--	4.8E+03	--	--	--	4.8E+03	--

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	1.7E+02	4.2E+03	7.4E+02	6.2E+03	2.7E+05	6.8E+06	5.0E+00	1.3E+00	1.7E+01	4.2E+02	5.0E+03	1.6E+03	2.7E+04	6.8E+05	7.4E+02	1.6E+03	2.7E+04	6.8E+05
Silver	0	2.3E+00	--	--	--	8.5E+01	--	--	--	5.6E-01	--	--	--	5.6E+02	--	--	--	8.5E+01	--	--	--
Sulfate	7870	--	--	2.5E+05	--	--	--	3.9E+08	--	--	--	3.2E+04	--	--	--	3.9E+07	--	--	--	3.9E+07	--
1,1,2,2-Tetrachloroethane[c]	0	--	--	1.7E+00	4.0E+01	--	--	5.7E+03	1.4E+05	--	--	1.7E-01	4.0E+00	--	--	5.7E+02	1.4E+04	--	--	5.7E+02	1.4E+04
Tetrachloroethylene[c]	0	--	--	6.9E+00	3.3E+01	--	--	2.3E+04	1.1E+05	--	--	6.9E-01	3.3E+00	--	--	2.3E+03	1.1E+04	--	--	2.3E+03	1.1E+04
Thallium	0	--	--	2.4E-01	4.7E-01	--	--	3.9E+02	7.6E+02	--	--	2.4E-02	4.7E-02	--	--	3.9E+01	7.6E+01	--	--	3.9E+01	7.6E+01
Toluene	0	--	--	5.1E+02	6.0E+03	--	--	8.2E+05	9.7E+06	--	--	5.1E+01	6.0E+02	--	--	8.2E+04	9.7E+05	--	--	8.2E+04	9.7E+05
Total dissolved solids	0	--	--	5.0E+05	--	--	--	8.1E+08	--	--	--	5.0E+04	--	--	--	8.1E+07	--	--	--	8.1E+07	--
Toxaphene [c]	0	7.3E-01	2.0E-04	2.8E-03	2.8E-03	2.7E+01	2.5E-01	9.5E+00	9.5E+00	1.8E-01	5.0E-05	2.8E-04	2.8E-04	1.8E+02	6.2E-02	9.5E-01	9.5E-01	2.7E+01	6.2E-02	9.5E-01	9.5E-01
Tributyltin	0	4.6E-01	7.2E-02	--	--	1.7E+01	9.0E+01	--	--	1.2E-01	1.8E-02	--	--	1.1E+02	2.2E+01	--	--	1.7E+01	2.2E+01	--	--
1,2,4-Trichlorobenzene	0	--	--	3.5E+01	7.0E+01	--	--	5.6E+04	1.1E+05	--	--	3.5E+00	7.0E+00	--	--	5.6E+03	1.1E+04	--	--	5.6E+03	1.1E+04
1,1,2-Trichloroethane[c]	0	--	--	5.9E+00	1.6E+02	--	--	2.0E+04	5.4E+05	--	--	5.9E-01	1.6E+01	--	--	2.0E+03	5.4E+04	--	--	2.0E+03	5.4E+04
Trichloroethylene [c]	0	--	--	2.5E+01	3.0E+02	--	--	8.4E+04	1.0E+06	--	--	2.5E+00	3.0E+01	--	--	8.4E+03	1.0E+05	--	--	8.4E+03	1.0E+05
2,4,6-Trichlorophenol [c]	0	--	--	1.4E+01	2.4E+01	--	--	4.7E+04	8.1E+04	--	--	1.4E+00	2.4E+00	--	--	4.7E+03	8.1E+03	--	--	4.7E+03	8.1E+03
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	5.0E+01	--	--	--	8.1E+04	--	--	--	5.0E+00	--	--	--	8.1E+03	--	--	--	8.1E+03	--
Vinyl Chloride[c]	0	--	--	2.5E-01	2.4E+01	--	--	8.4E+02	8.1E+04	--	--	2.5E-02	2.4E+00	--	--	8.4E+01	8.1E+03	--	--	8.4E+01	8.1E+03
Zinc	3.68	9.6E+01	9.6E+01	7.4E+03	2.6E+04	3.4E+03	1.1E+05	1.2E+07	4.2E+07	2.7E+01	2.7E+01	7.4E+02	2.6E+03	2.3E+04	2.9E+04	1.2E+06	4.2E+06	3.4E+03	2.9E+04	1.2E+06	4.2E+06

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
   Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	9.0E+02
Arsenic	1.6E+03
Barium	3.2E+05
Cadmium	4.4E+01
Chromium III	6.9E+03
Chromium VI	2.4E+02
Copper	1.5E+02
Iron	4.8E+04
Lead	1.3E+03
Manganese	5.8E+03
Mercury	2.1E+01
Nickel	2.2E+03
Selenium	2.9E+02
Silver	3.4E+01
Zinc	1.4E+03

Note: do not use QL's lower than the minimum QL's provided in agency guidance

4/12/2010 2:08:16 PM

Facility = VA0000248 - 005
Chemical = Iron, Total
Chronic averaging period = 4
WLAa =
WLAc = 48000
Q.L. = 10
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 102
Variance = 3745.44
C.V. = 0.6
97th percentile daily values = 248.208
97th percentile 4 day average = 169.706
97th percentile 30 day average= 123.017
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

102

Mixing Zone Predictions for VA0000248 - 006

Effluent Flow = 13.7 MGD
Stream 7Q10 = 559 MGD
Stream 30Q10 = 646 MGD
Stream 1Q10 = 449 MGD
Stream slope = 0.001 ft/ft
Stream width = 550 ft
Bottom scale = 3
Channel scale = 1

Mixing Zone Predictions @ 7Q10

Depth = 2.2219 ft
Length = 147702.59 ft
Velocity = .7255 ft/sec
Residence Time = 2.3565 days

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than 84.87% of the 7Q10 is used.

Mixing Zone Predictions @ 30Q10

Depth = 2.4193 ft
Length = 137520.78 ft
Velocity = .7675 ft/sec
Residence Time = 2.074 days

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than 96.43% of the 30Q10 is used.

Mixing Zone Predictions @ 1Q10

Depth = 1.9542 ft
Length = 164482.85 ft
Velocity = .6664 ft/sec
Residence Time = 68.5631 hours

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than 1.46% of the 1Q10 is used.

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: RAAP - Outfall 006 Permit No.: VA0000248

Receiving Stream: New River Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO3) =	78	mg/L
90% Temperature (Annual) =	23.3	deg C
90% Temperature (Wet season) =	13.8	deg C
90% Maximum pH =	8.22	SU
10% Maximum pH =	7.32	SU
Tier Designation (1 or 2) =	2	
Public Water Supply (PWS) Y/N? =	y	
Trout Present Y/N? =	y	
Early Life Stages Present Y/N? =	y	

Stream Flows

1Q10 (Annual) =	449	MGD
7Q10 (Annual) =	559	MGD
30Q10 (Annual) =	646	MGD
1Q10 (Wet season) =	528	MGD
30Q10 (Wet season)	1067	MGD
30Q5 =	726	MGD
Harmonic Mean =	1520	MGD

Mixing Information

Annual - 1Q10 Mix =	1.46	%
- 7Q10 Mix =	84.87	%
- 30Q10 Mix =	96.43	%
Wet Season - 1Q10 Mix =	100	%
- 30Q10 Mix =	100	%

Effluent Information

Mean Hardness (as CaCO3) =	56	mg/L
90% Temp (Annual) =	25.3	deg C
90% Temp (Wet season) =	25.3	deg C
90% Maximum pH =	8.2	SU
10% Maximum pH =	6.8	SU
Discharge Flow =	13.7	MGD

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenapthene	0	--	--	6.7E+02	9.9E+02	--	--	3.6E+04	5.3E+04	--	--	6.7E+01	9.9E+01	--	--	3.6E+03	5.3E+03	--	--	3.6E+03	5.3E+03
Acrolein	0	--	--	6.1E+00	9.3E+00	--	--	3.3E+02	5.0E+02	--	--	6.1E-01	9.3E-01	--	--	3.3E+01	5.0E+01	--	--	3.3E+01	5.0E+01
Acrylonitrile[c]	0	--	--	5.1E-01	2.5E+00	--	--	5.7E+01	2.8E+02	--	--	5.1E-02	2.5E-01	--	--	5.7E+00	2.8E+01	--	--	5.7E+00	2.8E+01
Aldrin [c]	0	3.0E+00	--	4.9E-04	5.0E-04	4.4E+00	--	5.5E-02	5.6E-02	7.5E-01	--	4.9E-05	5.0E-05	2.5E+01	--	5.5E-03	5.6E-03	4.4E+00	--	5.5E-03	5.6E-03
Ammonia-N (mg/l) (Yearly)	0	3.78E+00	9.84E-01	--	--	5.6E+00	4.6E+01	--	--	9.21E-01	2.46E-01	--	--	3.1E+01	1.2E+01	--	--	5.6E+00	1.2E+01	--	--
Ammonia-N (mg/l) (High Flow)	0	3.68E+00	1.74E+00	--	--	1.5E+02	1.4E+02	--	--	9.21E-01	4.34E-01	--	--	3.6E+01	3.4E+01	--	--	3.6E+01	3.4E+01	--	--
Anthracene	0	--	--	8.3E+03	4.0E+04	--	--	4.5E+05	2.2E+06	--	--	8.3E+02	4.0E+03	--	--	4.5E+04	2.2E+05	--	--	4.5E+04	2.2E+05
Antimony	0	--	--	5.6E+00	6.4E+02	--	--	3.0E+02	3.5E+04	--	--	5.6E-01	6.4E+01	--	--	3.0E+01	3.5E+03	--	--	3.0E+01	3.5E+03
Arsenic	0.35	3.4E+02	1.5E+02	1.0E+01	--	5.0E+02	5.3E+03	5.2E+02	--	8.5E+01	3.8E+01	1.3E+00	--	2.9E+03	1.6E+03	5.2E+01	--	5.0E+02	1.6E+03	5.2E+01	--
Barium	0	--	--	2.0E+03	--	--	--	1.1E+05	--	--	--	2.0E+02	--	--	--	1.1E+04	--	--	--	1.1E+04	--
Benzene [c]	0	--	--	2.2E+01	5.1E+02	--	--	2.5E+03	5.7E+04	--	--	2.2E+00	5.1E+01	--	--	2.5E+02	5.7E+03	--	--	2.5E+02	5.7E+03
Benzidine[c]	0	--	--	8.6E-04	2.0E-03	--	--	9.6E-02	2.2E-01	--	--	8.6E-05	2.0E-04	--	--	9.6E-03	2.2E-02	--	--	9.6E-03	2.2E-02
Benzo (a) anthracene [c]	0	--	--	3.8E-02	1.8E-01	--	--	4.3E+00	2.0E+01	--	--	3.8E-03	1.8E-02	--	--	4.3E-01	2.0E+00	--	--	4.3E-01	2.0E+00
Benzo (b) fluoranthene [c]	0	--	--	3.8E-02	1.8E-01	--	--	4.3E+00	2.0E+01	--	--	3.8E-03	1.8E-02	--	--	4.3E-01	2.0E+00	--	--	4.3E-01	2.0E+00
Benzo (k) fluoranthene [c]	0	--	--	3.8E-02	1.8E-01	--	--	4.3E+00	2.0E+01	--	--	3.8E-03	1.8E-02	--	--	4.3E-01	2.0E+00	--	--	4.3E-01	2.0E+00
Benzo (a) pyrene [c]	0	--	--	3.8E-02	1.8E-01	--	--	4.3E+00	2.0E+01	--	--	3.8E-03	1.8E-02	--	--	4.3E-01	2.0E+00	--	--	4.3E-01	2.0E+00
Bis2-Chloroethyl Ether[c]	0	--	--	3.0E-01	5.3E+00	--	--	3.4E+01	5.9E+02	--	--	3.0E-02	5.3E-01	--	--	3.4E+00	5.9E+01	--	--	3.4E+00	5.9E+01
Bis2-Chloroisopropyl Ether	0	--	--	1.4E+03	6.5E+04	--	--	7.6E+04	3.5E+06	--	--	1.4E+02	6.5E+03	--	--	7.6E+03	3.5E+05	--	--	7.6E+03	3.5E+05
Bis 2-Ethylhexyl Phthalate[c]	0	--	--	1.2E+01	2.2E+01	--	--	1.3E+03	2.5E+03	--	--	1.2E+00	2.2E+00	--	--	1.3E+02	2.5E+02	--	--	1.3E+02	2.5E+02
Bromoform [c]	0	--	--	4.3E+01	1.4E+03	--	--	4.8E+03	1.6E+05	--	--	4.3E+00	1.4E+02	--	--	4.8E+02	1.6E+04	--	--	4.8E+02	1.6E+04
Butylbenzylphthalate	0	--	--	1.5E+03	1.9E+03	--	--	8.1E+04	1.0E+05	--	--	1.5E+02	1.9E+02	--	--	8.1E+03	1.0E+04	--	--	8.1E+03	1.0E+04
Cadmium	0	2.3E+00	9.3E-01	5.0E+00	--	3.5E+00	3.3E+01	2.7E+02	--	7.3E-01	2.3E-01	5.0E-01	--	2.5E+01	9.7E+00	2.7E+01	--	3.5E+00	9.7E+00	2.7E+01	--
Carbon Tetrachloride [c]	0	--	--	2.3E+00	1.6E+01	--	--	2.6E+02	1.8E+03	--	--	2.3E-01	1.6E+00	--	--	2.6E+01	1.8E+02	--	--	2.6E+01	1.8E+02
Chlordane [c]	0	2.4E+00	4.3E-03	8.0E-03	8.1E-03	3.5E+00	1.5E-01	9.0E-01	9.1E-01	6.0E-01	1.1E-03	8.0E-04	8.1E-04	2.0E+01	4.5E-02	9.0E-02	9.1E-02	3.5E+00	4.5E-02	9.0E-02	9.1E-02
Chloride	7960	8.6E+05	2.3E+05	2.5E+05	--	1.3E+06	7.9E+06	1.3E+07	--	2.2E+05	6.3E+04	3.2E+04	--	7.2E+06	2.3E+06	1.3E+06	--	1.3E+06	2.3E+06	1.3E+06	--
TRC	0	1.9E+01	1.1E+01	--	--	2.8E+01	3.9E+02	--	--	4.8E+00	2.8E+00	--	--	1.6E+02	1.1E+02	--	--	2.8E+01	1.1E+02	--	--
Chlorobenzene	0	--	--	1.3E+02	1.6E+03	--	--	7.0E+03	8.6E+04	--	--	1.3E+01	1.6E+02	--	--	7.0E+02	8.6E+03	--	--	7.0E+02	8.6E+03

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane[c]	0	--	--	4.0E+00	1.3E+02	--	--	4.5E+02	1.5E+04	--	--	4.0E-01	1.3E+01	--	--	4.5E+01	1.5E+03	--	--	4.5E+01	1.5E+03
Chloroform	0	--	--	3.4E+02	1.1E+04	--	--	1.8E+04	5.9E+05	--	--	3.4E+01	1.1E+03	--	--	1.8E+03	5.9E+04	--	--	1.8E+03	5.9E+04
2-Chloronaphthalene	0	--	--	1.0E+03	1.6E+03	--	--	5.4E+04	8.6E+04	--	--	1.0E+02	1.6E+02	--	--	5.4E+03	8.6E+03	--	--	5.4E+03	8.6E+03
2-Chlorophenol	0	--	--	8.1E+01	1.5E+02	--	--	4.4E+03	8.1E+03	--	--	8.1E+00	1.5E+01	--	--	4.4E+02	8.1E+02	--	--	4.4E+02	8.1E+02
Chlorpyrifos	0	8.3E-02	4.1E-02	--	--	1.2E-01	1.5E+00	--	--	2.1E-02	1.0E-02	--	--	7.0E-01	4.3E-01	--	--	1.2E-01	4.3E-01	--	--
Chromium III	0	3.9E+02	6.0E+01	--	--	5.8E+02	2.1E+03	--	--	1.2E+02	1.5E+01	--	--	3.9E+03	6.3E+02	--	--	5.8E+02	6.3E+02	--	--
Chromium VI	0	1.6E+01	1.1E+01	--	--	2.4E+01	3.9E+02	--	--	4.0E+00	2.8E+00	--	--	1.4E+02	1.1E+02	--	--	2.4E+01	1.1E+02	--	--
Chromium, Total	0.18	--	--	1.0E+02	--	--	--	5.4E+03	--	--	--	1.0E+01	--	--	--	5.4E+02	--	--	--	5.4E+02	--
Chrysene[c]	0	--	--	3.8E-03	1.8E-02	--	--	4.3E-01	2.0E+00	--	--	3.8E-04	1.8E-03	--	--	4.3E-02	2.0E-01	--	--	4.3E-02	2.0E-01
Copper	0.65	8.7E+00	7.2E+00	1.3E+03	--	1.3E+01	2.3E+02	7.0E+04	--	3.1E+00	2.3E+00	1.3E+02	--	8.4E+01	6.9E+01	7.0E+03	--	1.3E+01	6.9E+01	7.0E+03	--
Cyanide, Free	0	2.2E+01	5.2E+00	1.4E+02	1.6E+04	3.3E+01	1.9E+02	7.6E+03	8.6E+05	5.5E+00	1.3E+00	1.4E+01	1.6E+03	1.9E+02	5.4E+01	7.6E+02	8.6E+04	3.3E+01	5.4E+01	7.6E+02	8.6E+04
DDD[c]	0	--	--	3.1E-03	3.1E-03	--	--	3.5E-01	3.5E-01	--	--	3.1E-04	3.1E-04	--	--	3.5E-02	3.5E-02	--	--	3.5E-02	3.5E-02
DDE[c]	0	--	--	2.2E-03	2.2E-03	--	--	2.5E-01	2.5E-01	--	--	2.2E-04	2.2E-04	--	--	2.5E-02	2.5E-02	--	--	2.5E-02	2.5E-02
DDT[c]	0	1.1E+00	1.0E-03	2.2E-03	2.2E-03	1.6E+00	3.6E-02	2.5E-01	2.5E-01	2.8E-01	2.5E-04	2.2E-04	2.2E-04	9.3E+00	1.0E-02	2.5E-02	2.5E-02	1.6E+00	1.0E-02	2.5E-02	2.5E-02
Demeton	0	--	1.0E-01	--	--	--	3.6E+00	--	--	--	2.5E-02	--	--	--	1.0E+00	--	--	--	1.0E+00	--	--
Diazinon	0	1.7E-01	1.7E-01	--	--	2.5E-01	6.1E+00	--	--	4.3E-02	4.3E-02	--	--	1.4E+00	1.8E+00	--	--	2.5E-01	1.8E+00	--	--
Dibenz(a,h)anthracene[c]	0	--	--	3.8E-02	1.8E-01	--	--	4.3E+00	2.0E+01	--	--	3.8E-03	1.8E-02	--	--	4.3E-01	2.0E+00	--	--	4.3E-01	2.0E+00
1,2-Dichlorobenzene	0	--	--	4.2E+02	1.3E+03	--	--	2.3E+04	7.0E+04	--	--	4.2E+01	1.3E+02	--	--	2.3E+03	7.0E+03	--	--	2.3E+03	7.0E+03
1,3-Dichlorobenzene	0	--	--	3.2E+02	9.6E+02	--	--	1.7E+04	5.2E+04	--	--	3.2E+01	9.6E+01	--	--	1.7E+03	5.2E+03	--	--	1.7E+03	5.2E+03
1,4-Dichlorobenzene	0	--	--	6.3E+01	1.9E+02	--	--	3.4E+03	1.0E+04	--	--	6.3E+00	1.9E+01	--	--	3.4E+02	1.0E+03	--	--	3.4E+02	1.0E+03
3,3-Dichlorobenzidine[c]	0	--	--	2.1E-01	2.8E-01	--	--	2.4E+01	3.1E+01	--	--	2.1E-02	2.8E-02	--	--	2.4E+00	3.1E+00	--	--	2.4E+00	3.1E+00
Dichlorobromomethane[c]	0	--	--	5.5E+00	1.7E+02	--	--	6.2E+02	1.9E+04	--	--	5.5E-01	1.7E+01	--	--	6.2E+01	1.9E+03	--	--	6.2E+01	1.9E+03
1,2-Dichloroethane[c]	0	--	--	3.8E+00	3.7E+02	--	--	4.3E+02	4.1E+04	--	--	3.8E-01	3.7E+01	--	--	4.3E+01	4.1E+03	--	--	4.3E+01	4.1E+03
1,1-Dichloroethylene	0	--	--	3.3E+02	7.1E+03	--	--	1.8E+04	3.8E+05	--	--	3.3E+01	7.1E+02	--	--	1.8E+03	3.8E+04	--	--	1.8E+03	3.8E+04
1,2-trans-dichloroethylene	0	--	--	1.4E+02	1.0E+04	--	--	7.6E+03	5.4E+05	--	--	1.4E+01	1.0E+03	--	--	7.6E+02	5.4E+04	--	--	7.6E+02	5.4E+04
2,4-Dichlorophenol	0	--	--	7.7E+01	2.9E+02	--	--	4.2E+03	1.6E+04	--	--	7.7E+00	2.9E+01	--	--	4.2E+02	1.6E+03	--	--	4.2E+02	1.6E+03
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	1.0E+02	--	--	--	5.4E+03	--	--	--	1.0E+01	--	--	--	5.4E+02	--	--	--	5.4E+02	--
1,2-Dichloropropane[c]	0	--	--	5.0E+00	1.5E+02	--	--	5.6E+02	1.7E+04	--	--	5.0E-01	1.5E+01	--	--	5.6E+01	1.7E+03	--	--	5.6E+01	1.7E+03
1,3-Dichloropropene[c]	0	--	--	3.4E+00	2.1E+02	--	--	3.8E+02	2.4E+04	--	--	3.4E-01	2.1E+01	--	--	3.8E+01	2.4E+03	--	--	3.8E+01	2.4E+03
Dieldrin[c]	0	2.4E-01	5.6E-02	5.2E-04	5.4E-04	3.5E-01	2.0E+00	5.8E-02	6.0E-02	6.0E-02	1.4E-02	5.2E-05	5.4E-05	2.0E+00	5.9E-01	5.8E-03	6.0E-03	3.5E-01	5.9E-01	5.8E-03	6.0E-03
Diethyl Phthalate	0	--	--	1.7E+04	4.4E+04	--	--	9.2E+05	2.4E+06	--	--	1.7E+03	4.4E+03	--	--	9.2E+04	2.4E+05	--	--	9.2E+04	2.4E+05
2,4-Dimethylphenol	0	--	--	3.8E+02	8.5E+02	--	--	2.1E+04	4.6E+04	--	--	3.8E+01	8.5E+01	--	--	2.1E+03	4.6E+03	--	--	2.1E+03	4.6E+03
Dimethyl Phthalate	0	--	--	2.7E+05	1.1E+06	--	--	1.5E+07	5.9E+07	--	--	2.7E+04	1.1E+05	--	--	1.5E+06	5.9E+06	--	--	1.5E+06	5.9E+06
Di-n-Butyl Phthalate	0	--	--	2.0E+03	4.5E+03	--	--	1.1E+05	2.4E+05	--	--	2.0E+02	4.5E+02	--	--	1.1E+04	2.4E+04	--	--	1.1E+04	2.4E+04
2,4 Dinitrophenol	0	--	--	6.9E+01	5.3E+03	--	--	3.7E+03	2.9E+05	--	--	6.9E+00	5.3E+02	--	--	3.7E+02	2.9E+04	--	--	3.7E+02	2.9E+04
2-Methyl-4,6-Dinitrophenol	0	--	--	1.3E+01	2.8E+02	--	--	7.0E+02	1.5E+04	--	--	1.3E+00	2.8E+01	--	--	7.0E+01	1.5E+03	--	--	7.0E+01	1.5E+03
2,4-Dinitrotoluene[c]	0	--	--	1.1E+00	3.4E+01	--	--	1.2E+02	3.8E+03	--	--	1.1E-01	3.4E+00	--	--	1.2E+01	3.8E+02	--	--	1.2E+01	3.8E+02
Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin	0	--	--	5.0E-08	5.1E-08	--	--	2.7E-06	2.8E-06	--	--	5.0E-09	5.1E-09	--	--	2.7E-07	2.8E-07	--	--	2.7E-07	2.8E-07
1,2-Diphenylhydrazine[c]	0	--	--	3.6E-01	2.0E+00	--	--	4.0E+01	2.2E+02	--	--	3.6E-02	2.0E-01	--	--	4.0E+00	2.2E+01	--	--	4.0E+00	2.2E+01
Alpha-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	3.3E-01	2.0E+00	3.3E+03	4.8E+03	5.5E-02	1.4E-02	6.2E+00	8.9E+00	1.9E+00	5.9E-01	3.3E+02	4.8E+02	3.3E-01	5.9E-01	3.3E+02	4.8E+02
Beta-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	3.3E-01	2.0E+00	3.3E+03	4.8E+03	5.5E-02	1.4E-02	6.2E+00	8.9E+00	1.9E+00	5.9E-01	3.3E+02	4.8E+02	3.3E-01	5.9E-01	3.3E+02	4.8E+02
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	3.3E-01	2.0E+00	--	--	5.5E-02	1.4E-02	--	--	1.9E+00	5.9E-01	--	--	3.3E-01	5.9E-01	--	--
Endosulfan Sulfate	0	--	--	6.2E+01	8.9E+01	--	--	3.3E+03	4.8E+03	--	--	6.2E+00	8.9E+00	--	--	3.3E+02	4.8E+02	--	--	3.3E+02	4.8E+02
Endrin	0	8.6E-02	3.6E-02	5.9E-02	6.0E-02	1.3E-01	1.3E+00	3.2E+00	3.2E+00	2.2E-02	9.0E-03	5.9E-03	6.0E-03	7.3E-01	3.8E-01	3.2E-01	3.2E-01	1.3E-01	3.8E-01	3.2E-01	3.2E-01
Endrin Aldehyde	0	--	--	2.9E-01	3.0E-01	--	--	1.6E+01	1.6E+01	--	--	2.9E-02	3.0E-02	--	--	1.6E+00	1.6E+00	--	--	1.6E+00	1.6E+00

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	5.3E+02	2.1E+03	--	--	2.9E+04	1.1E+05	--	--	5.3E+01	2.1E+02	--	--	2.9E+03	1.1E+04	--	--	2.9E+03	1.1E+04
Fluoranthene	0	--	--	1.3E+02	1.4E+02	--	--	7.0E+03	7.6E+03	--	--	1.3E+01	1.4E+01	--	--	7.0E+02	7.6E+02	--	--	7.0E+02	7.6E+02
Fluorene	0	--	--	1.1E+03	5.3E+03	--	--	5.9E+04	2.9E+05	--	--	1.1E+02	5.3E+02	--	--	5.9E+03	2.9E+04	--	--	5.9E+03	2.9E+04
Foaming Agents	0	--	--	5.0E+02	--	--	--	2.7E+04	--	--	--	5.0E+01	--	--	--	2.7E+03	--	--	--	2.7E+03	--
Guthion	0	--	1.0E-02	--	--	--	3.6E-01	--	--	--	2.5E-03	--	--	--	1.0E-01	--	--	--	1.0E-01	--	--
Heptachlor [c]	0	5.2E-01	3.8E-03	7.9E-04	7.9E-04	7.7E-01	1.4E-01	8.8E-02	8.8E-02	1.3E-01	9.5E-04	7.9E-05	7.9E-05	4.4E+00	4.0E-02	8.8E-03	8.8E-03	7.7E-01	4.0E-02	8.8E-03	8.8E-03
Heptachlor Epoxide[c]	0	5.2E-01	3.8E-03	3.9E-04	3.9E-04	7.7E-01	1.4E-01	4.4E-02	4.4E-02	1.3E-01	9.5E-04	3.9E-05	3.9E-05	4.4E+00	4.0E-02	4.4E-03	4.4E-03	7.7E-01	4.0E-02	4.4E-03	4.4E-03
Hexachlorobenzene[c]	0	--	--	2.8E-03	2.9E-03	--	--	3.1E-01	3.2E-01	--	--	2.8E-04	2.9E-04	--	--	3.1E-02	3.2E-02	--	--	3.1E-02	3.2E-02
Hexachlorobutadiene[c]	0	--	--	4.4E+00	1.8E+02	--	--	4.9E+02	2.0E+04	--	--	4.4E-01	1.8E+01	--	--	4.9E+01	2.0E+03	--	--	4.9E+01	2.0E+03
Hexachlorocyclohexane Alpha-BHC[c]	0	--	--	2.6E-02	4.9E-02	--	--	2.9E+00	5.5E+00	--	--	2.6E-03	4.9E-03	--	--	2.9E-01	5.5E-01	--	--	2.9E-01	5.5E-01
Hexachlorocyclohexane Beta BHC[c]	0	--	--	9.1E-02	1.7E-01	--	--	1.0E+01	1.9E+01	--	--	9.1E-03	1.7E-02	--	--	1.0E+00	1.9E+00	--	--	1.0E+00	1.9E+00
Hexachlorocyclohexane Gamma-BHC[c] (Lindane)	0	9.5E-01	--	9.8E-01	1.8E+00	1.4E+00	--	1.1E+02	2.0E+02	2.4E-01	--	9.8E-02	1.8E-01	8.0E+00	--	1.1E+01	2.0E+01	1.4E+00	--	1.1E+01	2.0E+01
Hexachlorocyclopentadiene	0	--	--	4.0E+01	1.1E+03	--	--	2.2E+03	5.9E+04	--	--	4.0E+00	1.1E+02	--	--	2.2E+02	5.9E+03	--	--	2.2E+02	5.9E+03
Hexachloroethane[c]	0	--	--	1.4E+01	3.3E+01	--	--	1.6E+03	3.7E+03	--	--	1.4E+00	3.3E+00	--	--	1.6E+02	3.7E+02	--	--	1.6E+02	3.7E+02
Hydrogen Sulfide	0	--	2.0E+00	--	--	--	7.1E+01	--	--	--	5.0E-01	--	--	--	2.1E+01	--	--	--	2.1E+01	--	--
Indeno (1,2,3-cd) pyrene [c]	0	--	--	3.8E-02	1.8E-01	--	--	4.3E+00	2.0E+01	--	--	3.8E-03	1.8E-02	--	--	4.3E-01	2.0E+00	--	--	4.3E-01	2.0E+00
Iron	0	--	--	3.0E+02	--	--	--	1.6E+04	--	--	--	3.0E+01	--	--	--	1.6E+03	--	--	--	1.6E+03	--
Isophorone[c]	0	--	--	3.5E+02	9.6E+03	--	--	3.9E+04	1.1E+06	--	--	3.5E+01	9.6E+02	--	--	3.9E+03	1.1E+05	--	--	3.9E+03	1.1E+05
Kepone	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--
Lead	0	6.6E+01	9.7E+00	1.5E+01	--	9.8E+01	3.5E+02	8.1E+02	--	2.1E+01	2.4E+00	1.5E+00	--	7.2E+02	1.0E+02	8.1E+01	--	9.8E+01	1.0E+02	8.1E+01	--
Malathion	0	--	1.0E-01	--	--	--	3.6E+00	--	--	--	2.5E-02	--	--	--	1.0E+00	--	--	--	1.0E+00	--	--
Manganese	14.32	--	--	5.0E+01	--	--	--	1.9E+03	--	--	--	1.8E+01	--	--	--	2.1E+02	--	--	--	2.1E+02	--
Mercury	0	1.4E+00	7.7E-01	--	--	2.1E+00	2.7E+01	--	--	3.5E-01	1.9E-01	--	--	1.2E+01	8.0E+00	--	--	2.1E+00	8.0E+00	--	--
Methyl Bromide	0	--	--	4.7E+01	1.5E+03	--	--	2.5E+03	8.1E+04	--	--	4.7E+00	1.5E+02	--	--	2.5E+02	8.1E+03	--	--	2.5E+02	8.1E+03
Methylene Chloride [c]	0	--	--	4.6E+01	5.9E+03	--	--	5.1E+03	6.6E+05	--	--	4.6E+00	5.9E+02	--	--	5.1E+02	6.6E+04	--	--	5.1E+02	6.6E+04
Methoxychlor	0	--	3.0E-02	1.0E+02	--	--	1.1E+00	5.4E+03	--	--	7.5E-03	1.0E+01	--	--	3.1E-01	5.4E+02	--	--	3.1E-01	5.4E+02	--
Mirex	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--
Nickel	0.39	1.2E+02	1.6E+01	6.1E+02	4.6E+03	1.8E+02	5.7E+02	3.3E+04	2.5E+05	3.7E+01	4.4E+00	6.1E+01	4.6E+02	1.2E+03	1.7E+02	3.3E+03	2.5E+04	1.8E+02	1.7E+02	3.3E+03	2.5E+04
Nitrate (as N)	890	--	--	1.0E+04	--	--	--	4.9E+05	--	--	--	1.8E+03	--	--	--	5.0E+04	--	--	--	5.0E+04	--
Nitrobenzene	0	--	--	1.7E+01	6.9E+02	--	--	9.2E+02	3.7E+04	--	--	1.7E+00	6.9E+01	--	--	9.2E+01	3.7E+03	--	--	9.2E+01	3.7E+03
N-Nitrosodimethylamine[c]	0	--	--	6.9E-03	3.0E+01	--	--	7.7E-01	3.4E+03	--	--	6.9E-04	3.0E+00	--	--	7.7E-02	3.4E+02	--	--	7.7E-02	3.4E+02
N-Nitrosodiphenylamine[c]	0	--	--	3.3E+01	6.0E+01	--	--	3.7E+03	6.7E+03	--	--	3.3E+00	6.0E+00	--	--	3.7E+02	6.7E+02	--	--	3.7E+02	6.7E+02
N-Nitrosodi-n-propylamine[c]	0	--	--	5.0E-02	5.1E+00	--	--	5.6E+00	5.7E+02	--	--	5.0E-03	5.1E-01	--	--	5.6E-01	5.7E+01	--	--	5.6E-01	5.7E+01
Nonylphenol	0	2.8E+01	6.6E+00	--	--	4.1E+01	2.4E+02	--	--	7.0E+00	1.7E+00	--	--	2.4E+02	6.9E+01	--	--	4.1E+01	6.9E+01	--	--
Parathion	0	6.5E-02	1.3E-02	--	--	9.6E-02	4.6E-01	--	--	1.6E-02	3.3E-03	--	--	5.5E-01	1.4E-01	--	--	9.6E-02	1.4E-01	--	--
PCB Total[c]	0	--	1.4E-02	6.4E-04	6.4E-04	--	5.0E-01	7.2E-02	7.2E-02	--	3.5E-03	6.4E-05	6.4E-05	--	1.5E-01	7.2E-03	7.2E-03	--	1.5E-01	7.2E-03	7.2E-03
Pentachlorophenol [c]	0	8.0E+00	9.0E+00	2.7E+00	3.0E+01	1.2E+01	3.2E+02	3.0E+02	3.4E+03	2.9E+00	2.3E+00	2.7E-01	3.0E+00	9.9E+01	9.4E+01	3.0E+01	3.4E+02	1.2E+01	9.4E+01	3.0E+01	3.4E+02
Phenol	0	--	--	1.0E+04	8.6E+05	--	--	5.4E+05	4.6E+07	--	--	1.0E+03	8.6E+04	--	--	5.4E+04	4.6E+06	--	--	5.4E+04	4.6E+06
Pyrene	0	--	--	8.3E+02	4.0E+03	--	--	4.5E+04	2.2E+05	--	--	8.3E+01	4.0E+02	--	--	4.5E+03	2.2E+04	--	--	4.5E+03	2.2E+04
Radionuclides	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gross Alpha Activity (pCi/L)	0	--	--	1.5E+01	--	--	--	8.1E+02	--	--	--	1.5E+00	--	--	--	8.1E+01	--	--	--	8.1E+01	--
Beta and Photon Activity (mrem/yr)	0	--	--	4.0E+00	4.0E+00	--	--	2.2E+02	2.2E+02	--	--	4.0E-01	4.0E-01	--	--	2.2E+01	2.2E+01	--	--	2.2E+01	2.2E+01
Radium 226 + 228 (pCi/L)	0	--	--	5.0E+00	--	--	--	2.7E+02	--	--	--	5.0E-01	--	--	--	2.7E+01	--	--	--	2.7E+01	--
Uranium (ug/l)	0	--	--	3.0E+01	--	--	--	1.6E+03	--	--	--	3.0E+00	--	--	--	1.6E+02	--	--	--	1.6E+02	--

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	1.7E+02	4.2E+03	3.0E+01	1.8E+02	9.2E+03	2.3E+05	5.0E+00	1.3E+00	1.7E+01	4.2E+02	1.7E+02	5.2E+01	9.2E+02	2.3E+04	3.0E+01	5.2E+01	9.2E+02	2.3E+04
Silver	0	1.6E+00	--	--	--	2.3E+00	--	--	--	5.5E-01	--	--	--	1.9E+01	--	--	--	2.3E+00	--	--	--
Sulfate	7870	--	--	2.5E+05	--	--	--	1.3E+07	--	--	--	3.2E+04	--	--	--	1.3E+06	--	--	--	1.3E+06	--
1,1,2,2-Tetrachloroethane[c]	0	--	--	1.7E+00	4.0E+01	--	--	1.9E+02	4.5E+03	--	--	1.7E-01	4.0E+00	--	--	1.9E+01	4.5E+02	--	--	1.9E+01	4.5E+02
Tetrachloroethylene[c]	0	--	--	6.9E+00	3.3E+01	--	--	7.7E+02	3.7E+03	--	--	6.9E-01	3.3E+00	--	--	7.7E+01	3.7E+02	--	--	7.7E+01	3.7E+02
Thallium	0	--	--	2.4E-01	4.7E-01	--	--	1.3E+01	2.5E+01	--	--	2.4E-02	4.7E-02	--	--	1.3E+00	2.5E+00	--	--	1.3E+00	2.5E+00
Toluene	0	--	--	5.1E+02	6.0E+03	--	--	2.8E+04	3.2E+05	--	--	5.1E+01	6.0E+02	--	--	2.8E+03	3.2E+04	--	--	2.8E+03	3.2E+04
Total dissolved solids	0	--	--	5.0E+05	--	--	--	2.7E+07	--	--	--	5.0E+04	--	--	--	2.7E+06	--	--	--	2.7E+06	--
Toxaphene [c]	0	7.3E-01	2.0E-04	2.8E-03	2.8E-03	1.1E+00	7.1E-03	3.1E-01	3.1E-01	1.8E-01	5.0E-05	2.8E-04	2.8E-04	6.2E+00	2.1E-03	3.1E-02	3.1E-02	1.1E+00	2.1E-03	3.1E-02	3.1E-02
Tributyltin	0	4.6E-01	7.2E-02	--	--	6.8E-01	2.6E+00	--	--	1.2E-01	1.8E-02	--	--	3.9E+00	7.5E-01	--	--	6.8E-01	7.5E-01	--	--
1,2,4-Trichlorobenzene	0	--	--	3.5E+01	7.0E+01	--	--	1.9E+03	3.8E+03	--	--	3.5E+00	7.0E+00	--	--	1.9E+02	3.8E+02	--	--	1.9E+02	3.8E+02
1,1,2-Trichloroethane[c]	0	--	--	5.9E+00	1.6E+02	--	--	6.6E+02	1.8E+04	--	--	5.9E-01	1.6E+01	--	--	6.6E+01	1.8E+03	--	--	6.6E+01	1.8E+03
Trichloroethylene [c]	0	--	--	2.5E+01	3.0E+02	--	--	2.8E+03	3.4E+04	--	--	2.5E+00	3.0E+01	--	--	2.8E+02	3.4E+03	--	--	2.8E+02	3.4E+03
2,4,6-Trichlorophenol [c]	0	--	--	1.4E+01	2.4E+01	--	--	1.6E+03	2.7E+03	--	--	1.4E+00	2.4E+00	--	--	1.6E+02	2.7E+02	--	--	1.6E+02	2.7E+02
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	5.0E+01	--	--	--	2.7E+03	--	--	--	5.0E+00	--	--	--	2.7E+02	--	--	--	2.7E+02	--
Vinyl Chloride[c]	0	--	--	2.5E-01	2.4E+01	--	--	2.8E+01	2.7E+03	--	--	2.5E-02	2.4E+00	--	--	2.8E+00	2.7E+02	--	--	2.8E+00	2.7E+02
Zinc	3.68	7.9E+01	9.5E+01	7.4E+03	2.6E+04	1.2E+02	3.3E+03	4.0E+05	1.4E+06	2.6E+01	2.7E+01	7.4E+02	2.6E+03	7.7E+02	9.6E+02	4.0E+04	1.4E+05	1.2E+02	9.6E+02	4.0E+04	1.4E+05

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information. Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	3.0E+01
Arsenic	5.2E+01
Barium	1.1E+04
Cadmium	1.4E+00
Chromium III	2.3E+02
Chromium VI	9.5E+00
Copper	5.0E+00
Iron	1.6E+03
Lead	3.9E+01
Manganese	2.1E+02
Mercury	8.3E-01
Nickel	7.3E+01
Selenium	1.2E+01
Silver	9.2E-01
Zinc	4.6E+01

Note: do not use QL's lower than the minimum QL's provided in agency guidance

4/12/2010 2:10:02 PM

Facility = VA0000248 - 006
Chemical = Iron, Total
Chronic averaging period = 4
WLAa =
WLAc = 1600
Q.L. = 10
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 144
Variance = 7464.96
C.V. = 0.6
97th percentile daily values = 350.412
97th percentile 4 day average = 239.585
97th percentile 30 day average= 173.671
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

144

Spreadsheet for determination of WET test endpoints or WET limits

1															
2		**Spreadsheet for determination of WET test endpoints or WET limits**													
3															
4		**Excel 97**			**Acute Endpoint/Permit Limit**			**Use as LC_{50} in Special Condition, as TUa on DMR**							
5		**Revision Date: 01/10/05**													
6		**File: WETLIM10.xls**			**ACUTE**	**100% =**	**NOAEC**	**LC_{50} =**	**NA**	**% Use as**	**NA**	**TUa**			
7		**(MIX.EXE required also)**													
8					**ACUTE WLAa**		**0.44354891**	Note: Inform the permittee that if the mean of the data exceeds							
9								this TUa:	**1.0**	a limit may result using WLA.EXE					
10															
11					**Chronic Endpoint/Permit Limit**			**Use as NOEC in Special Condition, as TUc on DMR**							
12															
13					**CHRONIC**	**4.43548916**	**TU_c**	**NOEC =**	**23**	**% Use as**	**4.34**	**TU_c**			
14					**BOTH***	**4.43548916**	**TU_c**	**NOEC =**	**23**	**% Use as**	**4.34**	**TU_c**			
15	**Enter data in the cells with blue type:**				**AML**	**4.43548916**	**TU_c**	**NOEC =**	**23**	**% Use as**	**4.34**	**TU_c**			
16															
17	Entry Date:		04/08/10		**ACUTE WLAa,c**		**4.43548905**		Note: Inform the permittee that if the mean						
18	Facility Name:				**CHRONIC WLAc**		**35.629438**		of the data exceeds this TUc:			**1.82274063**			
19	VPDES Number:		VA0000248		* Both means acute expressed as chronic				a limit may result using WLA.EXE						
20	Outfall Number:		**6**												
21					**% Flow to be used from MIX.EXE**				**Difuser /modeling study?**						
22	Plant Flow:		**13.7**	MGD					Enter Y/N	**N**					
23	Acute 1Q10:		**449**	MGD	**1.46**	%			Acute		:1				
24	Chronic 7Q10:		**559**	MGD	**84.87**	%			Chronic		:1				
25															
26	Are data available to calculate CV? (Y/N)				**N**	(Minimum of 10 data points, same species, needed)					Go to Page 2				
27	Are data available to calculate ACR? (Y/N)				**N**	(NOEC<LC50, do not use greater/less than data)					Go to Page 3				
28															
29															
30	IWC_a		67.63628465	%	Plant flow/plant flow + 1Q10		**NOTE: If the IWCa is >33%, specify the**								
31	IWC_c		2.806667905	%	Plant flow/plant flow + 7Q10		**NOAEC = 100% test/endpoint for use**								
32															
33	Dilution, acute		1.47849635		100/IWCa										
34	Dilution, chronic		35.62943796		100/IWCc										
35															
36	WLA_a		0.443548905	Instream criterion (0.3 TUa) X's Dilution, acute											
37	WLA_c		35.62943796	Instream criterion (1.0 TUc) X's Dilution, chronic											
38	$WLA_{a,c}$		4.435489051	ACR X's WLA_a - converts acute WLA to chronic units											
39															
40	ACR -acute/chronic ratio		10	LC50/NOEC (Default is 10 - if data are available, use tables Page 3)											
41	CV-Coefficient of variatior		0.6	Default of 0.6 - if data are available, use tables Page 2)											
42	Constants	eA	0.4109447	Default = 0.41											
43		eB	0.6010373	Default = 0.60											
44		eC	2.4334175	Default = 2.43											
45		eD	2.4334175	Default = 2.43 (1 samp)	No. of sample		1	****The Maximum Daily Limit is calculated from the lowest**							
46								**LTA, X's eC. The LTAa,c and MDL using it are driven by the ACR.**							
47	$LTA_{a,c}$		1.822740717	WLAa,c X's eA											
48	LTA_c		21.41462119	WLAc X's eB							Rounded NOEC's		%		
49	MDL** with $LTA_{a,c}$		4.43548916	TU_c	NOEC =	22.545428	(Protects from acute/chronic toxicity)				NOEC =	23	%		
50	MDL** with LTA_c		52.11071396	TU_c	NOEC =	1.918991	(Protects from chronic toxicity)				NOEC =	2	%		
51	AML with lowest LTA		4.43548916	TU_c	NOEC =	22.545428	Lowest LTA X's eD				NOEC =	23			
52															
53	IF ONLY ACUTE ENDPOINT/LIMIT IS NEEDED, CONVERT MDL FROM TU_c to TU_a														
54											Rounded LC50's		%		
55	MDL with $LTA_{a,c}$		0.443548916	TU_a	LC50 =	225.454277	%	Use NOAEC=100%			LC50 =	NA	%		
56	MDL with LTA_c		5.211071396	TU_a	LC50 =	19.189912	%				LC50 =	20			
57															
58															

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
59															
60		**Page 2 - Follow the directions to develop a site specific CV (coefficient of variation)**													
61															
62		IF YOU HAVE AT LEAST 10 DATA POINTS THAT					Vertebrate			Invertebrate					
63		ARE QUANTIFIABLE (NOT "<" OR ">")					IC_{25} Data			IC_{25} Data					
64		FOR A SPECIES, ENTER THE DATA IN EITHER					or			or					
65		COLUMN "G" (VERTEBRATE) OR COLUMN					LC_{50} Data	LN of data		LC_{50} Data	LN of data				
66		"J" (INVERTEBRATE). THE 'CV' WILL BE					**********			**********					
67		PICKED UP FOR THE CALCULATIONS				1	0		1	0					
68		BELOW. THE DEFAULT VALUES FOR eA,				2			2						
69		eB, AND eC WILL CHANGE IF THE 'CV' IS				3			3						
70		ANYTHING OTHER THAN 0.6.				4			4						
71						5			5						
72						6			6						
73						7			7						
74		Coefficient of Variation for effluent tests				8			8						
75						9			9						
76		CV =	0.6	(Default 0.6)		10			10						
77						11			11						
78		δ^2 =	0.3074847			12			12						
79		δ =	0.554513029			13			13						
80						14			14						
81		Using the log variance to develop eA				15			15						
82			(P. 100, step 2a of TSD)			16			16						
83		Z = 1.881 (97% probability stat from table				17			17						
84		A =	-0.88929666			18			18						
85		eA =	0.410944686			19			19						
86						20			20						
87		Using the log variance to develop eB													
88			(P. 100, step 2b of TSD)			St Dev	NEED DATA	NEED DATA	St Dev	NEED DAT/	NEED DATA				
89		δ_4^2 =	0.086177696			Mean	0	0	Mean	0	0				
90		δ_4 =	0.293560379			Variance	0	0.000000	Variance	0	0.000000				
91		B =	-0.50909823			CV	0		CV	0					
92		eB =	0.601037335												
93															
94		Using the log variance to develop eC													
95			(P. 100, step 4a of TSD)												
96															
97		δ^2 =	0.3074847												
98		δ =	0.554513029												
99		C =	0.889296658												
100		eC =	2.433417525												
101															
102		Using the log variance to develop eD													
103			(P. 100, step 4b of TSD)												
104		n =	1	This number will most likely stay as "1", for 1 sample/month.											
105		δ_n^2 =	0.3074847												
106		δ_n =	0.554513029												
107		D =	0.889296658												
108		eD =	2.433417525												
109															

Page 3 - Follow directions to develop a site specific ACR (Acute to Chronic Ratio)

To determine Acute/Chronic Ratio (ACR), insert usable data below. Usable data is defined as valid paired test results, acute and chronic, tested at the same temperature, same species. The chronic NOEC must be less than the acute LC_{50}, since the ACR divides the LC_{50} by the NOEC. LC_{50}'s >100% should not be used.

Table 1. ACR using Vertebrate data

Set #	LC_{50}	NOEC	Test ACR	Logarithm	Geomean	Antilog	ACR to Use
1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
3	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
4	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
5	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
6	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
7	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
8	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
9	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
10	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
				ACR for vertebrate data:			0

Table 1. Result:	Vertebrate ACR	0
Table 2. Result:	Invertebrate ACR	0
	Lowest ACR	Default to 10

Table 2. ACR using Invertebrate data

Set #	LC_{50}	NOEC	Test ACR	Logarithm	Geomean	Antilog	ACR to Use
1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
3	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
4	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
5	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
6	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
7	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
8	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
9	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
10	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
				ACR for vertebrate data:			0

DILUTION SERIES TO RECOMMEND

Table 4.

	Monitoring		Limit	
	% Effluent	TUc	% Effluent	TUc
Dilution series based on data mean	54.9	1.8227406		
Dilution series to use for limit			23	4.3478261
Dilution factor to recommend:	0.7406918		0.4795832	
Dilution series to recommend:	100.0	1.00	100.0	1.00
	74.1	1.35	48.0	2.09
	54.9	1.82	23.0	4.35
	40.6	2.46	11.0	9.07
	30.10	3.32	5.3	18.90
Extra dilutions if needed	22.29	4.49	2.5	39.42
	16.51	6.06	1.2	82.19

Convert LC_{50}'s and NOEC's to Chronic TU's for use in WLA.EXE

Table 3. ACR used: 10

	Enter LC_{50}	TUc	Enter NOEC	TUc
1		NO DATA		NO DATA
2		NO DATA		NO DATA
3		NO DATA		NO DATA
4		NO DATA		NO DATA
5		NO DATA		NO DATA
6		NO DATA		NO DATA
7		NO DATA		NO DATA
8		NO DATA		NO DATA
9		NO DATA		NO DATA
10		NO DATA		NO DATA
11		NO DATA		NO DATA
12		NO DATA		NO DATA
13		NO DATA		NO DATA
14		NO DATA		NO DATA
15		NO DATA		NO DATA
16		NO DATA		NO DATA
17		NO DATA		NO DATA
18		NO DATA		NO DATA
19		NO DATA		NO DATA
20		NO DATA		NO DATA

If WLA.EXE determines that an acute limit is needed, you need to convert the TUc answer you get to TUa and then an LC50, enter it here:

NO DATA	$\%LC_{50}$	
NO DATA	TUa	

Cell: I9
Comment:
This is assuming that the data are Type 2 data (none of the data in the data set are censored - "<" or ">").

Cell: K18
Comment: This is assuming that the data are Type 2 data (none of the data in the data set are censored - "<" or ">").

Cell: J22
Comment: Remember to change the "N" to "Y" if you have ratios entered, otherwise, they won't be used in the calculations.

Cell: C40
Comment:
If you have entered data to calculate an ACR on page 3, and this is still defaulted to "10", make sure you have selected "Y" in cell E21

Cell: C41
Comment: If you have entered data to calculate an effluent specific CV on page 2, and this is still defaulted to "0.6", make sure you have selected "Y" in cell E20

Cell: L48
Comment:
See Row 151 for the appropriate dilution series to use for these NOEC's

Cell: G62
Comment:
Vertebrates are:
Pimephales promelas
Oncorhynchus mykiss
Cyprinodon variegatus

Cell: J62
Comment:
Invertebrates are:
Ceriodaphnia dubia
Mysidopsis bahia

Cell: C117
Comment: Vertebrates are:

Pimephales promelas
Cyprinodon variegatus

Cell: M119
Comment: The ACR has been picked up from cell C34 on Page 1. If you have paired data to calculate an ACR, enter it in the tables to the left, and make sure you have a "Y" in cell E21 on Page 1. Otherwise, the default of 10 will be used to convert your acute data.

Cell: M121
Comment: If you are only concerned with acute data, you can enter it in the NOEC column for conversion and the number calculated will be equivalent to the TUa. The calculation is the same: 100/NOEC = TUc or 100/LC50 = TUa.

Cell: C138
Comment: Invertebrates are:

Ceriodaphnia dubia
Mysidopsis bahia

4/8/2010 3:15:29 PM

Facility = RAAP - Outfall 006
Chemical = Chronic Toxicity
Chronic averaging period = 4
WLAa = 4.435
WLAc = 35.629
Q.L. = 1
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 5
Expected Value = 4.15
Variance = 6.2001
C.V. = 0.6
97th percentile daily values = 10.0986
97th percentile 4 day average = 6.90472
97th percentile 30 day average= 5.00512
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity
Maximum Daily Limit = 4.435
Average Weekly limit = 4.435
Average Monthly LImit = 4.435

The data are:

1
1
6.25
6.25
6.25

Mixing Zone Predictions for VA0000248 - 07

Effluent Flow = 5.554 MGD
Stream 7Q10 = 559 MGD
Stream 30Q10 = 646 MGD
Stream 1Q10 = 449 MGD
Stream slope = .001 ft/ft
Stream width = 600 ft
Bottom scale = 3
Channel scale = 1

Mixing Zone Predictions @ 7Q10

Depth = 2.0899 ft
Length = 185118.25 ft
Velocity = .6969 ft/sec
Residence Time = 3.0742 days

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than 65.06% of the 7Q10 is used.

Mixing Zone Predictions @ 30Q10

Depth = 2.2781 ft
Length = 172211.24 ft
Velocity = .7379 ft/sec
Residence Time = 2.7012 days

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than 74.04% of the 30Q10 is used.

Mixing Zone Predictions @ 1Q10

Depth = 1.8344 ft
Length = 206480.06 ft
Velocity = .6393 ft/sec
Residence Time = 89.7176 hours

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than 1.11% of the 1Q10 is used.

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: RAAP - Outfall 007 Permit No.: VA0000248

Receiving Stream: New River Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO3) =	78	mg/L
90% Temperature (Annual) =	23.3	deg C
90% Temperature (Wet season) =	13.8	deg C
90% Maximum pH =	8.22	SU
10% Maximum pH =	7.32	SU
Tier Designation (1 or 2) =	2	
Public Water Supply (PWS) Y/N? =	y	
Trout Present Y/N? =	y	
Early Life Stages Present Y/N? =	y	

Stream Flows

1Q10 (Annual) =	449	MGD
7Q10 (Annual) =	559	MGD
30Q10 (Annual) =	646	MGD
1Q10 (Wet season) =	529	MGD
30Q10 (Wet season)	1067	MGD
30Q5 =	726	MGD
Harmonic Mean =	1520	MGD

Mixing Information

Annual - 1Q10 Mix =	1.11	%
- 7Q10 Mix =	64.95	%
- 30Q10 Mix =	73.93	%
Wet Season - 1Q10 Mix =	100	%
- 30Q10 Mix =	100	%

Effluent Information

Mean Hardness (as CaCO3) =	1277	mg/L
90% Temp (Annual) =	33	deg C
90% Temp (Wet season) =	27	deg C
90% Maximum pH =	7.8	SU
10% Maximum pH =	6.9	SU
Discharge Flow =	5.554	MGD

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenapthene	0	--	--	6.7E+02	9.9E+02	--	--	8.8E+04	1.3E+05	--	--	6.7E+01	9.9E+01	--	--	8.8E+03	1.3E+04	--	--	8.8E+03	1.3E+04
Acrolein	0	--	--	6.1E+00	9.3E+00	--	--	8.0E+02	1.2E+03	--	--	6.1E-01	9.3E-01	--	--	8.0E+01	1.2E+02	--	--	8.0E+01	1.2E+02
Acrylonitrile[c]	0	--	--	5.1E-01	2.5E+00	--	--	1.4E+02	6.9E+02	--	--	5.1E-02	2.5E-01	--	--	1.4E+01	6.9E+01	--	--	1.4E+01	6.9E+01
Aldrin [c]	0	3.0E+00	--	4.9E-04	5.0E-04	5.7E+00	--	1.3E-01	1.4E-01	7.5E-01	--	4.9E-05	5.0E-05	6.1E+01	--	1.3E-02	1.4E-02	5.7E+00	--	1.3E-02	1.4E-02
Ammonia-N (mg/l) (Yearly)	0	6.16E+00	9.92E-01	--	--	1.2E+01	8.6E+01	--	--	9.35E-01	2.48E-01	--	--	7.7E+01	2.9E+01	--	--	1.2E+01	2.9E+01	--	--
Ammonia-N (mg/l) (High Flow)	0	3.73E+00	1.75E+00	--	--	3.6E+02	3.4E+02	--	--	9.33E-01	4.37E-01	--	--	9.0E+01	8.4E+01	--	--	9.0E+01	8.4E+01	--	--
Anthracene	0	--	--	8.3E+03	4.0E+04	--	--	1.1E+06	5.3E+06	--	--	8.3E+02	4.0E+03	--	--	1.1E+05	5.3E+05	--	--	1.1E+05	5.3E+05
Antimony	0	--	--	5.6E+00	6.4E+02	--	--	7.4E+02	8.4E+04	--	--	5.6E-01	6.4E+01	--	--	7.4E+01	8.4E+03	--	--	7.4E+01	8.4E+03
Arsenic	0.35	3.4E+02	1.5E+02	1.0E+01	--	6.4E+02	9.9E+03	1.3E+03	--	8.5E+01	3.8E+01	1.3E+00	--	6.9E+03	3.8E+03	1.3E+02	--	6.4E+02	3.8E+03	1.3E+02	--
Barium	0	--	--	2.0E+03	--	--	--	2.6E+05	--	--	--	2.0E+02	--	--	--	2.6E+04	--	--	--	2.6E+04	--
Benzene [c]	0	--	--	2.2E+01	5.1E+02	--	--	6.0E+03	1.4E+05	--	--	2.2E+00	5.1E+01	--	--	6.0E+02	1.4E+04	--	--	6.0E+02	1.4E+04
Benzidine[c]	0	--	--	8.6E-04	2.0E-03	--	--	2.4E-01	5.5E-01	--	--	8.6E-05	2.0E-04	--	--	2.4E-02	5.5E-02	--	--	2.4E-02	5.5E-02
Benzo (a) anthracene [c]	0	--	--	3.8E-02	1.8E-01	--	--	1.0E+01	4.9E+01	--	--	3.8E-03	1.8E-02	--	--	1.0E+00	4.9E+00	--	--	1.0E+00	4.9E+00
Benzo (b) fluoranthene [c]	0	--	--	3.8E-02	1.8E-01	--	--	1.0E+01	4.9E+01	--	--	3.8E-03	1.8E-02	--	--	1.0E+00	4.9E+00	--	--	1.0E+00	4.9E+00
Benzo (k) fluoranthene [c]	0	--	--	3.8E-02	1.8E-01	--	--	1.0E+01	4.9E+01	--	--	3.8E-03	1.8E-02	--	--	1.0E+00	4.9E+00	--	--	1.0E+00	4.9E+00
Benzo (a) pyrene [c]	0	--	--	3.8E-02	1.8E-01	--	--	1.0E+01	4.9E+01	--	--	3.8E-03	1.8E-02	--	--	1.0E+00	4.9E+00	--	--	1.0E+00	4.9E+00
Bis2-Chloroethyl Ether[c]	0	--	--	3.0E-01	5.3E+00	--	--	8.2E+01	1.5E+03	--	--	3.0E-02	5.3E-01	--	--	8.2E+00	1.5E+02	--	--	8.2E+00	1.5E+02
Bis2-Chloroisopropyl Ether	0	--	--	1.4E+03	6.5E+04	--	--	1.8E+05	8.6E+06	--	--	1.4E+02	6.5E+03	--	--	1.8E+04	8.6E+05	--	--	1.8E+04	8.6E+05
Bis 2-Ethylhexyl Phthalate[c]	0	--	--	1.2E+01	2.2E+01	--	--	3.3E+03	6.0E+03	--	--	1.2E+00	2.2E+00	--	--	3.3E+02	6.0E+02	--	--	3.3E+02	6.0E+02
Bromoform [c]	0	--	--	4.3E+01	1.4E+03	--	--	1.2E+04	3.8E+05	--	--	4.3E+00	1.4E+02	--	--	1.2E+03	3.8E+04	--	--	1.2E+03	3.8E+04
Butylbenzylphthalate	0	--	--	1.5E+03	1.9E+03	--	--	2.0E+05	2.5E+05	--	--	1.5E+02	1.9E+02	--	--	2.0E+04	2.5E+04	--	--	2.0E+04	2.5E+04
Cadmium	0	1.9E+01	1.1E+00	5.0E+00	--	3.6E+01	7.3E+01	6.6E+02	--	9.0E-01	2.6E-01	5.0E-01	--	7.4E+01	2.6E+01	6.6E+01	--	3.6E+01	2.6E+01	6.6E+01	--
Carbon Tetrachloride [c]	0	--	--	2.3E+00	1.6E+01	--	--	6.3E+02	4.4E+03	--	--	2.3E-01	1.6E+00	--	--	6.3E+01	4.4E+02	--	--	6.3E+01	4.4E+02
Chlordane [c]	0	2.4E+00	4.3E-03	8.0E-03	8.1E-03	4.6E+00	2.9E-01	2.2E+00	2.2E+00	6.0E-01	1.1E-03	8.0E-04	8.1E-04	4.9E+01	1.1E-01	2.2E-01	2.2E-01	4.6E+00	1.1E-01	2.2E-01	2.2E-01
Chloride	7960	8.6E+05	2.3E+05	2.5E+05	--	1.6E+06	1.5E+07	3.2E+07	--	2.2E+05	6.3E+04	3.2E+04	--	1.7E+07	5.7E+06	3.2E+06	--	1.6E+06	5.7E+06	3.2E+06	--
TRC	0	1.9E+01	1.1E+01	--	--	3.6E+01	7.3E+02	--	--	4.8E+00	2.8E+00	--	--	3.9E+02	2.8E+02	--	--	3.6E+01	2.8E+02	--	--
Chlorobenzene	0	--	--	1.3E+02	1.6E+03	--	--	1.7E+04	2.1E+05	--	--	1.3E+01	1.6E+02	--	--	1.7E+03	2.1E+04	--	--	1.7E+03	2.1E+04

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane[c]	0	--	--	4.0E+00	1.3E+02	--	--	1.1E+03	3.6E+04	--	--	4.0E-01	1.3E+01	--	--	1.1E+02	3.6E+03	--	--	1.1E+02	3.6E+03
Chloroform	0	--	--	3.4E+02	1.1E+04	--	--	4.5E+04	1.4E+06	--	--	3.4E+01	1.1E+03	--	--	4.5E+03	1.4E+05	--	--	4.5E+03	1.4E+05
2-Chloronaphthalene	0	--	--	1.0E+03	1.6E+03	--	--	1.3E+05	2.1E+05	--	--	1.0E+02	1.6E+02	--	--	1.3E+04	2.1E+04	--	--	1.3E+04	2.1E+04
2-Chlorophenol	0	--	--	8.1E+01	1.5E+02	--	--	1.1E+04	2.0E+04	--	--	8.1E+00	1.5E+01	--	--	1.1E+03	2.0E+03	--	--	1.1E+03	2.0E+03
Chlorpyrifos	0	8.3E-02	4.1E-02	--	--	1.6E-01	2.7E+00	--	--	2.1E-02	1.0E-02	--	--	1.7E+00	1.0E+00	--	--	1.6E-01	1.0E+00	--	--
Chromium III	0	1.8E+03	7.2E+01	--	--	3.4E+03	4.8E+03	--	--	1.3E+02	1.7E+01	--	--	1.1E+04	1.7E+03	--	--	3.4E+03	1.7E+03	--	--
Chromium VI	0	1.6E+01	1.1E+01	--	--	3.0E+01	7.3E+02	--	--	4.0E+00	2.8E+00	--	--	3.3E+02	2.8E+02	--	--	3.0E+01	2.8E+02	--	--
Chromium, Total	0.18	--	--	1.0E+02	--	--	--	1.3E+04	--	--	--	1.0E+01	--	--	--	1.3E+03	--	--	--	1.3E+03	--
Chrysene[c]	0	--	--	3.8E-03	1.8E-02	--	--	1.0E+00	4.9E+00	--	--	3.8E-04	1.8E-03	--	--	1.0E-01	4.9E-01	--	--	1.0E-01	4.9E-01
Copper	0.65	5.0E+01	8.7E+00	1.3E+03	--	9.4E+01	5.3E+02	1.7E+05	--	3.6E+00	2.5E+00	1.3E+02	--	2.4E+02	1.9E+02	1.7E+04	--	9.4E+01	1.9E+02	1.7E+04	--
Cyanide, Free	0	2.2E+01	5.2E+00	1.4E+02	1.6E+04	4.2E+01	3.5E+02	1.8E+04	2.1E+06	5.5E+00	1.3E+00	1.4E+01	1.6E+03	4.5E+02	1.3E+02	1.8E+03	2.1E+05	4.2E+01	1.3E+02	1.8E+03	2.1E+05
DDD[c]	0	--	--	3.1E-03	3.1E-03	--	--	8.5E-01	8.5E-01	--	--	3.1E-04	3.1E-04	--	--	8.5E-02	8.5E-02	--	--	8.5E-02	8.5E-02
DDE[c]	0	--	--	2.2E-03	2.2E-03	--	--	6.0E-01	6.0E-01	--	--	2.2E-04	2.2E-04	--	--	6.0E-02	6.0E-02	--	--	6.0E-02	6.0E-02
DDT[c]	0	1.1E+00	1.0E-03	2.2E-03	2.2E-03	2.1E+00	6.6E-02	6.0E-01	6.0E-01	2.8E-01	2.5E-04	2.2E-04	2.2E-04	2.3E+01	2.5E-02	6.0E-02	6.0E-02	2.1E+00	2.5E-02	6.0E-02	6.0E-02
Demeton	0	--	1.0E-01	--	--	--	6.6E+00	--	--	--	2.5E-02	--	--	--	2.5E+00	--	--	--	2.5E+00	--	--
Diazinon	0	1.7E-01	1.7E-01	--	--	3.2E-01	1.1E+01	--	--	4.3E-02	4.3E-02	--	--	3.5E+00	4.3E+00	--	--	3.2E-01	4.3E+00	--	--
Dibenz(a,h)anthracene[c]	0	--	--	3.8E-02	1.8E-01	--	--	1.0E+01	4.9E+01	--	--	3.8E-03	1.8E-02	--	--	1.0E+00	4.9E+00	--	--	1.0E+00	4.9E+00
1,2-Dichlorobenzene	0	--	--	4.2E+02	1.3E+03	--	--	5.5E+04	1.7E+05	--	--	4.2E+01	1.3E+02	--	--	5.5E+03	1.7E+04	--	--	5.5E+03	1.7E+04
1,3-Dichlorobenzene	0	--	--	3.2E+02	9.6E+02	--	--	4.2E+04	1.3E+05	--	--	3.2E+01	9.6E+01	--	--	4.2E+03	1.3E+04	--	--	4.2E+03	1.3E+04
1,4-Dichlorobenzene	0	--	--	6.3E+01	1.9E+02	--	--	8.3E+03	2.5E+04	--	--	6.3E+00	1.9E+01	--	--	8.3E+02	2.5E+03	--	--	8.3E+02	2.5E+03
3,3-Dichlorobenzidine[c]	0	--	--	2.1E-01	2.8E-01	--	--	5.8E+01	7.7E+01	--	--	2.1E-02	2.8E-02	--	--	5.8E+00	7.7E+00	--	--	5.8E+00	7.7E+00
Dichlorobromomethane[c]	0	--	--	5.5E+00	1.7E+02	--	--	1.5E+03	4.7E+04	--	--	5.5E-01	1.7E+01	--	--	1.5E+02	4.7E+03	--	--	1.5E+02	4.7E+03
1,2-Dichloroethane[c]	0	--	--	3.8E+00	3.7E+02	--	--	1.0E+03	1.0E+05	--	--	3.8E-01	3.7E+01	--	--	1.0E+02	1.0E+04	--	--	1.0E+02	1.0E+04
1,1-Dichloroethylene	0	--	--	3.3E+02	7.1E+03	--	--	4.3E+04	9.4E+05	--	--	3.3E+01	7.1E+02	--	--	4.3E+03	9.4E+04	--	--	4.3E+03	9.4E+04
1,2-trans-dichloroethylene	0	--	--	1.4E+02	1.0E+04	--	--	1.8E+04	1.3E+06	--	--	1.4E+01	1.0E+03	--	--	1.8E+03	1.3E+05	--	--	1.8E+03	1.3E+05
2,4-Dichlorophenol	0	--	--	7.7E+01	2.9E+02	--	--	1.0E+04	3.8E+04	--	--	7.7E+00	2.9E+01	--	--	1.0E+03	3.8E+03	--	--	1.0E+03	3.8E+03
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	1.0E+02	--	--	--	1.3E+04	--	--	--	1.0E+01	--	--	--	1.3E+03	--	--	--	1.3E+03	--
1,2-Dichloropropane[c]	0	--	--	5.0E+00	1.5E+02	--	--	1.4E+03	4.1E+04	--	--	5.0E-01	1.5E+01	--	--	1.4E+02	4.1E+03	--	--	1.4E+02	4.1E+03
1,3-Dichloropropene[c]	0	--	--	3.4E+00	2.1E+02	--	--	9.3E+02	5.8E+04	--	--	3.4E-01	2.1E+01	--	--	9.3E+01	5.8E+03	--	--	9.3E+01	5.8E+03
Dieldrin[c]	0	2.4E-01	5.6E-02	5.2E-04	5.4E-04	4.6E-01	3.7E+00	1.4E-01	1.5E-01	6.0E-02	1.4E-02	5.2E-05	5.4E-05	4.9E+00	1.4E+00	1.4E-02	1.5E-02	4.6E-01	1.4E+00	1.4E-02	1.5E-02
Diethyl Phthalate	0	--	--	1.7E+04	4.4E+04	--	--	2.2E+06	5.8E+06	--	--	1.7E+03	4.4E+03	--	--	2.2E+05	5.8E+05	--	--	2.2E+05	5.8E+05
2,4-Dimethylphenol	0	--	--	3.8E+02	8.5E+02	--	--	5.0E+04	1.1E+05	--	--	3.8E+01	8.5E+01	--	--	5.0E+03	1.1E+04	--	--	5.0E+03	1.1E+04
Dimethyl Phthalate	0	--	--	2.7E+05	1.1E+06	--	--	3.6E+07	1.4E+08	--	--	2.7E+04	1.1E+05	--	--	3.6E+06	1.4E+07	--	--	3.6E+06	1.4E+07
Di-n-Butyl Phthalate	0	--	--	2.0E+03	4.5E+03	--	--	2.6E+05	5.9E+05	--	--	2.0E+02	4.5E+02	--	--	2.6E+04	5.9E+04	--	--	2.6E+04	5.9E+04
2,4 Dinitrophenol	0	--	--	6.9E+01	5.3E+03	--	--	9.1E+03	7.0E+05	--	--	6.9E+00	5.3E+02	--	--	9.1E+02	7.0E+04	--	--	9.1E+02	7.0E+04
2-Methyl-4,6-Dinitrophenol	0	--	--	1.3E+01	2.8E+02	--	--	1.7E+03	3.7E+04	--	--	1.3E+00	2.8E+01	--	--	1.7E+02	3.7E+03	--	--	1.7E+02	3.7E+03
2,4-Dinitrotoluene[c]	0	--	--	1.1E+00	3.4E+01	--	--	3.0E+02	9.3E+03	--	--	1.1E-01	3.4E+00	--	--	3.0E+01	9.3E+02	--	--	3.0E+01	9.3E+02
Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin	0	--	--	5.0E-08	5.1E-08	--	--	6.6E-06	6.7E-06	--	--	5.0E-09	5.1E-09	--	--	6.6E-07	6.7E-07	--	--	6.6E-07	6.7E-07
1,2-Diphenylhydrazine[c]	0	--	--	3.6E-01	2.0E+00	--	--	9.9E+01	5.5E+02	--	--	3.6E-02	2.0E-01	--	--	9.9E+00	5.5E+01	--	--	9.9E+00	5.5E+01
Alpha-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	4.2E-01	3.7E+00	8.2E+03	1.2E+04	5.5E-02	1.4E-02	6.2E+00	8.9E+00	4.5E+00	1.4E+00	8.2E+02	1.2E+03	4.2E-01	1.4E+00	8.2E+02	1.2E+03
Beta-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	4.2E-01	3.7E+00	8.2E+03	1.2E+04	5.5E-02	1.4E-02	6.2E+00	8.9E+00	4.5E+00	1.4E+00	8.2E+02	1.2E+03	4.2E-01	1.4E+00	8.2E+02	1.2E+03
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	4.2E-01	3.7E+00	--	--	5.5E-02	1.4E-02	--	--	4.5E+00	1.4E+00	--	--	4.2E-01	1.4E+00	--	--
Endosulfan Sulfate	0	--	--	6.2E+01	8.9E+01	--	--	8.2E+03	1.2E+04	--	--	6.2E+00	8.9E+00	--	--	8.2E+02	1.2E+03	--	--	8.2E+02	1.2E+03
Endrin	0	8.6E-02	3.6E-02	5.9E-02	6.0E-02	1.6E-01	2.4E+00	7.8E+00	7.9E+00	2.2E-02	9.0E-03	5.9E-03	6.0E-03	1.8E+00	9.1E-01	7.8E-01	7.9E-01	1.6E-01	9.1E-01	7.8E-01	7.9E-01
Endrin Aldehyde	0	--	--	2.9E-01	3.0E-01	--	--	3.8E+01	4.0E+01	--	--	2.9E-02	3.0E-02	--	--	3.8E+00	4.0E+00	--	--	3.8E+00	4.0E+00

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	5.3E+02	2.1E+03	--	--	7.0E+04	2.8E+05	--	--	5.3E+01	2.1E+02	--	--	7.0E+03	2.8E+04	--	--	7.0E+03	2.8E+04
Fluoranthene	0	--	--	1.3E+02	1.4E+02	--	--	1.7E+04	1.8E+04	--	--	1.3E+01	1.4E+01	--	--	1.7E+03	1.8E+03	--	--	1.7E+03	1.8E+03
Fluorene	0	--	--	1.1E+03	5.3E+03	--	--	1.4E+05	7.0E+05	--	--	1.1E+02	5.3E+02	--	--	1.4E+04	7.0E+04	--	--	1.4E+04	7.0E+04
Foaming Agents	0	--	--	5.0E+02	--	--	--	6.6E+04	--	--	--	5.0E+01	--	--	--	6.6E+03	--	--	--	6.6E+03	--
Guthion	0	--	1.0E-02	--	--	--	6.6E-01	--	--	--	2.5E-03	--	--	--	2.5E-01	--	--	--	2.5E-01	--	--
Heptachlor [c]	0	5.2E-01	3.8E-03	7.9E-04	7.9E-04	9.9E-01	2.5E-01	2.2E-01	2.2E-01	1.3E-01	9.5E-04	7.9E-05	7.9E-05	1.1E+01	9.7E-02	2.2E-02	2.2E-02	9.9E-01	9.7E-02	2.2E-02	2.2E-02
Heptachlor Epoxide[c]	0	5.2E-01	3.8E-03	3.9E-04	3.9E-04	9.9E-01	2.5E-01	1.1E-01	1.1E-01	1.3E-01	9.5E-04	3.9E-05	3.9E-05	1.1E+01	9.7E-02	1.1E-02	1.1E-02	9.9E-01	9.7E-02	1.1E-02	1.1E-02
Hexachlorobenzene[c]	0	--	--	2.8E-03	2.9E-03	--	--	7.7E-01	8.0E-01	--	--	2.8E-04	2.9E-04	--	--	7.7E-02	8.0E-02	--	--	7.7E-02	8.0E-02
Hexachlorobutadiene[c]	0	--	--	4.4E+00	1.8E+02	--	--	1.2E+03	4.9E+04	--	--	4.4E-01	1.8E+01	--	--	1.2E+02	4.9E+03	--	--	1.2E+02	4.9E+03
Hexachlorocyclohexane Alpha-BHC[c]	0	--	--	2.6E-02	4.9E-02	--	--	7.1E+00	1.3E+01	--	--	2.6E-03	4.9E-03	--	--	7.1E-01	1.3E+00	--	--	7.1E-01	1.3E+00
Hexachlorocyclohexane Beta BHC[c]	0	--	--	9.1E-02	1.7E-01	--	--	2.5E+01	4.7E+01	--	--	9.1E-03	1.7E-02	--	--	2.5E+00	4.7E+00	--	--	2.5E+00	4.7E+00
Hexachlorocyclohexane Gamma-BHC[c] (Lindane)	0	9.5E-01	--	9.8E-01	1.8E+00	1.8E+00	--	2.7E+02	4.9E+02	2.4E-01	--	9.8E-02	1.8E-01	1.9E+01	--	2.7E+01	4.9E+01	1.8E+00	--	2.7E+01	4.9E+01
Hexachlorocyclopentadiene	0	--	--	4.0E+01	1.1E+03	--	--	5.3E+03	1.4E+05	--	--	4.0E+00	1.1E+02	--	--	5.3E+02	1.4E+04	--	--	5.3E+02	1.4E+04
Hexachloroethane[c]	0	--	--	1.4E+01	3.3E+01	--	--	3.8E+03	9.1E+03	--	--	1.4E+00	3.3E+00	--	--	3.8E+02	9.1E+02	--	--	3.8E+02	9.1E+02
Hydrogen Sulfide	0	--	2.0E+00	--	--	--	1.3E+02	--	--	--	5.0E-01	--	--	--	5.1E+01	--	--	--	5.1E+01	--	--
Indeno (1,2,3-cd) pyrene [c]	0	--	--	3.8E-02	1.8E-01	--	--	1.0E+01	4.9E+01	--	--	3.8E-03	1.8E-02	--	--	1.0E+00	4.9E+00	--	--	1.0E+00	4.9E+00
Iron	0	--	--	3.0E+02	--	--	--	4.0E+04	--	--	--	3.0E+01	--	--	--	4.0E+03	--	--	--	4.0E+03	--
Isophorone[c]	0	--	--	3.5E+02	9.6E+03	--	--	9.6E+04	2.6E+06	--	--	3.5E+01	9.6E+02	--	--	9.6E+03	2.6E+05	--	--	9.6E+03	2.6E+05
Kepone	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--
Lead	0	6.9E+02	1.3E+01	1.5E+01	--	1.3E+03	8.5E+02	2.0E+03	--	2.7E+01	2.9E+00	1.5E+00	--	2.2E+03	3.0E+02	2.0E+02	--	1.3E+03	3.0E+02	2.0E+02	--
Malathion	0	--	1.0E-01	--	--	--	6.6E+00	--	--	--	2.5E-02	--	--	--	2.5E+00	--	--	--	2.5E+00	--	--
Manganese	14.32	--	--	5.0E+01	--	--	--	4.7E+03	--	--	--	1.8E+01	--	--	--	4.8E+02	--	--	--	4.8E+02	--
Mercury	0	1.4E+00	7.7E-01	--	--	2.7E+00	5.1E+01	--	--	3.5E-01	1.9E-01	--	--	2.9E+01	2.0E+01	--	--	2.7E+00	2.0E+01	--	--
Methyl Bromide	0	--	--	4.7E+01	1.5E+03	--	--	6.2E+03	2.0E+05	--	--	4.7E+00	1.5E+02	--	--	6.2E+02	2.0E+04	--	--	6.2E+02	2.0E+04
Methylene Chloride [c]	0	--	--	4.6E+01	5.9E+03	--	--	1.3E+04	1.6E+06	--	--	4.6E+00	5.9E+02	--	--	1.3E+03	1.6E+05	--	--	1.3E+03	1.6E+05
Methoxychlor	0	--	3.0E-02	1.0E+02	--	--	2.0E+00	1.3E+04	--	--	7.5E-03	1.0E+01	--	--	7.6E-01	1.3E+03	--	--	7.6E-01	1.3E+03	--
Mirex	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--
Nickel	0.39	5.9E+02	2.0E+01	6.1E+02	4.6E+03	1.1E+03	1.3E+03	8.0E+04	6.1E+05	4.3E+01	4.9E+00	6.1E+01	4.6E+02	3.5E+03	4.6E+02	8.0E+03	6.1E+04	1.1E+03	4.6E+02	8.0E+03	6.1E+04
Nitrate (as N)	890	--	--	1.0E+04	--	--	--	1.2E+06	--	--	--	1.8E+03	--	--	--	1.2E+05	--	--	--	1.2E+05	--
Nitrobenzene	0	--	--	1.7E+01	6.9E+02	--	--	2.2E+03	9.1E+04	--	--	1.7E+00	6.9E+01	--	--	2.2E+02	9.1E+03	--	--	2.2E+02	9.1E+03
N-Nitrosodimethylamine[c]	0	--	--	6.9E-03	3.0E+01	--	--	1.9E+00	8.2E+03	--	--	6.9E-04	3.0E+00	--	--	1.9E-01	8.2E+02	--	--	1.9E-01	8.2E+02
N-Nitrosodiphenylamine[c]	0	--	--	3.3E+01	6.0E+01	--	--	9.1E+03	1.6E+04	--	--	3.3E+00	6.0E+00	--	--	9.1E+02	1.6E+03	--	--	9.1E+02	1.6E+03
N-Nitrosodi-n-propylamine[c]	0	--	--	5.0E-02	5.1E+00	--	--	1.4E+01	1.4E+03	--	--	5.0E-03	5.1E-01	--	--	1.4E+00	1.4E+02	--	--	1.4E+00	1.4E+02
Nonylphenol	0	2.8E+01	6.6E+00	--	--	5.3E+01	4.4E+02	--	--	7.0E+00	1.7E+00	--	--	5.7E+02	1.7E+02	--	--	5.3E+01	1.7E+02	--	--
Parathion	0	6.5E-02	1.3E-02	--	--	1.2E-01	8.6E-01	--	--	1.6E-02	3.3E-03	--	--	1.3E+00	3.3E-01	--	--	1.2E-01	3.3E-01	--	--
PCB Total[c]	0	--	1.4E-02	6.4E-04	6.4E-04	--	9.3E-01	1.8E-01	1.8E-01	--	3.5E-03	6.4E-05	6.4E-05	--	3.6E-01	1.8E-02	1.8E-02	--	3.6E-01	1.8E-02	1.8E-02
Pentachlorophenol [c]	0	9.2E+00	9.1E+00	2.7E+00	3.0E+01	1.7E+01	6.1E+02	7.4E+02	8.2E+03	3.0E+00	2.3E+00	2.7E-01	3.0E+00	2.4E+02	2.3E+02	7.4E+01	8.2E+02	1.7E+01	2.3E+02	7.4E+01	8.2E+02
Phenol	0	--	--	1.0E+04	8.6E+05	--	--	1.3E+06	1.1E+08	--	--	1.0E+03	8.6E+04	--	--	1.3E+05	1.1E+07	--	--	1.3E+05	1.1E+07
Pyrene	0	--	--	8.3E+02	4.0E+03	--	--	1.1E+05	5.3E+05	--	--	8.3E+01	4.0E+02	--	--	1.1E+04	5.3E+04	--	--	1.1E+04	5.3E+04
Radionuclides	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gross Alpha Activity (pCi/L)	0	--	--	1.5E+01	--	--	--	2.0E+03	--	--	--	1.5E+00	--	--	--	2.0E+02	--	--	--	2.0E+02	--
Beta and Photon Activity (mrem/yr)	0	--	--	4.0E+00	4.0E+00	--	--	5.3E+02	5.3E+02	--	--	4.0E-01	4.0E-01	--	--	5.3E+01	5.3E+01	--	--	5.3E+01	5.3E+01
Radium 226 + 228 (pCi/L)	0	--	--	5.0E+00	--	--	--	6.6E+02	--	--	--	5.0E-01	--	--	--	6.6E+01	--	--	--	6.6E+01	--
Uranium (ug/l)	0	--	--	3.0E+01	--	--	--	4.0E+03	--	--	--	3.0E+00	--	--	--	4.0E+02	--	--	--	4.0E+02	--

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	1.7E+02	4.2E+03	3.8E+01	3.3E+02	2.2E+04	5.5E+05	5.0E+00	1.3E+00	1.7E+01	4.2E+02	4.1E+02	1.3E+02	2.2E+03	5.5E+04	3.8E+01	1.3E+02	2.2E+03	5.5E+04
Silver	0	3.7E+01	--	--	--	7.1E+01	--	--	--	7.6E-01	--	--	--	6.2E+01	--	--	--	6.2E+01	--	--	--
Sulfate	7870	--	--	2.5E+05	--	--	--	3.2E+07	--	--	--	3.2E+04	--	--	--	3.2E+06	--	--	--	3.2E+06	--
1,1,2,2-Tetrachloroethane[c]	0	--	--	1.7E+00	4.0E+01	--	--	4.7E+02	1.1E+04	--	--	1.7E-01	4.0E+00	--	--	4.7E+01	1.1E+03	--	--	4.7E+01	1.1E+03
Tetrachloroethylene[c]	0	--	--	6.9E+00	3.3E+01	--	--	1.9E+03	9.1E+03	--	--	6.9E-01	3.3E+00	--	--	1.9E+02	9.1E+02	--	--	1.9E+02	9.1E+02
Thallium	0	--	--	2.4E-01	4.7E-01	--	--	3.2E+01	6.2E+01	--	--	2.4E-02	4.7E-02	--	--	3.2E+00	6.2E+00	--	--	3.2E+00	6.2E+00
Toluene	0	--	--	5.1E+02	6.0E+03	--	--	6.7E+04	7.9E+05	--	--	5.1E+01	6.0E+02	--	--	6.7E+03	7.9E+04	--	--	6.7E+03	7.9E+04
Total dissolved solids	0	--	--	5.0E+05	--	--	--	6.6E+07	--	--	--	5.0E+04	--	--	--	6.6E+06	--	--	--	6.6E+06	--
Toxaphene [c]	0	7.3E-01	2.0E-04	2.8E-03	2.8E-03	1.4E+00	1.3E-02	7.7E-01	7.7E-01	1.8E-01	5.0E-05	2.8E-04	2.8E-04	1.5E+01	5.1E-03	7.7E-02	7.7E-02	1.4E+00	5.1E-03	7.7E-02	7.7E-02
Tributyltin	0	4.6E-01	7.2E-02	--	--	8.7E-01	4.8E+00	--	--	1.2E-01	1.8E-02	--	--	9.4E+00	1.8E+00	--	--	8.7E-01	1.8E+00	--	--
1,2,4-Trichlorobenzene	0	--	--	3.5E+01	7.0E+01	--	--	4.6E+03	9.2E+03	--	--	3.5E+00	7.0E+00	--	--	4.6E+02	9.2E+02	--	--	4.6E+02	9.2E+02
1,1,2-Trichloroethane[c]	0	--	--	5.9E+00	1.6E+02	--	--	1.6E+03	4.4E+04	--	--	5.9E-01	1.6E+01	--	--	1.6E+02	4.4E+03	--	--	1.6E+02	4.4E+03
Trichloroethylene [c]	0	--	--	2.5E+01	3.0E+02	--	--	6.9E+03	8.2E+04	--	--	2.5E+00	3.0E+01	--	--	6.9E+02	8.2E+03	--	--	6.9E+02	8.2E+03
2,4,6-Trichlorophenol [c]	0	--	--	1.4E+01	2.4E+01	--	--	3.8E+03	6.6E+03	--	--	1.4E+00	2.4E+00	--	--	3.8E+02	6.6E+02	--	--	3.8E+02	6.6E+02
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	5.0E+01	--	--	--	6.6E+03	--	--	--	5.0E+00	--	--	--	6.6E+02	--	--	--	6.6E+02	--
Vinyl Chloride[c]	0	--	--	2.5E-01	2.4E+01	--	--	6.9E+01	6.6E+03	--	--	2.5E-02	2.4E+00	--	--	6.9E+00	6.6E+02	--	--	6.9E+00	6.6E+02
Zinc	3.68	3.8E+02	1.1E+02	7.4E+03	2.6E+04	7.2E+02	7.3E+03	9.7E+05	3.4E+06	3.0E+01	3.0E+01	7.4E+02	2.6E+03	2.2E+03	2.7E+03	9.7E+04	3.4E+05	7.2E+02	2.7E+03	9.7E+04	3.4E+05

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
   Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	7.4E+01
Arsenic	1.3E+02
Barium	2.6E+04
Cadmium	1.4E+01
Chromium III	1.0E+03
Chromium VI	1.2E+01
Copper	3.7E+01
Iron	4.0E+03
Lead	1.8E+02
Manganese	4.8E+02
Mercury	1.1E+00
Nickel	2.8E+02
Selenium	1.5E+01
Silver	2.5E+01
Zinc	2.9E+02

Note: do not use QL's lower than the minimum QL's provided in agency guidance

4/12/2010 2:18:08 PM

Facility = VA0000248 - 007
Chemical = Copper, Total
Chronic averaging period = 4
WLAa = 94
WLAc = 190
Q.L. = 10
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 26.7
Variance = 256.640
C.V. = 0.6
97th percentile daily values = 64.9722
97th percentile 4 day average = 44.4231
97th percentile 30 day average= 32.2016
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

26.7

4/12/2010 2:18:54 PM

Facility = VA0000248 - 007
Chemical = Iron, Total
Chronic averaging period = 4
WLAa =
WLAc = 4000
Q.L. = 10
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 305
Variance = 33489
C.V. = 0.6
97th percentile daily values = 742.192
97th percentile 4 day average = 507.455
97th percentile 30 day average= 367.846
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

305

4/12/2010 2:23:30 PM

Facility = VA0000248 - 007
Chemical = Lead, Total
Chronic averaging period = 4
WLAa = 1300
WLAc = 300
Q.L. = 1
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 1.2
Variance = .5184
C.V. = 0.6
97th percentile daily values = 2.92010
97th percentile 4 day average = 1.99654
97th percentile 30 day average= 1.44726
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

1.2

4/12/2010 2:27:12 PM

Facility = VA0000248 - 007
Chemical = Manganese, Total
Chronic averaging period = 4
WLAa =
WLAc = 480
Q.L. = 10
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 55
Variance = 1089
C.V. = 0.6
97th percentile daily values = 133.837
97th percentile 4 day average = 91.5084
97th percentile 30 day average= 66.3329
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

55

4/12/2010 2:27:58 PM

Facility = VA0000248 - 007
Chemical = Zinc, Total
Chronic averaging period = 4
WLAa = 720
WLAc = 2700
Q.L. = 10
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 10
Variance = 36
C.V. = 0.6
97th percentile daily values = 24.3341
97th percentile 4 day average = 16.6379
97th percentile 30 day average= 12.0605
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

10

4/13/2010 2:41:23 PM

Facility = VA0000248 - 007
Chemical = Ammonia
Chronic averaging period = 4
WLAa = 12
WLAc = 29
Q.L. = .2
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 55
Expected Value = .098473
Variance = .003490
C.V. = 0.6
97th percentile daily values = .239628
97th percentile 4 day average = .163839
97th percentile 30 day average= .118764
< Q.L. = 52
Model used = BPJ Assumptions, Type 1 data

No Limit is required for this material

The data are:

0.09
0
0
0
0
0
0.27
0
0
0
0
0
0
0
0.15
0
0.1
0
0.1
0.25
0.1
0
0

0
0
0
0
0
0
0
0
0
0.15
0.13
0
0
0
0
0
0
0
0
0
0.38
0
0
0
0
0
0
0
0
0
0
0

4/12/2010 2:29:28 PM

Facility = VA0000248 - 007
Chemical = Chromium, Total
Chronic averaging period = 4
WLAa =
WLAc = 1300
Q.L. = 1
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 9.5
Variance = 32.49
C.V. = 0.6
97th percentile daily values = 23.1174
97th percentile 4 day average = 15.8060
97th percentile 30 day average= 11.4575
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

9.5

Spreadsheet for determination of WET test endpoints or WET limits

1															
2		Spreadsheet for determination of WET test endpoints or WET limits													
3															
4		Excel 97			Acute Endpoint/Permit Limit			Use as LC_{50} in Special Condition, as TUa on DMR							
5		Revision Date: 01/10/05													
6		File: WETLIM10.xls			ACUTE	3.217664305	TUa	LC_{50} =	32	% Use as	3.12	TUa			
7		(MIX.EXE required also)													
8					ACUTE WLAa		6.6	Note: Inform the permittee that if the mean of the data exceeds							
9								this TUa:	1.0	a limit may result using WLA.EXE					
10															
11					Chronic Endpoint/Permit Limit			Use as NOEC in Special Condition, as TUc on DMR							
12															
13					CHRONIC	32.17664305	TU_c	NOEC =	4	% Use as	25.00	TU_c			
14					BOTH*	66.00000162	TU_c	NOEC =	2	% Use as	50.00	TU_c			
15	Enter data in the cells with blue type:				AML	32.17664305	TU_c	NOEC =	4	% Use as	25.00	TU_c			
16															
17	Entry Date:		04/08/10		ACUTE WLAa,c		66		Note: Inform the permittee that if the mean						
18	Facility Name:				CHRONIC WLAc		22		of the data exceeds this TUc:			13.22282			
19	VPDES Number:		VA0000248		* Both means acute expressed as chronic				a limit may result using WLA.EXE						
20	Outfall Number:		7												
21					% Flow to be used from MIX.EXE				Difuser /modeling study?						
22	Plant Flow:		5.554	MGD					Enter Y/N	Y					
23	Acute 1Q10:		449	MGD	1.11	%			Acute	22	:1				
24	Chronic 7Q10:		559	MGD	65.06	%			Chronic	22	:1				
25															
26	Are data available to calculate CV? (Y/N)				N	(Minimum of 10 data points, same species, needed)					Go to Page 2				
27	Are data available to calculate ACR? (Y/N)				N	(NOEC<LC50, do not use greater/less than data)					Go to Page 3				
28															
29															
30	IWC_a		4.545454545	%	Plant flow/plant flow + 1Q10		NOTE: If the IWCa is >33%, specify the								
31	IWC_c		4.545454545	%	Plant flow/plant flow + 7Q10		NOAEC = 100% test/endpoint for use								
32															
33	Dilution, acute		22		100/IWCa										
34	Dilution, chronic		22		100/IWCc										
35															
36	WLA_a		6.6		Instream criterion (0.3 TUa) X's Dilution, acute										
37	WLA_c		22		Instream criterion (1.0 TUc) X's Dilution, chronic										
38	$WLA_{a,c}$		66		ACR X's WLA_a - converts acute WLA to chronic units										
39															
40	ACR -acute/chronic ratio		10		LC50/NOEC (Default is 10 - if data are available, use tables Page 3)										
41	CV-Coefficient of variatior		0.6		Default of 0.6 - if data are available, use tables Page 2)										
42	Constants	eA	0.4109447		Default = 0.41										
43		eB	0.6010373		Default = 0.60										
44		eC	2.4334175		Default = 2.43										
45		eD	2.4334175		Default = 2.43 (1 samp)	No. of sample	1	**The Maximum Daily Limit is calculated from the lowest							
46								LTA, X's eC. The LTAa,c and MDL using it are driven by the ACR.							
47	$LTA_{a,c}$		27.1223502		WLAa,c X's eA										
48	LTA_c		13.2228206		WLAc X's eB						Rounded NOEC's		%		
49	MDL** with $LTA_{a,c}$		66.00000162	TU_c	NOEC =	1.515151	(Protects from acute/chronic toxicity)				NOEC =	2	%		
50	MDL** with LTA_c		32.17664305	TU_c	NOEC =	3.107844	(Protects from chronic toxicity)				NOEC =	4	%		
51	AML with lowest LTA		32.17664305	TU_c	NOEC =	3.107844	Lowest LTA X's eD				NOEC =	4			
52															
53	IF ONLY ACUTE ENDPOINT/LIMIT IS NEEDED, CONVERT MDL FROM TU_c to TU_a														
54											Rounded LC50's		%		
55	MDL with $LTA_{a,c}$		6.600000162	TU_a	LC50 =	15.151515	%				LC50 =	16	%		
56	MDL with LTA_c		3.217664305	TU_a	LC50 =	31.078444	%				LC50 =	32			
57															
58															

Page 2 - Follow the directions to develop a site specific CV (coefficient of variation)

IF YOU HAVE AT LEAST 10 DATA POINTS THAT ARE QUANTIFIABLE (NOT "<" OR ">") FOR A SPECIES, ENTER THE DATA IN EITHER COLUMN "G" (VERTEBRATE) OR COLUMN "J" (INVERTEBRATE). THE 'CV' WILL BE PICKED UP FOR THE CALCULATIONS BELOW. THE DEFAULT VALUES FOR eA, eB, AND eC WILL CHANGE IF THE 'CV' IS ANYTHING OTHER THAN 0.6.

Coefficient of Variation for effluent tests

CV = 0.6 (Default 0.6)

δ^2 = 0.3074847

δ = 0.554513029

Using the log variance to develop eA

(P. 100, step 2a of TSD)

Z = 1.881 (97% probability stat from table

A = -0.88929666

eA = 0.410944686

Using the log variance to develop eB

(P. 100, step 2b of TSD)

δ_4^2 = 0.086177696

δ_4 = 0.293560379

B = -0.50909823

eB = 0.601037335

Using the log variance to develop eC

(P. 100, step 4a of TSD)

δ^2 = 0.3074847

δ = 0.554513029

C = 0.889296658

eC = 2.433417525

Using the log variance to develop eD

(P. 100, step 4b of TSD)

n = 1 This number will most likely stay as "1", for 1 sample/month.

δ_n^2 = 0.3074847

δ_n = 0.554513029

D = 0.889296658

eD = 2.433417525

	F	G	H	I	J	K
		Vertebrate			Invertebrate	
		IC_{25} Data			IC_{25} Data	
		or			or	
		LC_{50} Data	LN of data		LC_{50} Data	LN of data
		**********			**********	
	1	0		1	0	
	2			2		
	3			3		
	4			4		
	5			5		
	6			6		
	7			7		
	8			8		
	9			9		
	10			10		
	11			11		
	12			12		
	13			13		
	14			14		
	15			15		
	16			16		
	17			17		
	18			18		
	19			19		
	20			20		
St Dev		NEED DATA	NEED DATA	St Dev	NEED DATA	NEED DATA
Mean		0	0	Mean	0	0
Variance		0	0.000000	Variance	0	0.000000
CV		0		CV	0	

Page 3 - Follow directions to develop a site specific ACR (Acute to Chronic Ratio)

To determine Acute/Chronic Ratio (ACR), insert usable data below. Usable data is defined as valid paired test results, acute and chronic, tested at the same temperature, same species. The chronic NOEC must be less than the acute LC_{50}, since the ACR divides the LC_{50} by the NOEC. LC_{50}'s >100% should not be used.

Table 1. ACR using Vertebrate data

Set #	LC_{50}	NOEC	Test ACR	Logarithm	Geomean	Antilog	ACR to Use
1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
3	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
4	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
5	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
6	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
7	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
8	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
9	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
10	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
				ACR for vertebrate data:			0

Table 1. Result:	Vertebrate ACR	0
Table 2. Result:	Invertebrate ACR	0
	Lowest ACR	Default to 10

Table 2. ACR using Invertebrate data

Set #	LC_{50}	NOEC	Test ACR	Logarithm	Geomean	Antilog	ACR to Use
1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
3	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
4	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
5	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
6	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
7	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
8	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
9	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
10	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
				ACR for vertebrate data:			0

DILUTION SERIES TO RECOMMEND

Table 4.	Monitoring % Effluent	Monitoring TUc	Limit % Effluent	Limit TUc
Dilution series based on data mean	7.6	13.22282		
Dilution series to use for limit			4	25
Dilution factor to recommend:	0.2750033		0.2	
Dilution series to recommend:	100.0	1.00	100.0	1.00
	27.5	3.64	20.0	5.00
	7.6	13.22	4.0	25.00
	2.1	48.08	0.8	125.00
	0.57	174.84	0.2	625.00
Extra dilutions if needed	0.16	635.78	0.0	3125.00
	0.04	2311.92	0.0	15625.00

Convert LC_{50}'s and NOEC's to Chronic TU's

for use in WLA.EXE

Table 3. ACR used: 10

	Enter LC_{50}	TUc	Enter NOEC	TUc
1		NO DATA		NO DATA
2		NO DATA		NO DATA
3		NO DATA		NO DATA
4		NO DATA		NO DATA
5		NO DATA		NO DATA
6		NO DATA		NO DATA
7		NO DATA		NO DATA
8		NO DATA		NO DATA
9		NO DATA		NO DATA
10		NO DATA		NO DATA
11		NO DATA		NO DATA
12		NO DATA		NO DATA
13		NO DATA		NO DATA
14		NO DATA		NO DATA
15		NO DATA		NO DATA
16		NO DATA		NO DATA
17		NO DATA		NO DATA
18		NO DATA		NO DATA
19		NO DATA		NO DATA
20		NO DATA		NO DATA

If WLA.EXE determines that an acute limit is needed, you need to convert the TUc answer you get to TUa and then an LC50, enter it here:

NO DATA	$\%LC_{50}$	
NO DATA	TUa	

Cell: I9
Comment:
This is assuming that the data are Type 2 data (none of the data in the data set are censored - "<" or ">").

Cell: K18
Comment: This is assuming that the data are Type 2 data (none of the data in the data set are censored - "<" or ">").

Cell: J22
Comment: Remember to change the "N" to "Y" if you have ratios entered, otherwise, they won't be used in the calculations.

Cell: C40
Comment:
If you have entered data to calculate an ACR on page 3, and this is still defaulted to "10", make sure you have selected "Y" in cell E21

Cell: C41
Comment: If you have entered data to calculate an effluent specific CV on page 2, and this is still defaulted to "0.6", make sure you have selected "Y" in cell E20

Cell: L48
Comment:
See Row 151 for the appropriate dilution series to use for these NOEC's

Cell: G62
Comment:
Vertebrates are:
Pimephales promelas
Oncorhynchus mykiss
Cyprinodon variegatus

Cell: J62
Comment:
Invertebrates are:
Ceriodaphnia dubia
Mysidopsis bahia

Cell: C117
Comment: Vertebrates are:

Pimephales promelas
Cyprinodon variegatus

Cell: M119
Comment: The ACR has been picked up from cell C34 on Page 1. If you have paired data to calculate an ACR, enter it in the tables to the left, and make sure you have a "Y" in cell E21 on Page 1. Otherwise, the default of 10 will be used to convert your acute data.

Cell: M121
Comment: If you are only concerned with acute data, you can enter it in the NOEC column for conversion and the number calculated will be equivalent to the TUa. The calculation is the same: 100/NOEC = TUc or 100/LC50 = TUa.

Cell: C138
Comment: Invertebrates are:

Ceriodaphnia dubia
Mysidopsis bahia

4/8/2010 4:54:05 PM

Facility = VA0000248 - Outfall 007
Chemical = Chronic Toxicity
Chronic averaging period = 4
WLAa = 6.6
WLAc = 22
Q.L. = 1
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 5
Expected Value = 10
Variance = 36
C.V. = 0.6
97th percentile daily values = 24.3341
97th percentile 4 day average = 16.6379
97th percentile 30 day average= 12.0605
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity
Maximum Daily Limit = 6.6
Average Weekly limit = 6.6
Average Monthly LImit = 6.6

The data are:

10
10
10
10
10

Mixing Zone Predictions for VA0000248 - 014

Effluent Flow = 0.048 MGD
Stream 7Q10 = 1.7 MGD
Stream 30Q10 = 1.9 MGD
Stream 1Q10 = 1.5 MGD
Stream slope = 0.001 ft/ft
Stream width = 10 ft
Bottom scale = 3
Channel scale = 1

Mixing Zone Predictions @ 7Q10

Depth = .8058 ft
Length = 103.46 ft
Velocity = .3358 ft/sec
Residence Time = .0036 days

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used.

Mixing Zone Predictions @ 30Q10

Depth = .8633 ft
Length = 97.05 ft
Velocity = .3492 ft/sec
Residence Time = .0032 days

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used.

Mixing Zone Predictions @ 1Q10

Depth = .746 ft
Length = 111.11 ft
Velocity = .3212 ft/sec
Residence Time = .0961 hours

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 1Q10 may be used.

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: RAAP - Outfall 014 Permit No.: VA0000248

Receiving Stream: New River Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO3) =	78	mg/L
90% Temperature (Annual) =	23.3	deg C
90% Temperature (Wet season) =	13.8	deg C
90% Maximum pH =	8.22	SU
10% Maximum pH =	7.32	SU
Tier Designation (1 or 2) =	2	
Public Water Supply (PWS) Y/N? =	y	
Trout Present Y/N? =	y	
Early Life Stages Present Y/N? =	y	

Stream Flows

1Q10 (Annual) =	1.5	MGD
7Q10 (Annual) =	1.7	MGD
30Q10 (Annual) =	1.9	MGD
1Q10 (Wet season) =	2.3	MGD
30Q10 (Wet season)	4.4	MGD
30Q5 =	2.1	MGD
Harmonic Mean =	5.7	MGD

Mixing Information

Annual - 1Q10 Mix =	100	%
- 7Q10 Mix =	100	%
- 30Q10 Mix =	100	%
Wet Season - 1Q10 Mix =	100	%
- 30Q10 Mix =	100	%

Effluent Information

Mean Hardness (as CaCO3) =	192	mg/L
90% Temp (Annual) =	23.3	deg C
90% Temp (Wet season) =	13.8	deg C
90% Maximum pH =	7.8	SU
10% Maximum pH =	7.1	SU
Discharge Flow =	0.048	MGD

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenapthene	0	--	--	6.7E+02	9.9E+02	--	--	3.0E+04	4.4E+04	--	--	6.7E+01	9.9E+01	--	--	3.0E+03	4.4E+03	--	--	3.0E+03	4.4E+03
Acrolein	0	--	--	6.1E+00	9.3E+00	--	--	2.7E+02	4.2E+02	--	--	6.1E-01	9.3E-01	--	--	2.7E+01	4.2E+01	--	--	2.7E+01	4.2E+01
Acrylonitrile[c]	0	--	--	5.1E-01	2.5E+00	--	--	6.1E+01	3.0E+02	--	--	5.1E-02	2.5E-01	--	--	6.1E+00	3.0E+01	--	--	6.1E+00	3.0E+01
Aldrin [c]	0	3.0E+00	--	4.9E-04	5.0E-04	9.7E+01	--	5.9E-02	6.0E-02	7.5E-01	--	4.9E-05	5.0E-05	2.4E+01	--	5.9E-03	6.0E-03	2.4E+01	--	5.9E-03	6.0E-03
Ammonia-N (mg/l) (Yearly)	0	3.84E+00	1.01E+00	--	--	1.2E+02	4.1E+01	--	--	9.59E-01	2.53E-01	--	--	3.1E+01	1.0E+01	--	--	3.1E+01	1.0E+01	--	--
Ammonia-N (mg/l) (High Flow)	0	3.78E+00	1.76E+00	--	--	1.9E+02	1.6E+02	--	--	9.46E-01	4.39E-01	--	--	4.6E+01	4.1E+01	--	--	4.6E+01	4.1E+01	--	--
Anthracene	0	--	--	8.3E+03	4.0E+04	--	--	3.7E+05	1.8E+06	--	--	8.3E+02	4.0E+03	--	--	3.7E+04	1.8E+05	--	--	3.7E+04	1.8E+05
Antimony	0	--	--	5.6E+00	6.4E+02	--	--	2.5E+02	2.9E+04	--	--	5.6E-01	6.4E+01	--	--	2.5E+01	2.9E+03	--	--	2.5E+01	2.9E+03
Arsenic	0.35	3.4E+02	1.5E+02	1.0E+01	--	1.1E+04	5.5E+03	4.3E+02	--	8.5E+01	3.8E+01	1.3E+00	--	2.7E+03	1.4E+03	4.4E+01	--	2.7E+03	1.4E+03	4.4E+01	--
Barium	0	--	--	2.0E+03	--	--	--	9.0E+04	--	--	--	2.0E+02	--	--	--	9.0E+03	--	--	--	9.0E+03	--
Benzene [c]	0	--	--	2.2E+01	5.1E+02	--	--	2.6E+03	6.1E+04	--	--	2.2E+00	5.1E+01	--	--	2.6E+02	6.1E+03	--	--	2.6E+02	6.1E+03
Benzidine[c]	0	--	--	8.6E-04	2.0E-03	--	--	1.0E-01	2.4E-01	--	--	8.6E-05	2.0E-04	--	--	1.0E-02	2.4E-02	--	--	1.0E-02	2.4E-02
Benzo (a) anthracene [c]	0	--	--	3.8E-02	1.8E-01	--	--	4.6E+00	2.2E+01	--	--	3.8E-03	1.8E-02	--	--	4.6E-01	2.2E+00	--	--	4.6E-01	2.2E+00
Benzo (b) fluoranthene [c]	0	--	--	3.8E-02	1.8E-01	--	--	4.6E+00	2.2E+01	--	--	3.8E-03	1.8E-02	--	--	4.6E-01	2.2E+00	--	--	4.6E-01	2.2E+00
Benzo (k) fluoranthene [c]	0	--	--	3.8E-02	1.8E-01	--	--	4.6E+00	2.2E+01	--	--	3.8E-03	1.8E-02	--	--	4.6E-01	2.2E+00	--	--	4.6E-01	2.2E+00
Benzo (a) pyrene [c]	0	--	--	3.8E-02	1.8E-01	--	--	4.6E+00	2.2E+01	--	--	3.8E-03	1.8E-02	--	--	4.6E-01	2.2E+00	--	--	4.6E-01	2.2E+00
Bis2-Chloroethyl Ether[c]	0	--	--	3.0E-01	5.3E+00	--	--	3.6E+01	6.3E+02	--	--	3.0E-02	5.3E-01	--	--	3.6E+00	6.3E+01	--	--	3.6E+00	6.3E+01
Bis2-Chloroisopropyl Ether	0	--	--	1.4E+03	6.5E+04	--	--	6.3E+04	2.9E+06	--	--	1.4E+02	6.5E+03	--	--	6.3E+03	2.9E+05	--	--	6.3E+03	2.9E+05
Bis 2-Ethylhexyl Phthalate[c]	0	--	--	1.2E+01	2.2E+01	--	--	1.4E+03	2.6E+03	--	--	1.2E+00	2.2E+00	--	--	1.4E+02	2.6E+02	--	--	1.4E+02	2.6E+02
Bromoform [c]	0	--	--	4.3E+01	1.4E+03	--	--	5.1E+03	1.7E+05	--	--	4.3E+00	1.4E+02	--	--	5.1E+02	1.7E+04	--	--	5.1E+02	1.7E+04
Butylbenzylphthalate	0	--	--	1.5E+03	1.9E+03	--	--	6.7E+04	8.5E+04	--	--	1.5E+02	1.9E+02	--	--	6.7E+03	8.5E+03	--	--	6.7E+03	8.5E+03
Cadmium	0	3.1E+00	9.6E-01	5.0E+00	--	1.0E+02	3.5E+01	2.2E+02	--	7.8E-01	2.4E-01	5.0E-01	--	2.5E+01	8.8E+00	2.2E+01	--	2.5E+01	8.8E+00	2.2E+01	--
Carbon Tetrachloride [c]	0	--	--	2.3E+00	1.6E+01	--	--	2.8E+02	1.9E+03	--	--	2.3E-01	1.6E+00	--	--	2.8E+01	1.9E+02	--	--	2.8E+01	1.9E+02
Chlordane [c]	0	2.4E+00	4.3E-03	8.0E-03	8.1E-03	7.7E+01	1.6E-01	9.6E-01	9.7E-01	6.0E-01	1.1E-03	8.0E-04	8.1E-04	1.9E+01	3.9E-02	9.6E-02	9.7E-02	1.9E+01	3.9E-02	9.6E-02	9.7E-02
Chloride	7960	8.6E+05	2.3E+05	2.5E+05	--	2.7E+07	8.1E+06	1.1E+07	--	2.2E+05	6.3E+04	3.2E+04	--	6.9E+06	2.0E+06	1.1E+06	--	6.9E+06	2.0E+06	1.1E+06	--
TRC	0	1.9E+01	1.1E+01	--	--	6.1E+02	4.0E+02	--	--	4.8E+00	2.8E+00	--	--	1.5E+02	1.0E+02	--	--	1.5E+02	1.0E+02	--	--
Chlorobenzene	0	--	--	1.3E+02	1.6E+03	--	--	5.8E+03	7.2E+04	--	--	1.3E+01	1.6E+02	--	--	5.8E+02	7.2E+03	--	--	5.8E+02	7.2E+03

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane[c]	0	--	--	4.0E+00	1.3E+02	--	--	4.8E+02	1.6E+04	--	--	4.0E-01	1.3E+01	--	--	4.8E+01	1.6E+03	--	--	4.8E+01	1.6E+03
Chloroform	0	--	--	3.4E+02	1.1E+04	--	--	1.5E+04	4.9E+05	--	--	3.4E+01	1.1E+03	--	--	1.5E+03	4.9E+04	--	--	1.5E+03	4.9E+04
2-Chloronaphthalene	0	--	--	1.0E+03	1.6E+03	--	--	4.5E+04	7.2E+04	--	--	1.0E+02	1.6E+02	--	--	4.5E+03	7.2E+03	--	--	4.5E+03	7.2E+03
2-Chlorophenol	0	--	--	8.1E+01	1.5E+02	--	--	3.6E+03	6.7E+03	--	--	8.1E+00	1.5E+01	--	--	3.6E+02	6.7E+02	--	--	3.6E+02	6.7E+02
Chlorpyrifos	0	8.3E-02	4.1E-02	--	--	2.7E+00	1.5E+00	--	--	2.1E-02	1.0E-02	--	--	6.7E-01	3.7E-01	--	--	6.7E-01	3.7E-01	--	--
Chromium III	0	4.8E+02	6.2E+01	--	--	1.6E+04	2.3E+03	--	--	1.2E+02	1.6E+01	--	--	3.9E+03	5.7E+02	--	--	3.9E+03	5.7E+02	--	--
Chromium VI	0	1.6E+01	1.1E+01	--	--	5.2E+02	4.0E+02	--	--	4.0E+00	2.8E+00	--	--	1.3E+02	1.0E+02	--	--	1.3E+02	1.0E+02	--	--
Chromium, Total	0.18	--	--	1.0E+02	--	--	--	4.5E+03	--	--	--	1.0E+01	--	--	--	4.5E+02	--	--	--	4.5E+02	--
Chrysene [c]	0	--	--	3.8E-03	1.8E-02	--	--	4.6E-01	2.2E+00	--	--	3.8E-04	1.8E-03	--	--	4.6E-02	2.2E-01	--	--	4.6E-02	2.2E-01
Copper	0.65	1.1E+01	7.5E+00	1.3E+03	--	3.4E+02	2.5E+02	5.8E+04	--	3.3E+00	2.4E+00	1.3E+02	--	8.5E+01	6.3E+01	5.8E+03	--	8.5E+01	6.3E+01	5.8E+03	--
Cyanide, Free	0	2.2E+01	5.2E+00	1.4E+02	1.6E+04	7.1E+02	1.9E+02	6.3E+03	7.2E+05	5.5E+00	1.3E+00	1.4E+01	1.6E+03	1.8E+02	4.7E+01	6.3E+02	7.2E+04	1.8E+02	4.7E+01	6.3E+02	7.2E+04
DDD [c]	0	--	--	3.1E-03	3.1E-03	--	--	3.7E-01	3.7E-01	--	--	3.1E-04	3.1E-04	--	--	3.7E-02	3.7E-02	--	--	3.7E-02	3.7E-02
DDE [c]	0	--	--	2.2E-03	2.2E-03	--	--	2.6E-01	2.6E-01	--	--	2.2E-04	2.2E-04	--	--	2.6E-02	2.6E-02	--	--	2.6E-02	2.6E-02
DDT [c]	0	1.1E+00	1.0E-03	2.2E-03	2.2E-03	3.5E+01	3.6E-02	2.6E-01	2.6E-01	2.8E-01	2.5E-04	2.2E-04	2.2E-04	8.9E+00	9.1E-03	2.6E-02	2.6E-02	8.9E+00	9.1E-03	2.6E-02	2.6E-02
Demeton	0	--	1.0E-01	--	--	--	3.6E+00	--	--	--	2.5E-02	--	--	--	9.1E-01	--	--	--	9.1E-01	--	--
Diazinon	0	1.7E-01	1.7E-01	--	--	5.5E+00	6.2E+00	--	--	4.3E-02	4.3E-02	--	--	1.4E+00	1.5E+00	--	--	1.4E+00	1.5E+00	--	--
Dibenz(a,h)anthracene [c]	0	--	--	3.8E-02	1.8E-01	--	--	4.6E+00	2.2E+01	--	--	3.8E-03	1.8E-02	--	--	4.6E-01	2.2E+00	--	--	4.6E-01	2.2E+00
1,2-Dichlorobenzene	0	--	--	4.2E+02	1.3E+03	--	--	1.9E+04	5.8E+04	--	--	4.2E+01	1.3E+02	--	--	1.9E+03	5.8E+03	--	--	1.9E+03	5.8E+03
1,3-Dichlorobenzene	0	--	--	3.2E+02	9.6E+02	--	--	1.4E+04	4.3E+04	--	--	3.2E+01	9.6E+01	--	--	1.4E+03	4.3E+03	--	--	1.4E+03	4.3E+03
1,4-Dichlorobenzene	0	--	--	6.3E+01	1.9E+02	--	--	2.8E+03	8.5E+03	--	--	6.3E+00	1.9E+01	--	--	2.8E+02	8.5E+02	--	--	2.8E+02	8.5E+02
3,3-Dichlorobenzidine[c]	0	--	--	2.1E-01	2.8E-01	--	--	2.5E+01	3.4E+01	--	--	2.1E-02	2.8E-02	--	--	2.5E+00	3.4E+00	--	--	2.5E+00	3.4E+00
Dichlorobromomethane [c]	0	--	--	5.5E+00	1.7E+02	--	--	6.6E+02	2.0E+04	--	--	5.5E-01	1.7E+01	--	--	6.6E+01	2.0E+03	--	--	6.6E+01	2.0E+03
1,2-Dichloroethane [c]	0	--	--	3.8E+00	3.7E+02	--	--	4.6E+02	4.4E+04	--	--	3.8E-01	3.7E+01	--	--	4.6E+01	4.4E+03	--	--	4.6E+01	4.4E+03
1,1-Dichloroethylene	0	--	--	3.3E+02	7.1E+03	--	--	1.5E+04	3.2E+05	--	--	3.3E+01	7.1E+02	--	--	1.5E+03	3.2E+04	--	--	1.5E+03	3.2E+04
1,2-trans-dichloroethylene	0	--	--	1.4E+02	1.0E+04	--	--	6.3E+03	4.5E+05	--	--	1.4E+01	1.0E+03	--	--	6.3E+02	4.5E+04	--	--	6.3E+02	4.5E+04
2,4-Dichlorophenol	0	--	--	7.7E+01	2.9E+02	--	--	3.4E+03	1.3E+04	--	--	7.7E+00	2.9E+01	--	--	3.4E+02	1.3E+03	--	--	3.4E+02	1.3E+03
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	1.0E+02	--	--	--	4.5E+03	--	--	--	1.0E+01	--	--	--	4.5E+02	--	--	--	4.5E+02	--
1,2-Dichloropropane[c]	0	--	--	5.0E+00	1.5E+02	--	--	6.0E+02	1.8E+04	--	--	5.0E-01	1.5E+01	--	--	6.0E+01	1.8E+03	--	--	6.0E+01	1.8E+03
1,3-Dichloropropene [c]	0	--	--	3.4E+00	2.1E+02	--	--	4.1E+02	2.5E+04	--	--	3.4E-01	2.1E+01	--	--	4.1E+01	2.5E+03	--	--	4.1E+01	2.5E+03
Dieldrin [c]	0	2.4E-01	5.6E-02	5.2E-04	5.4E-04	7.7E+00	2.0E+00	6.2E-02	6.5E-02	6.0E-02	1.4E-02	5.2E-05	5.4E-05	1.9E+00	5.1E-01	6.2E-03	6.5E-03	1.9E+00	5.1E-01	6.2E-03	6.5E-03
Diethyl Phthalate	0	--	--	1.7E+04	4.4E+04	--	--	7.6E+05	2.0E+06	--	--	1.7E+03	4.4E+03	--	--	7.6E+04	2.0E+05	--	--	7.6E+04	2.0E+05
2,4-Dimethylphenol	0	--	--	3.8E+02	8.5E+02	--	--	1.7E+04	3.8E+04	--	--	3.8E+01	8.5E+01	--	--	1.7E+03	3.8E+03	--	--	1.7E+03	3.8E+03
Dimethyl Phthalate	0	--	--	2.7E+05	1.1E+06	--	--	1.2E+07	4.9E+07	--	--	2.7E+04	1.1E+05	--	--	1.2E+06	4.9E+06	--	--	1.2E+06	4.9E+06
Di-n-Butyl Phthalate	0	--	--	2.0E+03	4.5E+03	--	--	9.0E+04	2.0E+05	--	--	2.0E+02	4.5E+02	--	--	9.0E+03	2.0E+04	--	--	9.0E+03	2.0E+04
2,4 Dinitrophenol	0	--	--	6.9E+01	5.3E+03	--	--	3.1E+03	2.4E+05	--	--	6.9E+00	5.3E+02	--	--	3.1E+02	2.4E+04	--	--	3.1E+02	2.4E+04
2-Methyl-4,6-Dinitrophenol	0	--	--	1.3E+01	2.8E+02	--	--	5.8E+02	1.3E+04	--	--	1.3E+00	2.8E+01	--	--	5.8E+01	1.3E+03	--	--	5.8E+01	1.3E+03
2,4-Dinitrotoluene [c]	0	--	--	1.1E+00	3.4E+01	--	--	1.3E+02	4.1E+03	--	--	1.1E-01	3.4E+00	--	--	1.3E+01	4.1E+02	--	--	1.3E+01	4.1E+02
Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin	0	--	--	5.0E-08	5.1E-08	--	--	2.2E-06	2.3E-06	--	--	5.0E-09	5.1E-09	--	--	2.2E-07	2.3E-07	--	--	2.2E-07	2.3E-07
1,2-Diphenylhydrazine[c]	0	--	--	3.6E-01	2.0E+00	--	--	4.3E+01	2.4E+02	--	--	3.6E-02	2.0E-01	--	--	4.3E+00	2.4E+01	--	--	4.3E+00	2.4E+01
Alpha-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	7.1E+00	2.0E+00	2.8E+03	4.0E+03	5.5E-02	1.4E-02	6.2E+00	8.9E+00	1.8E+00	5.1E-01	2.8E+02	4.0E+02	1.8E+00	5.1E-01	2.8E+02	4.0E+02
Beta-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	7.1E+00	2.0E+00	2.8E+03	4.0E+03	5.5E-02	1.4E-02	6.2E+00	8.9E+00	1.8E+00	5.1E-01	2.8E+02	4.0E+02	1.8E+00	5.1E-01	2.8E+02	4.0E+02
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	7.1E+00	2.0E+00	--	--	5.5E-02	1.4E-02	--	--	1.8E+00	5.1E-01	--	--	1.8E+00	5.1E-01	--	--
Endosulfan Sulfate	0	--	--	6.2E+01	8.9E+01	--	--	2.8E+03	4.0E+03	--	--	6.2E+00	8.9E+00	--	--	2.8E+02	4.0E+02	--	--	2.8E+02	4.0E+02
Endrin	0	8.6E-02	3.6E-02	5.9E-02	6.0E-02	2.8E+00	1.3E+00	2.6E+00	2.7E+00	2.2E-02	9.0E-03	5.9E-03	6.0E-03	6.9E-01	3.3E-01	2.6E-01	2.7E-01	6.9E-01	3.3E-01	2.6E-01	2.7E-01
Endrin Aldehyde	0	--	--	2.9E-01	3.0E-01	--	--	1.3E+01	1.3E+01	--	--	2.9E-02	3.0E-02	--	--	1.3E+00	1.3E+00	--	--	1.3E+00	1.3E+00

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	5.3E+02	2.1E+03	--	--	2.4E+04	9.4E+04	--	--	5.3E+01	2.1E+02	--	--	2.4E+03	9.4E+03	--	--	2.4E+03	9.4E+03
Fluoranthene	0	--	--	1.3E+02	1.4E+02	--	--	5.8E+03	6.3E+03	--	--	1.3E+01	1.4E+01	--	--	5.8E+02	6.3E+02	--	--	5.8E+02	6.3E+02
Fluorene	0	--	--	1.1E+03	5.3E+03	--	--	4.9E+04	2.4E+05	--	--	1.1E+02	5.3E+02	--	--	4.9E+03	2.4E+04	--	--	4.9E+03	2.4E+04
Foaming Agents	0	--	--	5.0E+02	--	--	--	2.2E+04	--	--	--	5.0E+01	--	--	--	2.2E+03	--	--	--	2.2E+03	--
Guthion	0	--	1.0E-02	--	--	--	3.6E-01	--	--	--	2.5E-03	--	--	--	9.1E-02	--	--	--	9.1E-02	--	--
Heptachlor [c]	0	5.2E-01	3.8E-03	7.9E-04	7.9E-04	1.7E+01	1.4E-01	9.5E-02	9.5E-02	1.3E-01	9.5E-04	7.9E-05	7.9E-05	4.2E+00	3.5E-02	9.5E-03	9.5E-03	4.2E+00	3.5E-02	9.5E-03	9.5E-03
Heptachlor Epoxide[c]	0	5.2E-01	3.8E-03	3.9E-04	3.9E-04	1.7E+01	1.4E-01	4.7E-02	4.7E-02	1.3E-01	9.5E-04	3.9E-05	3.9E-05	4.2E+00	3.5E-02	4.7E-03	4.7E-03	4.2E+00	3.5E-02	4.7E-03	4.7E-03
Hexachlorobenzene[c]	0	--	--	2.8E-03	2.9E-03	--	--	3.4E-01	3.5E-01	--	--	2.8E-04	2.9E-04	--	--	3.4E-02	3.5E-02	--	--	3.4E-02	3.5E-02
Hexachlorobutadiene[c]	0	--	--	4.4E+00	1.8E+02	--	--	5.3E+02	2.2E+04	--	--	4.4E-01	1.8E+01	--	--	5.3E+01	2.2E+03	--	--	5.3E+01	2.2E+03
Hexachlorocyclohexane Alpha-BHC[c]	0	--	--	2.6E-02	4.9E-02	--	--	3.1E+00	5.9E+00	--	--	2.6E-03	4.9E-03	--	--	3.1E-01	5.9E-01	--	--	3.1E-01	5.9E-01
Hexachlorocyclohexane Beta BHC[c]	0	--	--	9.1E-02	1.7E-01	--	--	1.1E+01	2.0E+01	--	--	9.1E-03	1.7E-02	--	--	1.1E+00	2.0E+00	--	--	1.1E+00	2.0E+00
Hexachlorocyclohexane Gamma-BHC[c] (Lindane)	0	9.5E-01	--	9.8E-01	1.8E+00	3.1E+01	--	1.2E+02	2.2E+02	2.4E-01	--	9.8E-02	1.8E-01	7.7E+00	--	1.2E+01	2.2E+01	7.7E+00	--	1.2E+01	2.2E+01
Hexachlorocyclopentadiene	0	--	--	4.0E+01	1.1E+03	--	--	1.8E+03	4.9E+04	--	--	4.0E+00	1.1E+02	--	--	1.8E+02	4.9E+03	--	--	1.8E+02	4.9E+03
Hexachloroethane[c]	0	--	--	1.4E+01	3.3E+01	--	--	1.7E+03	4.0E+03	--	--	1.4E+00	3.3E+00	--	--	1.7E+02	4.0E+02	--	--	1.7E+02	4.0E+02
Hydrogen Sulfide	0	--	2.0E+00	--	--	--	7.3E+01	--	--	--	5.0E-01	--	--	--	1.8E+01	--	--	--	1.8E+01	--	--
Indeno (1,2,3-cd) pyrene [c]	0	--	--	3.8E-02	1.8E-01	--	--	4.6E+00	2.2E+01	--	--	3.8E-03	1.8E-02	--	--	4.6E-01	2.2E+00	--	--	4.6E-01	2.2E+00
Iron	0	--	--	3.0E+02	--	--	--	1.3E+04	--	--	--	3.0E+01	--	--	--	1.3E+03	--	--	--	1.3E+03	--
Isophorone[c]	0	--	--	3.5E+02	9.6E+03	--	--	4.2E+04	1.1E+06	--	--	3.5E+01	9.6E+02	--	--	4.2E+03	1.1E+05	--	--	4.2E+03	1.1E+05
Kepone	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--
Lead	0	9.2E+01	1.0E+01	1.5E+01	--	3.0E+03	3.8E+02	6.7E+02	--	2.3E+01	2.6E+00	1.5E+00	--	7.4E+02	9.4E+01	6.7E+01	--	7.4E+02	9.4E+01	6.7E+01	--
Malathion	0	--	1.0E-01	--	--	--	3.6E+00	--	--	--	2.5E-02	--	--	--	9.1E-01	--	--	--	9.1E-01	--	--
Manganese	14.32	--	--	5.0E+01	--	--	--	1.6E+03	--	--	--	1.8E+01	--	--	--	1.7E+02	--	--	--	1.7E+02	--
Mercury	0	1.4E+00	7.7E-01	--	--	4.5E+01	2.8E+01	--	--	3.5E-01	1.9E-01	--	--	1.1E+01	7.0E+00	--	--	1.1E+01	7.0E+00	--	--
Methyl Bromide	0	--	--	4.7E+01	1.5E+03	--	--	2.1E+03	6.7E+04	--	--	4.7E+00	1.5E+02	--	--	2.1E+02	6.7E+03	--	--	2.1E+02	6.7E+03
Methylene Chloride [c]	0	--	--	4.6E+01	5.9E+03	--	--	5.5E+03	7.1E+05	--	--	4.6E+00	5.9E+02	--	--	5.5E+02	7.1E+04	--	--	5.5E+02	7.1E+04
Methoxychlor	0	--	3.0E-02	1.0E+02	--	--	1.1E+00	4.5E+03	--	--	7.5E-03	1.0E+01	--	--	2.7E-01	4.5E+02	--	--	2.7E-01	4.5E+02	--
Mirex	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--
Nickel	0.39	1.5E+02	1.7E+01	6.1E+02	4.6E+03	4.9E+03	6.0E+02	2.7E+04	2.1E+05	3.9E+01	4.5E+00	6.1E+01	4.6E+02	1.2E+03	1.5E+02	2.7E+03	2.1E+04	1.2E+03	1.5E+02	2.7E+03	2.1E+04
Nitrate (as N)	890	--	--	1.0E+04	--	--	--	4.1E+05	--	--	--	1.8E+03	--	--	--	4.2E+04	--	--	--	4.2E+04	--
Nitrobenzene	0	--	--	1.7E+01	6.9E+02	--	--	7.6E+02	3.1E+04	--	--	1.7E+00	6.9E+01	--	--	7.6E+01	3.1E+03	--	--	7.6E+01	3.1E+03
N-Nitrosodimethylamine[c]	0	--	--	6.9E-03	3.0E+01	--	--	8.3E-01	3.6E+03	--	--	6.9E-04	3.0E+00	--	--	8.3E-02	3.6E+02	--	--	8.3E-02	3.6E+02
N-Nitrosodiphenylamine[c]	0	--	--	3.3E+01	6.0E+01	--	--	4.0E+03	7.2E+03	--	--	3.3E+00	6.0E+00	--	--	4.0E+02	7.2E+02	--	--	4.0E+02	7.2E+02
N-Nitrosodi-n-propylamine[c]	0	--	--	5.0E-02	5.1E+00	--	--	6.0E+00	6.1E+02	--	--	5.0E-03	5.1E-01	--	--	6.0E-01	6.1E+01	--	--	6.0E-01	6.1E+01
Nonylphenol	0	2.8E+01	6.6E+00	--	--	9.0E+02	2.4E+02	--	--	7.0E+00	1.7E+00	--	--	2.3E+02	6.0E+01	--	--	2.3E+02	6.0E+01	--	--
Parathion	0	6.5E-02	1.3E-02	--	--	2.1E+00	4.7E-01	--	--	1.6E-02	3.3E-03	--	--	5.2E-01	1.2E-01	--	--	5.2E-01	1.2E-01	--	--
PCB Total[c]	0	--	1.4E-02	6.4E-04	6.4E-04	--	5.1E-01	7.7E-02	7.7E-02	--	3.5E-03	6.4E-05	6.4E-05	--	1.3E-01	7.7E-03	7.7E-03	--	1.3E-01	7.7E-03	7.7E-03
Pentachlorophenol [c]	0	1.2E+01	9.2E+00	2.7E+00	3.0E+01	3.8E+02	3.3E+02	3.2E+02	3.6E+03	3.0E+00	2.3E+00	2.7E-01	3.0E+00	9.6E+01	8.3E+01	3.2E+01	3.6E+02	9.6E+01	8.3E+01	3.2E+01	3.6E+02
Phenol	0	--	--	1.0E+04	8.6E+05	--	--	4.5E+05	3.8E+07	--	--	1.0E+03	8.6E+04	--	--	4.5E+04	3.8E+06	--	--	4.5E+04	3.8E+06
Pyrene	0	--	--	8.3E+02	4.0E+03	--	--	3.7E+04	1.8E+05	--	--	8.3E+01	4.0E+02	--	--	3.7E+03	1.8E+04	--	--	3.7E+03	1.8E+04
Radionuclides	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gross Alpha Activity (pCi/L)	0	--	--	1.5E+01	--	--	--	6.7E+02	--	--	--	1.5E+00	--	--	--	6.7E+01	--	--	--	6.7E+01	--
Beta and Photon Activity (mrem/yr)	0	--	--	4.0E+00	4.0E+00	--	--	1.8E+02	1.8E+02	--	--	4.0E-01	4.0E-01	--	--	1.8E+01	1.8E+01	--	--	1.8E+01	1.8E+01
Radium 226 + 228 (pCi/L)	0	--	--	5.0E+00	--	--	--	2.2E+02	--	--	--	5.0E-01	--	--	--	2.2E+01	--	--	--	2.2E+01	--
Uranium (ug/l)	0	--	--	3.0E+01	--	--	--	1.3E+03	--	--	--	3.0E+00	--	--	--	1.3E+02	--	--	--	1.3E+02	--

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	1.7E+02	4.2E+03	6.5E+02	1.8E+02	7.6E+03	1.9E+05	5.0E+00	1.3E+00	1.7E+01	4.2E+02	1.6E+02	4.6E+01	7.6E+02	1.9E+04	1.6E+02	4.6E+01	7.6E+02	1.9E+04
Silver	0	2.4E+00	--	--	--	7.8E+01	--	--	--	6.1E-01	--	--	--	2.0E+01	--	--	--	2.0E+01	--	--	--
Sulfate	7870	--	--	2.5E+05	--	--	--	1.1E+07	--	--	--	3.2E+04	--	--	--	1.1E+06	--	--	--	1.1E+06	--
1,1,2,2-Tetrachloroethane[c]	0	--	--	1.7E+00	4.0E+01	--	--	2.0E+02	4.8E+03	--	--	1.7E-01	4.0E+00	--	--	2.0E+01	4.8E+02	--	--	2.0E+01	4.8E+02
Tetrachloroethylene[c]	0	--	--	6.9E+00	3.3E+01	--	--	8.3E+02	4.0E+03	--	--	6.9E-01	3.3E+00	--	--	8.3E+01	4.0E+02	--	--	8.3E+01	4.0E+02
Thallium	0	--	--	2.4E-01	4.7E-01	--	--	1.1E+01	2.1E+01	--	--	2.4E-02	4.7E-02	--	--	1.1E+00	2.1E+00	--	--	1.1E+00	2.1E+00
Toluene	0	--	--	5.1E+02	6.0E+03	--	--	2.3E+04	2.7E+05	--	--	5.1E+01	6.0E+02	--	--	2.3E+03	2.7E+04	--	--	2.3E+03	2.7E+04
Total dissolved solids	0	--	--	5.0E+05	--	--	--	2.2E+07	--	--	--	5.0E+04	--	--	--	2.2E+06	--	--	--	2.2E+06	--
Toxaphene [c]	0	7.3E-01	2.0E-04	2.8E-03	2.8E-03	2.4E+01	7.3E-03	3.4E-01	3.4E-01	1.8E-01	5.0E-05	2.8E-04	2.8E-04	5.9E+00	1.8E-03	3.4E-02	3.4E-02	5.9E+00	1.8E-03	3.4E-02	3.4E-02
Tributyltin	0	4.6E-01	7.2E-02	--	--	1.5E+01	2.6E+00	--	--	1.2E-01	1.8E-02	--	--	3.7E+00	6.6E-01	--	--	3.7E+00	6.6E-01	--	--
1,2,4-Trichlorobenzene	0	--	--	3.5E+01	7.0E+01	--	--	1.6E+03	3.1E+03	--	--	3.5E+00	7.0E+00	--	--	1.6E+02	3.1E+02	--	--	1.6E+02	3.1E+02
1,1,2-Trichloroethane[c]	0	--	--	5.9E+00	1.6E+02	--	--	7.1E+02	1.9E+04	--	--	5.9E-01	1.6E+01	--	--	7.1E+01	1.9E+03	--	--	7.1E+01	1.9E+03
Trichloroethylene [c]	0	--	--	2.5E+01	3.0E+02	--	--	3.0E+03	3.6E+04	--	--	2.5E+00	3.0E+01	--	--	3.0E+02	3.6E+03	--	--	3.0E+02	3.6E+03
2,4,6-Trichlorophenol [c]	0	--	--	1.4E+01	2.4E+01	--	--	1.7E+03	2.9E+03	--	--	1.4E+00	2.4E+00	--	--	1.7E+02	2.9E+02	--	--	1.7E+02	2.9E+02
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	5.0E+01	--	--	--	2.2E+03	--	--	--	5.0E+00	--	--	--	2.2E+02	--	--	--	2.2E+02	--
Vinyl Chloride[c]	0	--	--	2.5E-01	2.4E+01	--	--	3.0E+01	2.9E+03	--	--	2.5E-02	2.4E+00	--	--	3.0E+00	2.9E+02	--	--	3.0E+00	2.9E+02
Zinc	3.68	9.9E+01	9.9E+01	7.4E+03	2.6E+04	3.1E+03	3.5E+03	3.3E+05	1.2E+06	2.7E+01	2.7E+01	7.4E+02	2.6E+03	7.7E+02	8.7E+02	3.3E+04	1.2E+05	7.7E+02	8.7E+02	3.3E+04	1.2E+05

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
   Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	2.5E+01
Arsenic	4.4E+01
Barium	9.0E+03
Cadmium	5.3E+00
Chromium III	3.4E+02
Chromium VI	5.2E+01
Copper	3.4E+01
Iron	1.3E+03
Lead	5.7E+01
Manganese	1.7E+02
Mercury	4.2E+00
Nickel	9.1E+01
Selenium	2.7E+01
Silver	7.8E+00
Zinc	3.1E+02

Note: do not use QL's lower than the minimum QL's provided in agency guidance

Mixing Zone Predictions for VA0000248 - 024

Effluent Flow = 0.003 MGD
Stream 7Q10 = 576 MGD
Stream 30Q10 = 666 MGD
Stream 1Q10 = 463 MGD
Stream slope = 0.001 ft/ft
Stream width = 650 ft
Bottom scale = 3
Channel scale = 1

Mixing Zone Predictions @ 7Q10

Depth = 2.0154 ft
Length = 224040.35 ft
Velocity = .6806 ft/sec
Residence Time = 3.8098 days

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than 52.5% of the 7Q10 is used.

Mixing Zone Predictions @ 30Q10

Depth = 2.1993 ft
Length = 208235.72 ft
Velocity = .7212 ft/sec
Residence Time = 3.342 days

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than 59.84% of the 30Q10 is used.

Mixing Zone Predictions @ 1Q10

Depth = 1.7674 ft
Length = 250077.71 ft
Velocity = .6239 ft/sec
Residence Time = 111.3431 hours

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than .9% of the 1Q10 is used.

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: RAAP - Outfall 024 Permit No.: VA0000248

Receiving Stream: New River Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO3) =	78	mg/L
90% Temperature (Annual) =	23.3	deg C
90% Temperature (Wet season) =	13.8	deg C
90% Maximum pH =	8.22	SU
10% Maximum pH =	7.32	SU
Tier Designation (1 or 2) =	2	
Public Water Supply (PWS) Y/N? =	y	
Trout Present Y/N? =	y	
Early Life Stages Present Y/N? =	y	

Stream Flows

1Q10 (Annual) =	463	MGD
7Q10 (Annual) =	576	MGD
30Q10 (Annual) =	666	MGD
1Q10 (Wet season) =	545	MGD
30Q10 (Wet season)	1097	MGD
30Q5 =	747	MGD
Harmonic Mean =	1562	MGD

Mixing Information

Annual - 1Q10 Mix =	0.9	%
- 7Q10 Mix =	52.5	%
- 30Q10 Mix =	59.84	%
Wet Season - 1Q10 Mix =	100	%
- 30Q10 Mix =	100	%

Effluent Information

Mean Hardness (as CaCO3) =	78	mg/L
90% Temp (Annual) =	23.3	deg C
90% Temp (Wet season) =	13.8	deg C
90% Maximum pH =	8.22	SU
10% Maximum pH =	7.32	SU
Discharge Flow =	0.003	MGD

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenapthene	0	--	--	6.7E+02	9.9E+02	--	--	1.7E+08	2.5E+08	--	--	6.7E+01	9.9E+01	--	--	1.7E+07	2.5E+07	--	--	1.7E+07	2.5E+07
Acrolein	0	--	--	6.1E+00	9.3E+00	--	--	1.5E+06	2.3E+06	--	--	6.1E-01	9.3E-01	--	--	1.5E+05	2.3E+05	--	--	1.5E+05	2.3E+05
Acrylonitrile[c]	0	--	--	5.1E-01	2.5E+00	--	--	2.7E+05	1.3E+06	--	--	5.1E-02	2.5E-01	--	--	2.7E+04	1.3E+05	--	--	2.7E+04	1.3E+05
Aldrin [c]	0	3.0E+00	--	4.9E-04	5.0E-04	4.2E+03	--	2.6E+02	2.6E+02	7.5E-01	--	4.9E-05	5.0E-05	1.2E+05	--	2.6E+01	2.6E+01	4.2E+03	--	2.6E+01	2.6E+01
Ammonia-N (mg/l) (Yearly)	0	3.68E+00	9.86E-01	--	--	5.1E+03	1.3E+05	--	--	9.20E-01	2.46E-01	--	--	1.4E+05	5.5E+04	--	--	5.1E+03	5.5E+04	--	--
Ammonia-N (mg/l) (High Flow)	0	3.68E+00	1.74E+00	--	--	6.7E+05	6.3E+05	--	--	9.20E-01	4.34E-01	--	--	1.7E+05	1.6E+05	--	--	1.7E+05	1.6E+05	--	--
Anthracene	0	--	--	8.3E+03	4.0E+04	--	--	2.1E+09	1.0E+10	--	--	8.3E+02	4.0E+03	--	--	2.1E+08	1.0E+09	--	--	2.1E+08	1.0E+09
Antimony	0	--	--	5.6E+00	6.4E+02	--	--	1.4E+06	1.6E+08	--	--	5.6E-01	6.4E+01	--	--	1.4E+05	1.6E+07	--	--	1.4E+05	1.6E+07
Arsenic	0.35	3.4E+02	1.5E+02	1.0E+01	--	4.7E+05	1.5E+07	2.4E+06	--	8.5E+01	3.8E+01	1.3E+00	--	1.3E+07	7.2E+06	2.4E+05	--	4.7E+05	7.2E+06	2.4E+05	--
Barium	0	--	--	2.0E+03	--	--	--	5.0E+08	--	--	--	2.0E+02	--	--	--	5.0E+07	--	--	--	5.0E+07	--
Benzene [c]	0	--	--	2.2E+01	5.1E+02	--	--	1.1E+07	2.7E+08	--	--	2.2E+00	5.1E+01	--	--	1.1E+06	2.7E+07	--	--	1.1E+06	2.7E+07
Benzidine[c]	0	--	--	8.6E-04	2.0E-03	--	--	4.5E+02	1.0E+03	--	--	8.6E-05	2.0E-04	--	--	4.5E+01	1.0E+02	--	--	4.5E+01	1.0E+02
Benzo (a) anthracene [c]	0	--	--	3.8E-02	1.8E-01	--	--	2.0E+04	9.4E+04	--	--	3.8E-03	1.8E-02	--	--	2.0E+03	9.4E+03	--	--	2.0E+03	9.4E+03
Benzo (b) fluoranthene [c]	0	--	--	3.8E-02	1.8E-01	--	--	2.0E+04	9.4E+04	--	--	3.8E-03	1.8E-02	--	--	2.0E+03	9.4E+03	--	--	2.0E+03	9.4E+03
Benzo (k) fluoranthene [c]	0	--	--	3.8E-02	1.8E-01	--	--	2.0E+04	9.4E+04	--	--	3.8E-03	1.8E-02	--	--	2.0E+03	9.4E+03	--	--	2.0E+03	9.4E+03
Benzo (a) pyrene [c]	0	--	--	3.8E-02	1.8E-01	--	--	2.0E+04	9.4E+04	--	--	3.8E-03	1.8E-02	--	--	2.0E+03	9.4E+03	--	--	2.0E+03	9.4E+03
Bis2-Chloroethyl Ether[c]	0	--	--	3.0E-01	5.3E+00	--	--	1.6E+05	2.8E+06	--	--	3.0E-02	5.3E-01	--	--	1.6E+04	2.8E+05	--	--	1.6E+04	2.8E+05
Bis2-Chloroisopropyl Ether	0	--	--	1.4E+03	6.5E+04	--	--	3.5E+08	1.6E+10	--	--	1.4E+02	6.5E+03	--	--	3.5E+07	1.6E+09	--	--	3.5E+07	1.6E+09
Bis 2-Ethylhexyl Phthalate[c]	0	--	--	1.2E+01	2.2E+01	--	--	6.2E+06	1.1E+07	--	--	1.2E+00	2.2E+00	--	--	6.2E+05	1.1E+06	--	--	6.2E+05	1.1E+06
Bromoform [c]	0	--	--	4.3E+01	1.4E+03	--	--	2.2E+07	7.3E+08	--	--	4.3E+00	1.4E+02	--	--	2.2E+06	7.3E+07	--	--	2.2E+06	7.3E+07
Butylbenzylphthalate	0	--	--	1.5E+03	1.9E+03	--	--	3.7E+08	4.7E+08	--	--	1.5E+02	1.9E+02	--	--	3.7E+07	4.7E+07	--	--	3.7E+07	4.7E+07
Cadmium	0	3.0E+00	9.3E-01	5.0E+00	--	4.1E+03	9.4E+04	1.2E+06	--	7.4E-01	2.3E-01	5.0E-01	--	1.1E+05	4.5E+04	1.2E+05	--	4.1E+03	4.5E+04	1.2E+05	--
Carbon Tetrachloride [c]	0	--	--	2.3E+00	1.6E+01	--	--	1.2E+06	8.3E+06	--	--	2.3E-01	1.6E+00	--	--	1.2E+05	8.3E+05	--	--	1.2E+05	8.3E+05
Chlordane [c]	0	2.4E+00	4.3E-03	8.0E-03	8.1E-03	3.3E+03	4.3E+02	4.2E+03	4.2E+03	6.0E-01	1.1E-03	8.0E-04	8.1E-04	9.3E+04	2.1E+02	4.2E+02	4.2E+02	3.3E+03	2.1E+02	4.2E+02	4.2E+02
Chloride	7960	8.6E+05	2.3E+05	2.5E+05	--	1.2E+09	2.2E+10	6.0E+10	--	2.2E+05	6.3E+04	3.2E+04	--	3.3E+10	1.1E+10	6.0E+09	--	1.2E+09	1.1E+10	6.0E+09	--
TRC	0	1.9E+01	1.1E+01	--	--	2.6E+04	1.1E+06	--	--	4.8E+00	2.8E+00	--	--	7.3E+05	5.3E+05	--	--	2.6E+04	5.3E+05	--	--
Chlorobenzene	0	--	--	1.3E+02	1.6E+03	--	--	3.2E+07	4.0E+08	--	--	1.3E+01	1.6E+02	--	--	3.2E+06	4.0E+07	--	--	3.2E+06	4.0E+07

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane[g]	0	--	--	4.0E+00	1.3E+02	--	--	2.1E+06	6.8E+07	--	--	4.0E-01	1.3E+01	--	--	2.1E+05	6.8E+06	--	--	2.1E+05	6.8E+06
Chloroform	0	--	--	3.4E+02	1.1E+04	--	--	8.5E+07	2.7E+09	--	--	3.4E+01	1.1E+03	--	--	8.5E+06	2.7E+08	--	--	8.5E+06	2.7E+08
2-Chloronaphthalene	0	--	--	1.0E+03	1.6E+03	--	--	2.5E+08	4.0E+08	--	--	1.0E+02	1.6E+02	--	--	2.5E+07	4.0E+07	--	--	2.5E+07	4.0E+07
2-Chlorophenol	0	--	--	8.1E+01	1.5E+02	--	--	2.0E+07	3.7E+07	--	--	8.1E+00	1.5E+01	--	--	2.0E+06	3.7E+06	--	--	2.0E+06	3.7E+06
Chlorpyrifos	0	8.3E-02	4.1E-02	--	--	1.2E+02	4.1E+03	--	--	2.1E-02	1.0E-02	--	--	3.2E+03	2.0E+03	--	--	1.2E+02	2.0E+03	--	--
Chromium III	0	4.6E+02	6.0E+01	--	--	6.5E+05	6.1E+06	--	--	1.2E+02	1.5E+01	--	--	1.8E+07	2.9E+06	--	--	6.5E+05	2.9E+06	--	--
Chromium VI	0	1.6E+01	1.1E+01	--	--	2.2E+04	1.1E+06	--	--	4.0E+00	2.8E+00	--	--	6.2E+05	5.3E+05	--	--	2.2E+04	5.3E+05	--	--
Chromium, Total	0.18	--	--	1.0E+02	--	--	--	2.5E+07	--	--	--	1.0E+01	--	--	--	2.5E+06	--	--	--	2.5E+06	--
Chrysene[c]	0	--	--	3.8E-03	1.8E-02	--	--	2.0E+03	9.4E+03	--	--	3.8E-04	1.8E-03	--	--	2.0E+02	9.4E+02	--	--	2.0E+02	9.4E+02
Copper	0.65	1.1E+01	7.2E+00	1.3E+03	--	1.4E+04	6.6E+05	3.2E+08	--	3.1E+00	2.3E+00	1.3E+02	--	3.9E+05	3.2E+05	3.2E+07	--	1.4E+04	3.2E+05	3.2E+07	--
Cyanide, Free	0	2.2E+01	5.2E+00	1.4E+02	1.6E+04	3.1E+04	5.2E+05	3.5E+07	4.0E+09	5.5E+00	1.3E+00	1.4E+01	1.6E+03	8.5E+05	2.5E+05	3.5E+06	4.0E+08	3.1E+04	2.5E+05	3.5E+06	4.0E+08
DDD[c]	0	--	--	3.1E-03	3.1E-03	--	--	1.6E+03	1.6E+03	--	--	3.1E-04	3.1E-04	--	--	1.6E+02	1.6E+02	--	--	1.6E+02	1.6E+02
DDE[c]	0	--	--	2.2E-03	2.2E-03	--	--	1.1E+03	1.1E+03	--	--	2.2E-04	2.2E-04	--	--	1.1E+02	1.1E+02	--	--	1.1E+02	1.1E+02
DDT[c]	0	1.1E+00	1.0E-03	2.2E-03	2.2E-03	1.5E+03	1.0E+02	1.1E+03	1.1E+03	2.8E-01	2.5E-04	2.2E-04	2.2E-04	4.2E+04	4.8E+01	1.1E+02	1.1E+02	1.5E+03	4.8E+01	1.1E+02	1.1E+02
Demeton	0	--	1.0E-01	--	--	--	1.0E+04	--	--	--	2.5E-02	--	--	--	4.8E+03	--	--	--	4.8E+03	--	--
Diazinon	0	1.7E-01	1.7E-01	--	--	2.4E+02	1.7E+04	--	--	4.3E-02	4.3E-02	--	--	6.6E+03	8.2E+03	--	--	2.4E+02	8.2E+03	--	--
Dibenz(a,h)anthracene[c]	0	--	--	3.8E-02	1.8E-01	--	--	2.0E+04	9.4E+04	--	--	3.8E-03	1.8E-02	--	--	2.0E+03	9.4E+03	--	--	2.0E+03	9.4E+03
1,2-Dichlorobenzene	0	--	--	4.2E+02	1.3E+03	--	--	1.0E+08	3.2E+08	--	--	4.2E+01	1.3E+02	--	--	1.0E+07	3.2E+07	--	--	1.0E+07	3.2E+07
1,3-Dichlorobenzene	0	--	--	3.2E+02	9.6E+02	--	--	8.0E+07	2.4E+08	--	--	3.2E+01	9.6E+01	--	--	8.0E+06	2.4E+07	--	--	8.0E+06	2.4E+07
1,4-Dichlorobenzene	0	--	--	6.3E+01	1.9E+02	--	--	1.6E+07	4.7E+07	--	--	6.3E+00	1.9E+01	--	--	1.6E+06	4.7E+06	--	--	1.6E+06	4.7E+06
3,3-Dichlorobenzidine[g]	0	--	--	2.1E-01	2.8E-01	--	--	1.1E+05	1.5E+05	--	--	2.1E-02	2.8E-02	--	--	1.1E+04	1.5E+04	--	--	1.1E+04	1.5E+04
Dichlorobromomethane[c]	0	--	--	5.5E+00	1.7E+02	--	--	2.9E+06	8.9E+07	--	--	5.5E-01	1.7E+01	--	--	2.9E+05	8.9E+06	--	--	2.9E+05	8.9E+06
1,2-Dichloroethane[c]	0	--	--	3.8E+00	3.7E+02	--	--	2.0E+06	1.9E+08	--	--	3.8E-01	3.7E+01	--	--	2.0E+05	1.9E+07	--	--	2.0E+05	1.9E+07
1,1-Dichloroethylene	0	--	--	3.3E+02	7.1E+03	--	--	8.2E+07	1.8E+09	--	--	3.3E+01	7.1E+02	--	--	8.2E+06	1.8E+08	--	--	8.2E+06	1.8E+08
1,2-trans-dichloroethylene	0	--	--	1.4E+02	1.0E+04	--	--	3.5E+07	2.5E+09	--	--	1.4E+01	1.0E+03	--	--	3.5E+06	2.5E+08	--	--	3.5E+06	2.5E+08
2,4-Dichlorophenol	0	--	--	7.7E+01	2.9E+02	--	--	1.9E+07	7.2E+07	--	--	7.7E+00	2.9E+01	--	--	1.9E+06	7.2E+06	--	--	1.9E+06	7.2E+06
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	1.0E+02	--	--	--	2.5E+07	--	--	--	1.0E+01	--	--	--	2.5E+06	--	--	--	2.5E+06	--
1,2-Dichloropropane[g]	0	--	--	5.0E+00	1.5E+02	--	--	2.6E+06	7.8E+07	--	--	5.0E-01	1.5E+01	--	--	2.6E+05	7.8E+06	--	--	2.6E+05	7.8E+06
1,3-Dichloropropene[c]	0	--	--	3.4E+00	2.1E+02	--	--	1.8E+06	1.1E+08	--	--	3.4E-01	2.1E+01	--	--	1.8E+05	1.1E+07	--	--	1.8E+05	1.1E+07
Dieldrin[c]	0	2.4E-01	5.6E-02	5.2E-04	5.4E-04	3.3E+02	5.6E+03	2.7E+02	2.8E+02	6.0E-02	1.4E-02	5.2E-05	5.4E-05	9.3E+03	2.7E+03	2.7E+01	2.8E+01	3.3E+02	2.7E+03	2.7E+01	2.8E+01
Diethyl Phthalate	0	--	--	1.7E+04	4.4E+04	--	--	4.2E+09	1.1E+10	--	--	1.7E+03	4.4E+03	--	--	4.2E+08	1.1E+09	--	--	4.2E+08	1.1E+09
2,4-Dimethylphenol	0	--	--	3.8E+02	8.5E+02	--	--	9.5E+07	2.1E+08	--	--	3.8E+01	8.5E+01	--	--	9.5E+06	2.1E+07	--	--	9.5E+06	2.1E+07
Dimethyl Phthalate	0	--	--	2.7E+05	1.1E+06	--	--	6.7E+10	2.7E+11	--	--	2.7E+04	1.1E+05	--	--	6.7E+09	2.7E+10	--	--	6.7E+09	2.7E+10
Di-n-Butyl Phthalate	0	--	--	2.0E+03	4.5E+03	--	--	5.0E+08	1.1E+09	--	--	2.0E+02	4.5E+02	--	--	5.0E+07	1.1E+08	--	--	5.0E+07	1.1E+08
2,4 Dinitrophenol	0	--	--	6.9E+01	5.3E+03	--	--	1.7E+07	1.3E+09	--	--	6.9E+00	5.3E+02	--	--	1.7E+06	1.3E+08	--	--	1.7E+06	1.3E+08
2-Methyl-4,6-Dinitrophenol	0	--	--	1.3E+01	2.8E+02	--	--	3.2E+06	7.0E+07	--	--	1.3E+00	2.8E+01	--	--	3.2E+05	7.0E+06	--	--	3.2E+05	7.0E+06
2,4-Dinitrotoluene[c]	0	--	--	1.1E+00	3.4E+01	--	--	5.7E+05	1.8E+07	--	--	1.1E-01	3.4E+00	--	--	5.7E+04	1.8E+06	--	--	5.7E+04	1.8E+06
Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin	0	--	--	5.0E-08	5.1E-08	--	--	1.2E-02	1.3E-02	--	--	5.0E-09	5.1E-09	--	--	1.2E-03	1.3E-03	--	--	1.2E-03	1.3E-03
1,2-Diphenylhydrazine[g]	0	--	--	3.6E-01	2.0E+00	--	--	1.9E+05	1.0E+06	--	--	3.6E-02	2.0E-01	--	--	1.9E+04	1.0E+05	--	--	1.9E+04	1.0E+05
Alpha-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	3.1E+02	5.6E+03	1.5E+07	2.2E+07	5.5E-02	1.4E-02	6.2E+00	8.9E+00	8.5E+03	2.7E+03	1.5E+06	2.2E+06	3.1E+02	2.7E+03	1.5E+06	2.2E+06
Beta-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	3.1E+02	5.6E+03	1.5E+07	2.2E+07	5.5E-02	1.4E-02	6.2E+00	8.9E+00	8.5E+03	2.7E+03	1.5E+06	2.2E+06	3.1E+02	2.7E+03	1.5E+06	2.2E+06
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	3.1E+02	5.6E+03	--	--	5.5E-02	1.4E-02	--	--	8.5E+03	2.7E+03	--	--	3.1E+02	2.7E+03	--	--
Endosulfan Sulfate	0	--	--	6.2E+01	8.9E+01	--	--	1.5E+07	2.2E+07	--	--	6.2E+00	8.9E+00	--	--	1.5E+06	2.2E+06	--	--	1.5E+06	2.2E+06
Endrin	0	8.6E-02	3.6E-02	5.9E-02	6.0E-02	1.2E+02	3.6E+03	1.5E+04	1.5E+04	2.2E-02	9.0E-03	5.9E-03	6.0E-03	3.3E+03	1.7E+03	1.5E+03	1.5E+03	1.2E+02	1.7E+03	1.5E+03	1.5E+03
Endrin Aldehyde	0	--	--	2.9E-01	3.0E-01	--	--	7.2E+04	7.5E+04	--	--	2.9E-02	3.0E-02	--	--	7.2E+03	7.5E+03	--	--	7.2E+03	7.5E+03

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	5.3E+02	2.1E+03	--	--	1.3E+08	5.2E+08	--	--	5.3E+01	2.1E+02	--	--	1.3E+07	5.2E+07	--	--	1.3E+07	5.2E+07
Fluoranthene	0	--	--	1.3E+02	1.4E+02	--	--	3.2E+07	3.5E+07	--	--	1.3E+01	1.4E+01	--	--	3.2E+06	3.5E+06	--	--	3.2E+06	3.5E+06
Fluorene	0	--	--	1.1E+03	5.3E+03	--	--	2.7E+08	1.3E+09	--	--	1.1E+02	5.3E+02	--	--	2.7E+07	1.3E+08	--	--	2.7E+07	1.3E+08
Foaming Agents	0	--	--	5.0E+02	--	--	--	1.2E+08	--	--	--	5.0E+01	--	--	--	1.2E+07	--	--	--	1.2E+07	--
Guthion	0	--	1.0E-02	--	--	--	1.0E+03	--	--	--	2.5E-03	--	--	--	4.8E+02	--	--	--	4.8E+02	--	--
Heptachlor [c]	0	5.2E-01	3.8E-03	7.9E-04	7.9E-04	7.2E+02	3.8E+02	4.1E+02	4.1E+02	1.3E-01	9.5E-04	7.9E-05	7.9E-05	2.0E+04	1.8E+02	4.1E+01	4.1E+01	7.2E+02	1.8E+02	4.1E+01	4.1E+01
Heptachlor Epoxide[c]	0	5.2E-01	3.8E-03	3.9E-04	3.9E-04	7.2E+02	3.8E+02	2.0E+02	2.0E+02	1.3E-01	9.5E-04	3.9E-05	3.9E-05	2.0E+04	1.8E+02	2.0E+01	2.0E+01	7.2E+02	1.8E+02	2.0E+01	2.0E+01
Hexachlorobenzene[c]	0	--	--	2.8E-03	2.9E-03	--	--	1.5E+03	1.5E+03	--	--	2.8E-04	2.9E-04	--	--	1.5E+02	1.5E+02	--	--	1.5E+02	1.5E+02
Hexachlorobutadiene[c]	0	--	--	4.4E+00	1.8E+02	--	--	2.3E+06	9.4E+07	--	--	4.4E-01	1.8E+01	--	--	2.3E+05	9.4E+06	--	--	2.3E+05	9.4E+06
Hexachlorocyclohexane Alpha-BHC[c]	0	--	--	2.6E-02	4.9E-02	--	--	1.4E+04	2.6E+04	--	--	2.6E-03	4.9E-03	--	--	1.4E+03	2.6E+03	--	--	1.4E+03	2.6E+03
Hexachlorocyclohexane Beta BHC[c]	0	--	--	9.1E-02	1.7E-01	--	--	4.7E+04	8.9E+04	--	--	9.1E-03	1.7E-02	--	--	4.7E+03	8.9E+03	--	--	4.7E+03	8.9E+03
Hexachlorocyclohexane Gamma-BHC[c] (Lindane)	0	9.5E-01	--	9.8E-01	1.8E+00	1.3E+03	--	5.1E+05	9.4E+05	2.4E-01	--	9.8E-02	1.8E-01	3.7E+04	--	5.1E+04	9.4E+04	1.3E+03	--	5.1E+04	9.4E+04
Hexachlorocyclopentadiene	0	--	--	4.0E+01	1.1E+03	--	--	1.0E+07	2.7E+08	--	--	4.0E+00	1.1E+02	--	--	1.0E+06	2.7E+07	--	--	1.0E+06	2.7E+07
Hexachloroethane[c]	0	--	--	1.4E+01	3.3E+01	--	--	7.3E+06	1.7E+07	--	--	1.4E+00	3.3E+00	--	--	7.3E+05	1.7E+06	--	--	7.3E+05	1.7E+06
Hydrogen Sulfide	0	--	2.0E+00	--	--	--	2.0E+05	--	--	--	5.0E-01	--	--	--	9.6E+04	--	--	--	9.6E+04	--	--
Indeno (1,2,3-cd) pyrene [c]	0	--	--	3.8E-02	1.8E-01	--	--	2.0E+04	9.4E+04	--	--	3.8E-03	1.8E-02	--	--	2.0E+03	9.4E+03	--	--	2.0E+03	9.4E+03
Iron	0	--	--	3.0E+02	--	--	--	7.5E+07	--	--	--	3.0E+01	--	--	--	7.5E+06	--	--	--	7.5E+06	--
Isophorone[c]	0	--	--	3.5E+02	9.6E+03	--	--	1.8E+08	5.0E+09	--	--	3.5E+01	9.6E+02	--	--	1.8E+07	5.0E+08	--	--	1.8E+07	5.0E+08
Kepone	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--
Lead	0	8.7E+01	9.8E+00	1.5E+01	--	1.2E+05	9.9E+05	3.7E+06	--	2.2E+01	2.5E+00	1.5E+00	--	3.3E+06	4.7E+05	3.7E+05	--	1.2E+05	4.7E+05	3.7E+05	--
Malathion	0	--	1.0E-01	--	--	--	1.0E+04	--	--	--	2.5E-02	--	--	--	4.8E+03	--	--	--	4.8E+03	--	--
Manganese	14.32	--	--	5.0E+01	--	--	--	8.9E+06	--	--	--	1.8E+01	--	--	--	8.9E+05	--	--	--	8.9E+05	--
Mercury	0	1.4E+00	7.7E-01	- -	- -	1.9E+03	7.8E+04	- -	- -	3.5E-01	1.9E-01	- -	--	5.4E+04	3.7E+04	- -	--	1.9E+03	3.7E+04	- -	- -
Methyl Bromide	0	--	--	4.7E+01	1.5E+03	--	--	1.2E+07	3.7E+08	--	--	4.7E+00	1.5E+02	--	--	1.2E+06	3.7E+07	--	--	1.2E+06	3.7E+07
Methylene Chloride [c]	0	--	--	4.6E+01	5.9E+03	--	--	2.4E+07	3.1E+09	--	--	4.6E+00	5.9E+02	--	--	2.4E+06	3.1E+08	--	--	2.4E+06	3.1E+08
Methoxychlor	0	--	3.0E-02	1.0E+02	--	--	3.0E+03	2.5E+07	--	--	7.5E-03	1.0E+01	--	--	1.4E+03	2.5E+06	--	--	1.4E+03	2.5E+06	--
Mirex	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--
Nickel	0.39	1.5E+02	1.6E+01	6.1E+02	4.6E+03	2.0E+05	1.6E+06	1.5E+08	1.1E+09	3.7E+01	4.4E+00	6.1E+01	4.6E+02	5.7E+06	7.7E+05	1.5E+07	1.1E+08	2.0E+05	7.7E+05	1.5E+07	1.1E+08
Nitrate (as N)	890	--	--	1.0E+04	--	--	--	2.3E+09	--	--	--	1.8E+03	--	--	--	2.3E+08	--	--	--	2.3E+08	--
Nitrobenzene	0	--	--	1.7E+01	6.9E+02	--	--	4.2E+06	1.7E+08	--	--	1.7E+00	6.9E+01	--	--	4.2E+05	1.7E+07	--	--	4.2E+05	1.7E+07
N-Nitrosodimethylamine[c]	0	--	--	6.9E-03	3.0E+01	--	--	3.6E+03	1.6E+07	--	--	6.9E-04	3.0E+00	--	--	3.6E+02	1.6E+06	--	--	3.6E+02	1.6E+06
N-Nitrosodiphenylamine[c]	0	--	--	3.3E+01	6.0E+01	--	--	1.7E+07	3.1E+07	--	--	3.3E+00	6.0E+00	--	--	1.7E+06	3.1E+06	--	--	1.7E+06	3.1E+06
N-Nitrosodi-n-propylamine[c]	0	--	--	5.0E-02	5.1E+00	--	--	2.6E+04	2.7E+06	--	--	5.0E-03	5.1E-01	--	--	2.6E+03	2.7E+05	--	--	2.6E+03	2.7E+05
Nonylphenol	0	2.8E+01	6.6E+00	--	--	3.9E+04	6.7E+05	--	--	7.0E+00	1.7E+00	--	--	1.1E+06	3.2E+05	--	--	3.9E+04	3.2E+05	--	--
Parathion	0	6.5E-02	1.3E-02	--	--	9.0E+01	1.3E+03	--	--	1.6E-02	3.3E-03	--	--	2.5E+03	6.2E+02	--	--	9.0E+01	6.2E+02	--	--
PCB Total[c]	0	--	1.4E-02	6.4E-04	6.4E-04	--	1.4E+03	3.3E+02	3.3E+02	--	3.5E-03	6.4E-05	6.4E-05	--	6.7E+02	3.3E+01	3.3E+01	--	6.7E+02	3.3E+01	3.3E+01
Pentachlorophenol [c]	0	1.2E+01	9.2E+00	2.7E+00	3.0E+01	1.7E+04	9.3E+05	1.4E+06	1.6E+07	3.0E+00	2.3E+00	2.7E-01	3.0E+00	4.6E+05	4.4E+05	1.4E+05	1.6E+06	1.7E+04	4.4E+05	1.4E+05	1.6E+06
Phenol	0	--	--	1.0E+04	8.6E+05	--	--	2.5E+09	2.1E+11	--	--	1.0E+03	8.6E+04	--	--	2.5E+08	2.1E+10	--	--	2.5E+08	2.1E+10
Pyrene	0	--	--	8.3E+02	4.0E+03	--	--	2.1E+08	1.0E+09	--	--	8.3E+01	4.0E+02	--	--	2.1E+07	1.0E+08	--	--	2.1E+07	1.0E+08
Radionuclides	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gross Alpha Activity (pCi/L)	0	--	--	1.5E+01	--	--	--	3.7E+06	--	--	--	1.5E+00	--	--	--	3.7E+05	--	--	--	3.7E+05	--
Beta and Photon Activity (mrem/yr)	0	--	--	4.0E+00	4.0E+00	--	--	1.0E+06	1.0E+06	--	--	4.0E-01	4.0E-01	--	--	1.0E+05	1.0E+05	--	--	1.0E+05	1.0E+05
Radium 226 + 228 (pCi/L)	0	--	--	5.0E+00	--	--	--	1.2E+06	--	--	--	5.0E-01	--	--	--	1.2E+05	--	--	--	1.2E+05	--
Uranium (ug/l)	0	--	--	3.0E+01	--	--	--	7.5E+06	--	--	--	3.0E+00	--	--	--	7.5E+05	--	--	--	7.5E+05	--

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	1.7E+02	4.2E+03	2.8E+04	5.0E+05	4.2E+07	1.0E+09	5.0E+00	1.3E+00	1.7E+01	4.2E+02	7.7E+05	2.4E+05	4.2E+06	1.0E+08	2.8E+04	2.4E+05	4.2E+06	1.0E+08
Silver	0	2.3E+00	--	--	--	3.1E+03	--	--	--	5.6E-01	--	--	--	8.7E+04	--	--	--	3.1E+03	--	--	--
Sulfate	7870	--	--	2.5E+05	--	--	--	6.0E+10	--	--	--	3.2E+04	--	--	--	6.0E+09	--	--	--	6.0E+09	--
1,1,2,2-Tetrachloroethane[c]	0	--	--	1.7E+00	4.0E+01	--	--	8.9E+05	2.1E+07	--	--	1.7E-01	4.0E+00	--	--	8.9E+04	2.1E+06	--	--	8.9E+04	2.1E+06
Tetrachloroethylene[c]	0	--	--	6.9E+00	3.3E+01	--	--	3.6E+06	1.7E+07	--	--	6.9E-01	3.3E+00	--	--	3.6E+05	1.7E+06	--	--	3.6E+05	1.7E+06
Thallium	0	--	--	2.4E-01	4.7E-01	--	--	6.0E+04	1.2E+05	--	--	2.4E-02	4.7E-02	--	--	6.0E+03	1.2E+04	--	--	6.0E+03	1.2E+04
Toluene	0	--	--	5.1E+02	6.0E+03	--	--	1.3E+08	1.5E+09	--	--	5.1E+01	6.0E+02	--	--	1.3E+07	1.5E+08	--	--	1.3E+07	1.5E+08
Total dissolved solids	0	--	--	5.0E+05	--	--	--	1.2E+11	--	--	--	5.0E+04	--	--	--	1.2E+10	--	--	--	1.2E+10	--
Toxaphene [c]	0	7.3E-01	2.0E-04	2.8E-03	2.8E-03	1.0E+03	2.0E+01	1.5E+03	1.5E+03	1.8E-01	5.0E-05	2.8E-04	2.8E-04	2.8E+04	9.6E+00	1.5E+02	1.5E+02	1.0E+03	9.6E+00	1.5E+02	1.5E+02
Tributyltin	0	4.6E-01	7.2E-02	--	--	6.4E+02	7.3E+03	--	--	1.2E-01	1.8E-02	--	--	1.8E+04	3.5E+03	--	--	6.4E+02	3.5E+03	--	--
1,2,4-Trichlorobenzene	0	--	--	3.5E+01	7.0E+01	--	--	8.7E+06	1.7E+07	--	--	3.5E+00	7.0E+00	--	--	8.7E+05	1.7E+06	--	--	8.7E+05	1.7E+06
1,1,2-Trichloroethane[c]	0	--	--	5.9E+00	1.6E+02	--	--	3.1E+06	8.3E+07	--	--	5.9E-01	1.6E+01	--	--	3.1E+05	8.3E+06	--	--	3.1E+05	8.3E+06
Trichloroethylene [c]	0	--	--	2.5E+01	3.0E+02	--	--	1.3E+07	1.6E+08	--	--	2.5E+00	3.0E+01	--	--	1.3E+06	1.6E+07	--	--	1.3E+06	1.6E+07
2,4,6-Trichlorophenol [c]	0	--	--	1.4E+01	2.4E+01	--	--	7.3E+06	1.2E+07	--	--	1.4E+00	2.4E+00	--	--	7.3E+05	1.2E+06	--	--	7.3E+05	1.2E+06
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	5.0E+01	--	--	--	1.2E+07	--	--	--	5.0E+00	--	--	--	1.2E+06	--	--	--	1.2E+06	--
Vinyl Chloride[c]	0	--	--	2.5E-01	2.4E+01	--	--	1.3E+05	1.2E+07	--	--	2.5E-02	2.4E+00	--	--	1.3E+04	1.2E+06	--	--	1.3E+04	1.2E+06
Zinc	3.68	9.5E+01	9.6E+01	7.4E+03	2.6E+04	1.3E+05	9.3E+06	1.8E+09	6.5E+09	2.6E+01	2.7E+01	7.4E+02	2.6E+03	3.5E+06	4.4E+06	1.8E+08	6.5E+08	1.3E+05	4.4E+06	1.8E+08	6.5E+08

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information. Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	1.4E+05
Arsenic	1.9E+05
Barium	5.0E+07
Cadmium	1.6E+03
Chromium III	2.6E+05
Chromium VI	8.9E+03
Copper	5.6E+03
Iron	7.5E+06
Lead	4.8E+04
Manganese	8.9E+05
Mercury	7.8E+02
Nickel	8.2E+04
Selenium	1.1E+04
Silver	1.3E+03
Zinc	5.1E+04

Note: do not use QL's lower than the minimum QL's provided in agency guidance

Mixing Zone Predictions for VA0000248 - 026

Effluent Flow = 1.0 MGD
Stream 7Q10 = 559 MGD
Stream 30Q10 = 646 MGD
Stream 1Q10 = 449 MGD
Stream slope = 0.001 ft/ft
Stream width = 600 ft
Bottom scale = 3
Channel scale = 1

Mixing Zone Predictions @ 7Q10

Depth = 2.0797 ft
Length = 185875.96 ft
Velocity = .6947 ft/sec
Residence Time = 3.0968 days

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than 64.58% of the 7Q10 is used.

Mixing Zone Predictions @ 30Q10

Depth = 2.2685 ft
Length = 172819.87 ft
Velocity = .7358 ft/sec
Residence Time = 2.7183 days

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than 73.57% of the 30Q10 is used.

Mixing Zone Predictions @ 1Q10

Depth = 1.8234 ft
Length = 207529.48 ft
Velocity = .6367 ft/sec
Residence Time = 90.5362 hours

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than 1.1% of the 1Q10 is used.

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: RAAP - Outfall 026 Permit No.: VA0000248

Receiving Stream: New River Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO3) =	78	mg/L
90% Temperature (Annual) =	23.3	deg C
90% Temperature (Wet season) =	13.8	deg C
90% Maximum pH =	8.22	SU
10% Maximum pH =	7.32	SU
Tier Designation (1 or 2) =	2	
Public Water Supply (PWS) Y/N? =	y	
Trout Present Y/N? =	y	
Early Life Stages Present Y/N? =	y	

Stream Flows

1Q10 (Annual) =	449	MGD
7Q10 (Annual) =	559	MGD
30Q10 (Annual) =	646	MGD
1Q10 (Wet season) =	529	MGD
30Q10 (Wet season)	1067	MGD
30Q5 =	726	MGD
Harmonic Mean =	1520	MGD

Mixing Information

Annual - 1Q10 Mix =	1.1	%
- 7Q10 Mix =	64.58	%
- 30Q10 Mix =	73.57	%
Wet Season - 1Q10 Mix =	100	%
- 30Q10 Mix =	100	%

Effluent Information

Mean Hardness (as CaCO3) =	98	mg/L
90% Temp (Annual) =	23.3	deg C
90% Temp (Wet season) =	13.8	deg C
90% Maximum pH =	7.3	SU
10% Maximum pH =	6.5	SU
Discharge Flow =	1	MGD

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenapthene	0	--	--	6.7E+02	9.9E+02	--	--	4.9E+05	7.2E+05	--	--	6.7E+01	9.9E+01	--	--	4.9E+04	7.2E+04	--	--	4.9E+04	7.2E+04
Acrolein	0	--	--	6.1E+00	9.3E+00	--	--	4.4E+03	6.8E+03	--	--	6.1E-01	9.3E-01	--	--	4.4E+02	6.8E+02	--	--	4.4E+02	6.8E+02
Acrylonitrile[c]	0	--	--	5.1E-01	2.5E+00	--	--	7.8E+02	3.8E+03	--	--	5.1E-02	2.5E-01	--	--	7.8E+01	3.8E+02	--	--	7.8E+01	3.8E+02
Aldrin [c]	0	3.0E+00	--	4.9E-04	5.0E-04	1.8E+01	--	7.5E-01	7.6E-01	7.5E-01	--	4.9E-05	5.0E-05	3.4E+02	--	7.5E-02	7.6E-02	1.8E+01	--	7.5E-02	7.6E-02
Ammonia-N (mg/l) (Yearly)	0	7.13E+00	9.96E-01	--	--	4.2E+01	4.7E+02	--	--	9.32E-01	2.48E-01	--	--	4.2E+02	1.6E+02	--	--	4.2E+01	1.6E+02	--	--
Ammonia-N (mg/l) (High Flow)	0	3.72E+00	1.74E+00	--	--	2.0E+03	1.9E+03	--	--	9.31E-01	4.36E-01	--	--	4.9E+02	4.7E+02	--	--	4.9E+02	4.7E+02	--	--
Anthracene	0	--	--	8.3E+03	4.0E+04	--	--	6.0E+06	2.9E+07	--	--	8.3E+02	4.0E+03	--	--	6.0E+05	2.9E+06	--	--	6.0E+05	2.9E+06
Antimony	0	--	--	5.6E+00	6.4E+02	--	--	4.1E+03	4.7E+05	--	--	5.6E-01	6.4E+01	--	--	4.1E+02	4.7E+04	--	--	4.1E+02	4.7E+04
Arsenic	0.35	3.4E+02	1.5E+02	1.0E+01	--	2.0E+03	5.4E+04	7.0E+03	--	8.5E+01	3.8E+01	1.3E+00	--	3.8E+04	2.1E+04	7.0E+02	--	2.0E+03	2.1E+04	7.0E+02	--
Barium	0	--	--	2.0E+03	--	--	--	1.5E+06	--	--	--	2.0E+02	--	--	--	1.5E+05	--	--	--	1.5E+05	--
Benzene [c]	0	--	--	2.2E+01	5.1E+02	--	--	3.3E+04	7.8E+05	--	--	2.2E+00	5.1E+01	--	--	3.3E+03	7.8E+04	--	--	3.3E+03	7.8E+04
Benzidine[c]	0	--	--	8.6E-04	2.0E-03	--	--	1.3E+00	3.0E+00	--	--	8.6E-05	2.0E-04	--	--	1.3E-01	3.0E-01	--	--	1.3E-01	3.0E-01
Benzo (a) anthracene [c]	0	--	--	3.8E-02	1.8E-01	--	--	5.8E+01	2.7E+02	--	--	3.8E-03	1.8E-02	--	--	5.8E+00	2.7E+01	--	--	5.8E+00	2.7E+01
Benzo (b) fluoranthene [c]	0	--	--	3.8E-02	1.8E-01	--	--	5.8E+01	2.7E+02	--	--	3.8E-03	1.8E-02	--	--	5.8E+00	2.7E+01	--	--	5.8E+00	2.7E+01
Benzo (k) fluoranthene [c]	0	--	--	3.8E-02	1.8E-01	--	--	5.8E+01	2.7E+02	--	--	3.8E-03	1.8E-02	--	--	5.8E+00	2.7E+01	--	--	5.8E+00	2.7E+01
Benzo (a) pyrene [c]	0	--	--	3.8E-02	1.8E-01	--	--	5.8E+01	2.7E+02	--	--	3.8E-03	1.8E-02	--	--	5.8E+00	2.7E+01	--	--	5.8E+00	2.7E+01
Bis2-Chloroethyl Ether[c]	0	--	--	3.0E-01	5.3E+00	--	--	4.6E+02	8.1E+03	--	--	3.0E-02	5.3E-01	--	--	4.6E+01	8.1E+02	--	--	4.6E+01	8.1E+02
Bis2-Chloroisopropyl Ether	0	--	--	1.4E+03	6.5E+04	--	--	1.0E+06	4.7E+07	--	--	1.4E+02	6.5E+03	--	--	1.0E+05	4.7E+06	--	--	1.0E+05	4.7E+06
Bis 2-Ethylhexyl Phthalate[c]	0	--	--	1.2E+01	2.2E+01	--	--	1.8E+04	3.3E+04	--	--	1.2E+00	2.2E+00	--	--	1.8E+03	3.3E+03	--	--	1.8E+03	3.3E+03
Bromoform [c]	0	--	--	4.3E+01	1.4E+03	--	--	6.5E+04	2.1E+06	--	--	4.3E+00	1.4E+02	--	--	6.5E+03	2.1E+05	--	--	6.5E+03	2.1E+05
Butylbenzylphthalate	0	--	--	1.5E+03	1.9E+03	--	--	1.1E+06	1.4E+06	--	--	1.5E+02	1.9E+02	--	--	1.1E+05	1.4E+05	--	--	1.1E+05	1.4E+05
Cadmium	0	3.1E+00	9.3E-01	5.0E+00	--	1.8E+01	3.4E+02	3.6E+03	--	7.4E-01	2.3E-01	5.0E-01	--	3.3E+02	1.3E+02	3.6E+02	--	1.8E+01	1.3E+02	3.6E+02	--
Carbon Tetrachloride [c]	0	--	--	2.3E+00	1.6E+01	--	--	3.5E+03	2.4E+04	--	--	2.3E-01	1.6E+00	--	--	3.5E+02	2.4E+03	--	--	3.5E+02	2.4E+03
Chlordane [c]	0	2.4E+00	4.3E-03	8.0E-03	8.1E-03	1.4E+01	1.6E+00	1.2E+01	1.2E+01	6.0E-01	1.1E-03	8.0E-04	8.1E-04	2.7E+02	6.0E-01	1.2E+00	1.2E+00	1.4E+01	6.0E-01	1.2E+00	1.2E+00
Chloride	7960	8.6E+05	2.3E+05	2.5E+05	--	5.1E+06	8.0E+07	1.8E+08	--	2.2E+05	6.3E+04	3.2E+04	--	9.6E+07	3.1E+07	1.8E+07	--	5.1E+06	3.1E+07	1.8E+07	--
TRC	0	1.9E+01	1.1E+01	--	--	1.1E+02	4.0E+03	--	--	4.8E+00	2.8E+00	--	--	2.1E+03	1.5E+03	--	--	1.1E+02	1.5E+03	--	--
Chlorobenzene	0	--	--	1.3E+02	1.6E+03	--	--	9.5E+04	1.2E+06	--	--	1.3E+01	1.6E+02	--	--	9.5E+03	1.2E+05	--	--	9.5E+03	1.2E+05

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane[c]	0	--	--	4.0E+00	1.3E+02	--	--	6.1E+03	2.0E+05	--	--	4.0E-01	1.3E+01	--	--	6.1E+02	2.0E+04	--	--	6.1E+02	2.0E+04
Chloroform	0	--	--	3.4E+02	1.1E+04	--	--	2.5E+05	8.0E+06	--	--	3.4E+01	1.1E+03	--	--	2.5E+04	8.0E+05	--	--	2.5E+04	8.0E+05
2-Chloronaphthalene	0	--	--	1.0E+03	1.6E+03	--	--	7.3E+05	1.2E+06	--	--	1.0E+02	1.6E+02	--	--	7.3E+04	1.2E+05	--	--	7.3E+04	1.2E+05
2-Chlorophenol	0	--	--	8.1E+01	1.5E+02	--	--	5.9E+04	1.1E+05	--	--	8.1E+00	1.5E+01	--	--	5.9E+03	1.1E+04	--	--	5.9E+03	1.1E+04
Chlorpyrifos	0	8.3E-02	4.1E-02	--	--	4.9E-01	1.5E+01	--	--	2.1E-02	1.0E-02	--	--	9.3E+00	5.7E+00	--	--	4.9E-01	5.7E+00	--	--
Chromium III	0	4.8E+02	6.1E+01	--	--	2.9E+03	2.2E+04	--	--	1.2E+02	1.5E+01	--	--	5.2E+04	8.5E+03	--	--	2.9E+03	8.5E+03	--	--
Chromium VI	0	1.6E+01	1.1E+01	--	--	9.5E+01	4.0E+03	--	--	4.0E+00	2.8E+00	--	--	1.8E+03	1.5E+03	--	--	9.5E+01	1.5E+03	--	--
Chromium, Total	0.18	--	--	1.0E+02	--	--	--	7.3E+04	--	--	--	1.0E+01	--	--	--	7.3E+03	--	--	--	7.3E+03	--
Chrysene [c]	0	--	--	3.8E-03	1.8E-02	--	--	5.8E+00	2.7E+01	--	--	3.8E-04	1.8E-03	--	--	5.8E-01	2.7E+00	--	--	5.8E-01	2.7E+00
Copper	0.65	1.1E+01	7.2E+00	1.3E+03	--	6.3E+01	2.4E+03	9.4E+05	--	3.1E+00	2.3E+00	1.3E+02	--	1.1E+03	9.2E+02	9.4E+04	--	6.3E+01	9.2E+02	9.4E+04	--
Cyanide, Free	0	2.2E+01	5.2E+00	1.4E+02	1.6E+04	1.3E+02	1.9E+03	1.0E+05	1.2E+07	5.5E+00	1.3E+00	1.4E+01	1.6E+03	2.5E+03	7.3E+02	1.0E+04	1.2E+06	1.3E+02	7.3E+02	1.0E+04	1.2E+06
DDD [c]	0	--	--	3.1E-03	3.1E-03	--	--	4.7E+00	4.7E+00	--	--	3.1E-04	3.1E-04	--	--	4.7E-01	4.7E-01	--	--	4.7E-01	4.7E-01
DDE [c]	0	--	--	2.2E-03	2.2E-03	--	--	3.3E+00	3.3E+00	--	--	2.2E-04	2.2E-04	--	--	3.3E-01	3.3E-01	--	--	3.3E-01	3.3E-01
DDT [c]	0	1.1E+00	1.0E-03	2.2E-03	2.2E-03	6.5E+00	3.6E-01	3.3E+00	3.3E+00	2.8E-01	2.5E-04	2.2E-04	2.2E-04	1.2E+02	1.4E-01	3.3E-01	3.3E-01	6.5E+00	1.4E-01	3.3E-01	3.3E-01
Demeton	0	--	1.0E-01	--	--	--	3.6E+01	--	--	--	2.5E-02	--	--	--	1.4E+01	--	--	--	1.4E+01	--	--
Diazinon	0	1.7E-01	1.7E-01	--	--	1.0E+00	6.2E+01	--	--	4.3E-02	4.3E-02	--	--	1.9E+01	2.4E+01	--	--	1.0E+00	2.4E+01	--	--
Dibenz(a,h)anthracene [c]	0	--	--	3.8E-02	1.8E-01	--	--	5.8E+01	2.7E+02	--	--	3.8E-03	1.8E-02	--	--	5.8E+00	2.7E+01	--	--	5.8E+00	2.7E+01
1,2-Dichlorobenzene	0	--	--	4.2E+02	1.3E+03	--	--	3.1E+05	9.5E+05	--	--	4.2E+01	1.3E+02	--	--	3.1E+04	9.5E+04	--	--	3.1E+04	9.5E+04
1,3-Dichlorobenzene	0	--	--	3.2E+02	9.6E+02	--	--	2.3E+05	7.0E+05	--	--	3.2E+01	9.6E+01	--	--	2.3E+04	7.0E+04	--	--	2.3E+04	7.0E+04
1,4-Dichlorobenzene	0	--	--	6.3E+01	1.9E+02	--	--	4.6E+04	1.4E+05	--	--	6.3E+00	1.9E+01	--	--	4.6E+03	1.4E+04	--	--	4.6E+03	1.4E+04
3,3-Dichlorobenzidine[c]	0	--	--	2.1E-01	2.8E-01	--	--	3.2E+02	4.3E+02	--	--	2.1E-02	2.8E-02	--	--	3.2E+01	4.3E+01	--	--	3.2E+01	4.3E+01
Dichlorobromomethane [c]	0	--	--	5.5E+00	1.7E+02	--	--	8.4E+03	2.6E+05	--	--	5.5E-01	1.7E+01	--	--	8.4E+02	2.6E+04	--	--	8.4E+02	2.6E+04
1,2-Dichloroethane [c]	0	--	--	3.8E+00	3.7E+02	--	--	5.8E+03	5.6E+05	--	--	3.8E-01	3.7E+01	--	--	5.8E+02	5.6E+04	--	--	5.8E+02	5.6E+04
1,1-Dichloroethylene	0	--	--	3.3E+02	7.1E+03	--	--	2.4E+05	5.2E+06	--	--	3.3E+01	7.1E+02	--	--	2.4E+04	5.2E+05	--	--	2.4E+04	5.2E+05
1,2-trans-dichloroethylene	0	--	--	1.4E+02	1.0E+04	--	--	1.0E+05	7.3E+06	--	--	1.4E+01	1.0E+03	--	--	1.0E+04	7.3E+05	--	--	1.0E+04	7.3E+05
2,4-Dichlorophenol	0	--	--	7.7E+01	2.9E+02	--	--	5.6E+04	2.1E+05	--	--	7.7E+00	2.9E+01	--	--	5.6E+03	2.1E+04	--	--	5.6E+03	2.1E+04
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	1.0E+02	--	--	--	7.3E+04	--	--	--	1.0E+01	--	--	--	7.3E+03	--	--	--	7.3E+03	--
1,2-Dichloropropane[c]	0	--	--	5.0E+00	1.5E+02	--	--	7.6E+03	2.3E+05	--	--	5.0E-01	1.5E+01	--	--	7.6E+02	2.3E+04	--	--	7.6E+02	2.3E+04
1,3-Dichloropropene [c]	0	--	--	3.4E+00	2.1E+02	--	--	5.2E+03	3.2E+05	--	--	3.4E-01	2.1E+01	--	--	5.2E+02	3.2E+04	--	--	5.2E+02	3.2E+04
Dieldrin [c]	0	2.4E-01	5.6E-02	5.2E-04	5.4E-04	1.4E+00	2.0E+01	7.9E-01	8.2E-01	6.0E-02	1.4E-02	5.2E-05	5.4E-05	2.7E+01	7.8E+00	7.9E-02	8.2E-02	1.4E+00	7.8E+00	7.9E-02	8.2E-02
Diethyl Phthalate	0	--	--	1.7E+04	4.4E+04	--	--	1.2E+07	3.2E+07	--	--	1.7E+03	4.4E+03	--	--	1.2E+06	3.2E+06	--	--	1.2E+06	3.2E+06
2,4-Dimethylphenol	0	--	--	3.8E+02	8.5E+02	--	--	2.8E+05	6.2E+05	--	--	3.8E+01	8.5E+01	--	--	2.8E+04	6.2E+04	--	--	2.8E+04	6.2E+04
Dimethyl Phthalate	0	--	--	2.7E+05	1.1E+06	--	--	2.0E+08	8.0E+08	--	--	2.7E+04	1.1E+05	--	--	2.0E+07	8.0E+07	--	--	2.0E+07	8.0E+07
Di-n-Butyl Phthalate	0	--	--	2.0E+03	4.5E+03	--	--	1.5E+06	3.3E+06	--	--	2.0E+02	4.5E+02	--	--	1.5E+05	3.3E+05	--	--	1.5E+05	3.3E+05
2,4 Dinitrophenol	0	--	--	6.9E+01	5.3E+03	--	--	5.0E+04	3.9E+06	--	--	6.9E+00	5.3E+02	--	--	5.0E+03	3.9E+05	--	--	5.0E+03	3.9E+05
2-Methyl-4,6-Dinitrophenol	0	--	--	1.3E+01	2.8E+02	--	--	9.5E+03	2.0E+05	--	--	1.3E+00	2.8E+01	--	--	9.5E+02	2.0E+04	--	--	9.5E+02	2.0E+04
2,4-Dinitrotoluene [c]	0	--	--	1.1E+00	3.4E+01	--	--	1.7E+03	5.2E+04	--	--	1.1E-01	3.4E+00	--	--	1.7E+02	5.2E+03	--	--	1.7E+02	5.2E+03
Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin	0	--	--	5.0E-08	5.1E-08	--	--	3.6E-05	3.7E-05	--	--	5.0E-09	5.1E-09	--	--	3.6E-06	3.7E-06	--	--	3.6E-06	3.7E-06
1,2-Diphenylhydrazine[c]	0	--	--	3.6E-01	2.0E+00	--	--	5.5E+02	3.0E+03	--	--	3.6E-02	2.0E-01	--	--	5.5E+01	3.0E+02	--	--	5.5E+01	3.0E+02
Alpha-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	1.3E+00	2.0E+01	4.5E+04	6.5E+04	5.5E-02	1.4E-02	6.2E+00	8.9E+00	2.5E+01	7.8E+00	4.5E+03	6.5E+03	1.3E+00	7.8E+00	4.5E+03	6.5E+03
Beta-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	1.3E+00	2.0E+01	4.5E+04	6.5E+04	5.5E-02	1.4E-02	6.2E+00	8.9E+00	2.5E+01	7.8E+00	4.5E+03	6.5E+03	1.3E+00	7.8E+00	4.5E+03	6.5E+03
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	1.3E+00	2.0E+01	--	--	5.5E-02	1.4E-02	--	--	2.5E+01	7.8E+00	--	--	1.3E+00	7.8E+00	--	--
Endosulfan Sulfate	0	--	--	6.2E+01	8.9E+01	--	--	4.5E+04	6.5E+04	--	--	6.2E+00	8.9E+00	--	--	4.5E+03	6.5E+03	--	--	4.5E+03	6.5E+03
Endrin	0	8.6E-02	3.6E-02	5.9E-02	6.0E-02	5.1E-01	1.3E+01	4.3E+01	4.4E+01	2.2E-02	9.0E-03	5.9E-03	6.0E-03	9.7E+00	5.0E+00	4.3E+00	4.4E+00	5.1E-01	5.0E+00	4.3E+00	4.4E+00
Endrin Aldehyde	0	--	--	2.9E-01	3.0E-01	--	--	2.1E+02	2.2E+02	--	--	2.9E-02	3.0E-02	--	--	2.1E+01	2.2E+01	--	--	2.1E+01	2.2E+01

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	5.3E+02	2.1E+03	--	--	3.9E+05	1.5E+06	--	--	5.3E+01	2.1E+02	--	--	3.9E+04	1.5E+05	--	--	3.9E+04	1.5E+05
Fluoranthene	0	--	--	1.3E+02	1.4E+02	--	--	9.5E+04	1.0E+05	--	--	1.3E+01	1.4E+01	--	--	9.5E+03	1.0E+04	--	--	9.5E+03	1.0E+04
Fluorene	0	--	--	1.1E+03	5.3E+03	--	--	8.0E+05	3.9E+06	--	--	1.1E+02	5.3E+02	--	--	8.0E+04	3.9E+05	--	--	8.0E+04	3.9E+05
Foaming Agents	0	--	--	5.0E+02	--	--	--	3.6E+05	--	--	--	5.0E+01	--	--	--	3.6E+04	--	--	--	3.6E+04	--
Guthion	0	--	1.0E-02	--	--	--	3.6E+00	--	--	--	2.5E-03	--	--	--	1.4E+00	--	--	--	1.4E+00	--	--
Heptachlor [c]	0	5.2E-01	3.8E-03	7.9E-04	7.9E-04	3.1E+00	1.4E+00	1.2E+00	1.2E+00	1.3E-01	9.5E-04	7.9E-05	7.9E-05	5.9E+01	5.3E-01	1.2E-01	1.2E-01	3.1E+00	5.3E-01	1.2E-01	1.2E-01
Heptachlor Epoxide[c]	0	5.2E-01	3.8E-03	3.9E-04	3.9E-04	3.1E+00	1.4E+00	5.9E-01	5.9E-01	1.3E-01	9.5E-04	3.9E-05	3.9E-05	5.9E+01	5.3E-01	5.9E-02	5.9E-02	3.1E+00	5.3E-01	5.9E-02	5.9E-02
Hexachlorobenzene[c]	0	--	--	2.8E-03	2.9E-03	--	--	4.3E+00	4.4E+00	--	--	2.8E-04	2.9E-04	--	--	4.3E-01	4.4E-01	--	--	4.3E-01	4.4E-01
Hexachlorobutadiene[c]	0	--	--	4.4E+00	1.8E+02	--	--	6.7E+03	2.7E+05	--	--	4.4E-01	1.8E+01	--	--	6.7E+02	2.7E+04	--	--	6.7E+02	2.7E+04
Hexachlorocyclohexane Alpha-BHC[c]	0	--	--	2.6E-02	4.9E-02	--	--	4.0E+01	7.5E+01	--	--	2.6E-03	4.9E-03	--	--	4.0E+00	7.5E+00	--	--	4.0E+00	7.5E+00
Hexachlorocyclohexane Beta BHC[c]	0	--	--	9.1E-02	1.7E-01	--	--	1.4E+02	2.6E+02	--	--	9.1E-03	1.7E-02	--	--	1.4E+01	2.6E+01	--	--	1.4E+01	2.6E+01
Hexachlorocyclohexane Gamma-BHC[c] (Lindane)	0	9.5E-01	--	9.8E-01	1.8E+00	5.6E+00	--	1.5E+03	2.7E+03	2.4E-01	--	9.8E-02	1.8E-01	1.1E+02	--	1.5E+02	2.7E+02	5.6E+00	--	1.5E+02	2.7E+02
Hexachlorocyclopentadiene	0	--	--	4.0E+01	1.1E+03	--	--	2.9E+04	8.0E+05	--	--	4.0E+00	1.1E+02	--	--	2.9E+03	8.0E+04	--	--	2.9E+03	8.0E+04
Hexachloroethane[c]	0	--	--	1.4E+01	3.3E+01	--	--	2.1E+04	5.0E+04	--	--	1.4E+00	3.3E+00	--	--	2.1E+03	5.0E+03	--	--	2.1E+03	5.0E+03
Hydrogen Sulfide	0	--	2.0E+00	--	--	--	7.2E+02	--	--	--	5.0E-01	--	--	--	2.8E+02	--	--	--	2.8E+02	--	--
Indeno (1,2,3-cd) pyrene [c]	0	--	--	3.8E-02	1.8E-01	--	--	5.8E+01	2.7E+02	--	--	3.8E-03	1.8E-02	--	--	5.8E+00	2.7E+01	--	--	5.8E+00	2.7E+01
Iron	0	--	--	3.0E+02	--	--	--	2.2E+05	--	--	--	3.0E+01	--	--	--	2.2E+04	--	--	--	2.2E+04	--
Isophorone[c]	0	--	--	3.5E+02	9.6E+03	--	--	5.3E+05	1.5E+07	--	--	3.5E+01	9.6E+02	--	--	5.3E+04	1.5E+06	--	--	5.3E+04	1.5E+06
Kepone	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--
Lead	0	9.1E+01	9.9E+00	1.5E+01	--	5.4E+02	3.6E+03	1.1E+04	--	2.2E+01	2.5E+00	1.5E+00	--	9.8E+03	1.4E+03	1.1E+03	--	5.4E+02	1.4E+03	1.1E+03	--
Malathion	0	--	1.0E-01	--	--	--	3.6E+01	--	--	--	2.5E-02	--	--	--	1.4E+01	--	--	--	1.4E+01	--	--
Manganese	14.32	--	--	5.0E+01	--	--	--	2.6E+04	--	--	--	1.8E+01	--	--	--	2.6E+03	--	--	--	2.6E+03	--
Mercury	0	1.4E+00	7.7E-01	--	--	8.3E+00	2.8E+02	--	--	3.5E-01	1.9E-01	--	--	1.6E+02	1.1E+02	--	--	8.3E+00	1.1E+02	--	--
Methyl Bromide	0	--	--	4.7E+01	1.5E+03	--	--	3.4E+04	1.1E+06	--	--	4.7E+00	1.5E+02	--	--	3.4E+03	1.1E+05	--	--	3.4E+03	1.1E+05
Methylene Chloride [c]	0	--	--	4.6E+01	5.9E+03	--	--	7.0E+04	9.0E+06	--	--	4.6E+00	5.9E+02	--	--	7.0E+03	9.0E+05	--	--	7.0E+03	9.0E+05
Methoxychlor	0	--	3.0E-02	1.0E+02	--	--	1.1E+01	7.3E+04	--	--	7.5E-03	1.0E+01	--	--	4.2E+00	7.3E+03	--	--	4.2E+00	7.3E+03	--
Mirex	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--
Nickel	0.39	1.5E+02	1.6E+01	6.1E+02	4.6E+03	9.1E+02	5.8E+03	4.4E+05	3.3E+06	3.7E+01	4.4E+00	6.1E+01	4.6E+02	1.7E+04	2.2E+03	4.4E+04	3.3E+05	9.1E+02	2.2E+03	4.4E+04	3.3E+05
Nitrate (as N)	890	--	--	1.0E+04	--	--	--	6.6E+06	--	--	--	1.8E+03	--	--	--	6.6E+05	--	--	--	6.6E+05	--
Nitrobenzene	0	--	--	1.7E+01	6.9E+02	--	--	1.2E+04	5.0E+05	--	--	1.7E+00	6.9E+01	--	--	1.2E+03	5.0E+04	--	--	1.2E+03	5.0E+04
N-Nitrosodimethylamine[c]	0	--	--	6.9E-03	3.0E+01	--	--	1.0E+01	4.6E+04	--	--	6.9E-04	3.0E+00	--	--	1.0E+00	4.6E+03	--	--	1.0E+00	4.6E+03
N-Nitrosodiphenylamine[c]	0	--	--	3.3E+01	6.0E+01	--	--	5.0E+04	9.1E+04	--	--	3.3E+00	6.0E+00	--	--	5.0E+03	9.1E+03	--	--	5.0E+03	9.1E+03
N-Nitrosodi-n-propylamine[c]	0	--	--	5.0E-02	5.1E+00	--	--	7.6E+01	7.8E+03	--	--	5.0E-03	5.1E-01	--	--	7.6E+00	7.8E+02	--	--	7.6E+00	7.8E+02
Nonylphenol	0	2.8E+01	6.6E+00	--	--	1.7E+02	2.4E+03	--	--	7.0E+00	1.7E+00	--	--	3.2E+03	9.2E+02	--	--	1.7E+02	9.2E+02	--	--
Parathion	0	6.5E-02	1.3E-02	--	--	3.9E-01	4.7E+00	--	--	1.6E-02	3.3E-03	--	--	7.3E+00	1.8E+00	--	--	3.9E-01	1.8E+00	--	--
PCB Total[c]	0	--	1.4E-02	6.4E-04	6.4E-04	--	5.1E+00	9.7E-01	9.7E-01	--	3.5E-03	6.4E-05	6.4E-05	--	2.0E+00	9.7E-02	9.7E-02	--	2.0E+00	9.7E-02	9.7E-02
Pentachlorophenol [c]	0	9.0E+00	9.2E+00	2.7E+00	3.0E+01	5.3E+01	3.3E+03	4.1E+03	4.6E+04	3.0E+00	2.3E+00	2.7E-01	3.0E+00	1.3E+03	1.3E+03	4.1E+02	4.6E+03	5.3E+01	1.3E+03	4.1E+02	4.6E+03
Phenol	0	--	--	1.0E+04	8.6E+05	--	--	7.3E+06	6.3E+08	--	--	1.0E+03	8.6E+04	--	--	7.3E+05	6.3E+07	--	--	7.3E+05	6.3E+07
Pyrene	0	--	--	8.3E+02	4.0E+03	--	--	6.0E+05	2.9E+06	--	--	8.3E+01	4.0E+02	--	--	6.0E+04	2.9E+05	--	--	6.0E+04	2.9E+05
Radionuclides	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gross Alpha Activity (pCi/L)	0	--	--	1.5E+01	--	--	--	1.1E+04	--	--	--	1.5E+00	--	--	--	1.1E+03	--	--	--	1.1E+03	--
Beta and Photon Activity (mrem/yr)	0	--	--	4.0E+00	4.0E+00	--	--	2.9E+03	2.9E+03	--	--	4.0E-01	4.0E-01	--	--	2.9E+02	2.9E+02	--	--	2.9E+02	2.9E+02
Radium 226 + 228 (pCi/L)	0	--	--	5.0E+00	--	--	--	3.6E+03	--	--	--	5.0E-01	--	--	--	3.6E+02	--	--	--	3.6E+02	--
Uranium (ug/l)	0	--	--	3.0E+01	--	--	--	2.2E+04	--	--	--	3.0E+00	--	--	--	2.2E+03	--	--	--	2.2E+03	--

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	1.7E+02	4.2E+03	1.2E+02	1.8E+03	1.2E+05	3.1E+06	5.0E+00	1.3E+00	1.7E+01	4.2E+02	2.3E+03	7.0E+02	1.2E+04	3.1E+05	1.2E+02	7.0E+02	1.2E+04	3.1E+05
Silver	0	2.4E+00	--	--	--	1.4E+01	--	--	--	5.6E-01	--	--	--	2.5E+02	--	--	--	1.4E+01	--	--	--
Sulfate	7870	--	--	2.5E+05	--	--	--	1.8E+08	--	--	--	3.2E+04	--	--	--	1.8E+07	--	--	--	1.8E+07	--
1,1,2,2-Tetrachloroethane[C]	0	--	--	1.7E+00	4.0E+01	--	--	2.6E+03	6.1E+04	--	--	1.7E-01	4.0E+00	--	--	2.6E+02	6.1E+03	--	--	2.6E+02	6.1E+03
Tetrachloroethylene[C]	0	--	--	6.9E+00	3.3E+01	--	--	1.0E+04	5.0E+04	--	--	6.9E-01	3.3E+00	--	--	1.0E+03	5.0E+03	--	--	1.0E+03	5.0E+03
Thallium	0	--	--	2.4E-01	4.7E-01	--	--	1.7E+02	3.4E+02	--	--	2.4E-02	4.7E-02	--	--	1.7E+01	3.4E+01	--	--	1.7E+01	3.4E+01
Toluene	0	--	--	5.1E+02	6.0E+03	--	--	3.7E+05	4.4E+06	--	--	5.1E+01	6.0E+02	--	--	3.7E+04	4.4E+05	--	--	3.7E+04	4.4E+05
Total dissolved solids	0	--	--	5.0E+05	--	--	--	3.6E+08	--	--	--	5.0E+04	--	--	--	3.6E+07	--	--	--	3.6E+07	--
Toxaphene [C]	0	7.3E-01	2.0E-04	2.8E-03	2.8E-03	4.3E+00	7.2E-02	4.3E+00	4.3E+00	1.8E-01	5.0E-05	2.8E-04	2.8E-04	8.2E+01	2.8E-02	4.3E-01	4.3E-01	4.3E+00	2.8E-02	4.3E-01	4.3E-01
Tributyltin	0	4.6E-01	7.2E-02	--	--	2.7E+00	2.6E+01	--	--	1.2E-01	1.8E-02	--	--	5.2E+01	1.0E+01	--	--	2.7E+00	1.0E+01	--	--
1,2,4-Trichlorobenzene	0	--	--	3.5E+01	7.0E+01	--	--	2.5E+04	5.1E+04	--	--	3.5E+00	7.0E+00	--	--	2.5E+03	5.1E+03	--	--	2.5E+03	5.1E+03
1,1,2-Trichloroethane[C]	0	--	--	5.9E+00	1.6E+02	--	--	9.0E+03	2.4E+05	--	--	5.9E-01	1.6E+01	--	--	9.0E+02	2.4E+04	--	--	9.0E+02	2.4E+04
Trichloroethylene [C]	0	--	--	2.5E+01	3.0E+02	--	--	3.8E+04	4.6E+05	--	--	2.5E+00	3.0E+01	--	--	3.8E+03	4.6E+04	--	--	3.8E+03	4.6E+04
2,4,6-Trichlorophenol [C]	0	--	--	1.4E+01	2.4E+01	--	--	2.1E+04	3.7E+04	--	--	1.4E+00	2.4E+00	--	--	2.1E+03	3.7E+03	--	--	2.1E+03	3.7E+03
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	5.0E+01	--	--	--	3.6E+04	--	--	--	5.0E+00	--	--	--	3.6E+03	--	--	--	3.6E+03	--
Vinyl Chloride[C]	0	--	--	2.5E-01	2.4E+01	--	--	3.8E+02	3.7E+04	--	--	2.5E-02	2.4E+00	--	--	3.8E+01	3.7E+03	--	--	3.8E+01	3.7E+03
Zinc	3.68	9.8E+01	9.6E+01	7.4E+03	2.6E+04	5.7E+02	3.3E+04	5.4E+06	1.9E+07	2.7E+01	2.7E+01	7.4E+02	2.6E+03	1.0E+04	1.3E+04	5.4E+05	1.9E+06	5.7E+02	1.3E+04	5.4E+05	1.9E+06

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information. Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	4.1E+02
Arsenic	7.0E+02
Barium	1.5E+05
Cadmium	7.4E+00
Chromium III	1.1E+03
Chromium VI	3.8E+01
Copper	2.5E+01
Iron	2.2E+04
Lead	2.2E+02
Manganese	2.6E+03
Mercury	3.3E+00
Nickel	3.6E+02
Selenium	4.8E+01
Silver	5.7E+00
Zinc	2.3E+02

Note: do not use QL's lower than the minimum QL's provided in agency guidance

4/12/2010 2:15:46 PM

Facility = VA0000248 - 026
Chemical = Iron, Total
Chronic averaging period = 4
WLAa =
WLAc = 22000
Q.L. = 10
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 150
Variance = 8100
C.V. = 0.6
97th percentile daily values = 365.012
97th percentile 4 day average = 249.568
97th percentile 30 day average= 180.907
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

150

4/12/2010 2:16:16 PM

Facility = VA0000248 - 026
Chemical = Ammonia
Chronic averaging period = 30
WLAa = 42
WLAc = 160
Q.L. = .2
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 13
Variance = 60.84
C.V. = 0.6
97th percentile daily values = 31.6344
97th percentile 4 day average = 21.6292
97th percentile 30 day average= 15.6786
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

13

Mixing Zone Predictions for VA0000248 - 028

Effluent Flow = 0.07 MGD
Stream 7Q10 = 576 MGD
Stream 30Q10 = 666 MGD
Stream 1Q10 = 463 MGD
Stream slope = 0.001 ft/ft
Stream width = 760 ft
Bottom scale = 3
Channel scale = 1

Mixing Zone Predictions @ 7Q10

Depth = 1.8341 ft
Length = 331623.02 ft
Velocity = .6398 ft/sec
Residence Time = 5.9996 days

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than 33.34% of the 7Q10 is used.

Mixing Zone Predictions @ 30Q10

Depth = 2.0013 ft
Length = 308270.63 ft
Velocity = .6779 ft/sec
Residence Time = 5.2634 days

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than 38.% of the 30Q10 is used.

Mixing Zone Predictions @ 1Q10

Depth = 1.6085 ft
Length = 370096.57 ft
Velocity = .5864 ft/sec
Residence Time = 175.3194 hours

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than .57% of the 1Q10 is used.

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: RAAP - Outfall 028 Permit No.: VA0000248

Receiving Stream: New River Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO3) =	78	mg/L
90% Temperature (Annual) =	23.3	deg C
90% Temperature (Wet season) =	13.8	deg C
90% Maximum pH =	8.22	SU
10% Maximum pH =	7.32	SU
Tier Designation (1 or 2) =	2	
Public Water Supply (PWS) Y/N? =	y	
Trout Present Y/N? =	y	
Early Life Stages Present Y/N? =	y	

Stream Flows

1Q10 (Annual) =	463	MGD
7Q10 (Annual) =	576	MGD
30Q10 (Annual) =	666	MGD
1Q10 (Wet season) =	545	MGD
30Q10 (Wet season)	1097	MGD
30Q5 =	747	MGD
Harmonic Mean =	1520	MGD

Mixing Information

Annual - 1Q10 Mix =	0.57	%
- 7Q10 Mix =	33.34	%
- 30Q10 Mix =	38	%
Wet Season - 1Q10 Mix =	100	%
- 30Q10 Mix =	100	%

Effluent Information

Mean Hardness (as CaCO3) =	78	mg/L
90% Temp (Annual) =	23.3	deg C
90% Temp (Wet season) =	13.8	deg C
90% Maximum pH =	8.22	SU
10% Maximum pH =	7.32	SU
Discharge Flow =	0.07	MGD

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenapthene	0	--	--	6.7E+02	9.9E+02	--	--	7.2E+06	1.1E+07	--	--	6.7E+01	9.9E+01	--	--	7.2E+05	1.1E+06	--	--	7.2E+05	1.1E+06
Acrolein	0	--	--	6.1E+00	9.3E+00	--	--	6.5E+04	9.9E+04	--	--	6.1E-01	9.3E-01	--	--	6.5E+03	9.9E+03	--	--	6.5E+03	9.9E+03
Acrylonitrile[c]	0	--	--	5.1E-01	2.5E+00	--	--	1.1E+04	5.4E+04	--	--	5.1E-02	2.5E-01	--	--	1.1E+03	5.4E+03	--	--	1.1E+03	5.4E+03
Aldrin [c]	0	3.0E+00	--	4.9E-04	5.0E-04	1.2E+02	--	1.1E+01	1.1E+01	7.5E-01	--	4.9E-05	5.0E-05	5.0E+03	--	1.1E+00	1.1E+00	1.2E+02	--	1.1E+00	1.1E+00
Ammonia-N (mg/l) (Yearly)	0	3.68E+00	9.86E-01	--	--	1.4E+02	3.6E+03	--	--	9.20E-01	2.46E-01	--	--	6.1E+03	2.3E+03	--	--	1.4E+02	2.3E+03	--	--
Ammonia-N (mg/l) (High Flow)	0	3.68E+00	1.74E+00	--	--	2.9E+04	2.7E+04	--	--	9.20E-01	4.34E-01	--	--	7.2E+03	6.8E+03	--	--	7.2E+03	6.8E+03	--	--
Anthracene	0	--	--	8.3E+03	4.0E+04	--	--	8.9E+07	4.3E+08	--	--	8.3E+02	4.0E+03	--	--	8.9E+06	4.3E+07	--	--	8.9E+06	4.3E+07
Antimony	0	--	--	5.6E+00	6.4E+02	--	--	6.0E+04	6.8E+06	--	--	5.6E-01	6.4E+01	--	--	6.0E+03	6.8E+05	--	--	6.0E+03	6.8E+05
Arsenic	0.35	3.4E+02	1.5E+02	1.0E+01	--	1.3E+04	4.1E+05	1.0E+05	--	8.5E+01	3.8E+01	1.3E+00	--	5.6E+05	3.1E+05	1.0E+04	--	1.3E+04	3.1E+05	1.0E+04	--
Barium	0	--	--	2.0E+03	--	--	--	2.1E+07	--	--	--	2.0E+02	--	--	--	2.1E+06	--	--	--	2.1E+06	--
Benzene [c]	0	--	--	2.2E+01	5.1E+02	--	--	4.8E+05	1.1E+07	--	--	2.2E+00	5.1E+01	--	--	4.8E+04	1.1E+06	--	--	4.8E+04	1.1E+06
Benzidine[c]	0	--	--	8.6E-04	2.0E-03	--	--	1.9E+01	4.3E+01	--	--	8.6E-05	2.0E-04	--	--	1.9E+00	4.3E+00	--	--	1.9E+00	4.3E+00
Benzo (a) anthracene [c]	0	--	--	3.8E-02	1.8E-01	--	--	8.3E+02	3.9E+03	--	--	3.8E-03	1.8E-02	--	--	8.3E+01	3.9E+02	--	--	8.3E+01	3.9E+02
Benzo (b) fluoranthene [c]	0	--	--	3.8E-02	1.8E-01	--	--	8.3E+02	3.9E+03	--	--	3.8E-03	1.8E-02	--	--	8.3E+01	3.9E+02	--	--	8.3E+01	3.9E+02
Benzo (k) fluoranthene [c]	0	--	--	3.8E-02	1.8E-01	--	--	8.3E+02	3.9E+03	--	--	3.8E-03	1.8E-02	--	--	8.3E+01	3.9E+02	--	--	8.3E+01	3.9E+02
Benzo (a) pyrene [c]	0	--	--	3.8E-02	1.8E-01	--	--	8.3E+02	3.9E+03	--	--	3.8E-03	1.8E-02	--	--	8.3E+01	3.9E+02	--	--	8.3E+01	3.9E+02
Bis2-Chloroethyl Ether[c]	0	--	--	3.0E-01	5.3E+00	--	--	6.5E+03	1.2E+05	--	--	3.0E-02	5.3E-01	--	--	6.5E+02	1.2E+04	--	--	6.5E+02	1.2E+04
Bis2-Chloroisopropyl Ether	0	--	--	1.4E+03	6.5E+04	--	--	1.5E+07	6.9E+08	--	--	1.4E+02	6.5E+03	--	--	1.5E+06	6.9E+07	--	--	1.5E+06	6.9E+07
Bis 2-Ethylhexyl Phthalate[c]	0	--	--	1.2E+01	2.2E+01	--	--	2.6E+05	4.8E+05	--	--	1.2E+00	2.2E+00	--	--	2.6E+04	4.8E+04	--	--	2.6E+04	4.8E+04
Bromoform [c]	0	--	--	4.3E+01	1.4E+03	--	--	9.3E+05	3.0E+07	--	--	4.3E+00	1.4E+02	--	--	9.3E+04	3.0E+06	--	--	9.3E+04	3.0E+06
Butylbenzylphthalate	0	--	--	1.5E+03	1.9E+03	--	--	1.6E+07	2.0E+07	--	--	1.5E+02	1.9E+02	--	--	1.6E+06	2.0E+06	--	--	1.6E+06	2.0E+06
Cadmium	0	3.0E+00	9.3E-01	5.0E+00	--	1.1E+02	2.6E+03	5.3E+04	--	7.4E-01	2.3E-01	5.0E-01	--	4.9E+03	1.9E+03	5.3E+03	--	1.1E+02	1.9E+03	5.3E+03	--
Carbon Tetrachloride [c]	0	--	--	2.3E+00	1.6E+01	--	--	5.0E+04	3.5E+05	--	--	2.3E-01	1.6E+00	--	--	5.0E+03	3.5E+04	--	--	5.0E+03	3.5E+04
Chlordane [c]	0	2.4E+00	4.3E-03	8.0E-03	8.1E-03	9.3E+01	1.2E+01	1.7E+02	1.8E+02	6.0E-01	1.1E-03	8.0E-04	8.1E-04	4.0E+03	8.8E+00	1.7E+01	1.8E+01	9.3E+01	8.8E+00	1.7E+01	1.8E+01
Chloride	7960	8.6E+05	2.3E+05	2.5E+05	--	3.3E+07	6.1E+08	2.6E+09	--	2.2E+05	6.3E+04	3.2E+04	--	1.4E+09	4.6E+08	2.6E+08	--	3.3E+07	4.6E+08	2.6E+08	--
TRC	0	1.9E+01	1.1E+01	--	--	7.4E+02	3.0E+04	--	--	4.8E+00	2.8E+00	--	--	3.1E+04	2.3E+04	--	--	7.4E+02	2.3E+04	--	--
Chlorobenzene	0	--	--	1.3E+02	1.6E+03	--	--	1.4E+06	1.7E+07	--	--	1.3E+01	1.6E+02	--	--	1.4E+05	1.7E+06	--	--	1.4E+05	1.7E+06

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane[E]	0	--	--	4.0E+00	1.3E+02	--	--	8.7E+04	2.8E+06	--	--	4.0E-01	1.3E+01	--	--	8.7E+03	2.8E+05	--	--	8.7E+03	2.8E+05
Chloroform	0	--	--	3.4E+02	1.1E+04	--	--	3.6E+06	1.2E+08	--	--	3.4E+01	1.1E+03	--	--	3.6E+05	1.2E+07	--	--	3.6E+05	1.2E+07
2-Chloronaphthalene	0	--	--	1.0E+03	1.6E+03	--	--	1.1E+07	1.7E+07	--	--	1.0E+02	1.6E+02	--	--	1.1E+06	1.7E+06	--	--	1.1E+06	1.7E+06
2-Chlorophenol	0	--	--	8.1E+01	1.5E+02	--	--	8.6E+05	1.6E+06	--	--	8.1E+00	1.5E+01	--	--	8.6E+04	1.6E+05	--	--	8.6E+04	1.6E+05
Chlorpyrifos	0	8.3E-02	4.1E-02	--	--	3.2E+00	1.1E+02	--	--	2.1E-02	1.0E-02	--	--	1.4E+02	8.4E+01	--	--	3.2E+00	8.4E+01	--	--
Chromium III	0	4.6E+02	6.0E+01	--	--	1.8E+04	1.7E+05	--	--	1.2E+02	1.5E+01	--	--	7.7E+05	1.2E+05	--	--	1.8E+04	1.2E+05	--	--
Chromium VI	0	1.6E+01	1.1E+01	--	--	6.2E+02	3.0E+04	--	--	4.0E+00	2.8E+00	--	--	2.6E+04	2.3E+04	--	--	6.2E+02	2.3E+04	--	--
Chromium, Total	0.18	--	--	1.0E+02	--	--	--	1.1E+06	--	--	--	1.0E+01	--	--	--	1.1E+05	--	--	--	1.1E+05	--
Chrysene[C]	0	--	--	3.8E-03	1.8E-02	--	--	8.3E+01	3.9E+02	--	--	3.8E-04	1.8E-03	--	--	8.3E+00	3.9E+01	--	--	8.3E+00	3.9E+01
Copper	0.65	1.1E+01	7.2E+00	1.3E+03	--	3.9E+02	1.8E+04	1.4E+07	--	3.1E+00	2.3E+00	1.3E+02	--	1.7E+04	1.4E+04	1.4E+06	--	3.9E+02	1.4E+04	1.4E+06	--
Cyanide, Free	0	2.2E+01	5.2E+00	1.4E+02	1.6E+04	8.5E+02	1.4E+04	1.5E+06	1.7E+08	5.5E+00	1.3E+00	1.4E+01	1.6E+03	3.6E+04	1.1E+04	1.5E+05	1.7E+07	8.5E+02	1.1E+04	1.5E+05	1.7E+07
DDD[C]	0	--	--	3.1E-03	3.1E-03	--	--	6.7E+01	6.7E+01	--	--	3.1E-04	3.1E-04	--	--	6.7E+00	6.7E+00	--	--	6.7E+00	6.7E+00
DDE[C]	0	--	--	2.2E-03	2.2E-03	--	--	4.8E+01	4.8E+01	--	--	2.2E-04	2.2E-04	--	--	4.8E+00	4.8E+00	--	--	4.8E+00	4.8E+00
DDT[C]	0	1.1E+00	1.0E-03	2.2E-03	2.2E-03	4.3E+01	2.7E+00	4.8E+01	4.8E+01	2.8E-01	2.5E-04	2.2E-04	2.2E-04	1.8E+03	2.1E+00	4.8E+00	4.8E+00	4.3E+01	2.1E+00	4.8E+00	4.8E+00
Demeton	0	--	1.0E-01	--	--	--	2.7E+02	--	--	--	2.5E-02	--	--	--	2.1E+02	--	--	--	2.1E+02	--	--
Diazinon	0	1.7E-01	1.7E-01	--	--	6.6E+00	4.7E+02	--	--	4.3E-02	4.3E-02	--	--	2.8E+02	3.5E+02	--	--	6.6E+00	3.5E+02	--	--
Dibenz(a,h)anthracene[C]	0	--	--	3.8E-02	1.8E-01	--	--	8.3E+02	3.9E+03	--	--	3.8E-03	1.8E-02	--	--	8.3E+01	3.9E+02	--	--	8.3E+01	3.9E+02
1,2-Dichlorobenzene	0	--	--	4.2E+02	1.3E+03	--	--	4.5E+06	1.4E+07	--	--	4.2E+01	1.3E+02	--	--	4.5E+05	1.4E+06	--	--	4.5E+05	1.4E+06
1,3-Dichlorobenzene	0	--	--	3.2E+02	9.6E+02	--	--	3.4E+06	1.0E+07	--	--	3.2E+01	9.6E+01	--	--	3.4E+05	1.0E+06	--	--	3.4E+05	1.0E+06
1,4-Dichlorobenzene	0	--	--	6.3E+01	1.9E+02	--	--	6.7E+05	2.0E+06	--	--	6.3E+00	1.9E+01	--	--	6.7E+04	2.0E+05	--	--	6.7E+04	2.0E+05
3,3-Dichlorobenzidine[E]	0	--	--	2.1E-01	2.8E-01	--	--	4.6E+03	6.1E+03	--	--	2.1E-02	2.8E-02	--	--	4.6E+02	6.1E+02	--	--	4.6E+02	6.1E+02
Dichlorobromomethane[C]	0	--	--	5.5E+00	1.7E+02	--	--	1.2E+05	3.7E+06	--	--	5.5E-01	1.7E+01	--	--	1.2E+04	3.7E+05	--	--	1.2E+04	3.7E+05
1,2-Dichloroethane[C]	0	--	--	3.8E+00	3.7E+02	--	--	8.3E+04	8.0E+06	--	--	3.8E-01	3.7E+01	--	--	8.3E+03	8.0E+05	--	--	8.3E+03	8.0E+05
1,1-Dichloroethylene	0	--	--	3.3E+02	7.1E+03	--	--	3.5E+06	7.6E+07	--	--	3.3E+01	7.1E+02	--	--	3.5E+05	7.6E+06	--	--	3.5E+05	7.6E+06
1,2-trans-dichloroethylene	0	--	--	1.4E+02	1.0E+04	--	--	1.5E+06	1.1E+08	--	--	1.4E+01	1.0E+03	--	--	1.5E+05	1.1E+07	--	--	1.5E+05	1.1E+07
2,4-Dichlorophenol	0	--	--	7.7E+01	2.9E+02	--	--	8.2E+05	3.1E+06	--	--	7.7E+00	2.9E+01	--	--	8.2E+04	3.1E+05	--	--	8.2E+04	3.1E+05
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	1.0E+02	--	--	--	1.1E+06	--	--	--	1.0E+01	--	--	--	1.1E+05	--	--	--	1.1E+05	--
1,2-Dichloropropane[E]	0	--	--	5.0E+00	1.5E+02	--	--	1.1E+05	3.3E+06	--	--	5.0E-01	1.5E+01	--	--	1.1E+04	3.3E+05	--	--	1.1E+04	3.3E+05
1,3-Dichloropropene[C]	0	--	--	3.4E+00	2.1E+02	--	--	7.4E+04	4.6E+06	--	--	3.4E-01	2.1E+01	--	--	7.4E+03	4.6E+05	--	--	7.4E+03	4.6E+05
Dieldrin[C]	0	2.4E-01	5.6E-02	5.2E-04	5.4E-04	9.3E+00	1.5E+02	1.1E+01	1.2E+01	6.0E-02	1.4E-02	5.2E-05	5.4E-05	4.0E+02	1.2E+02	1.1E+00	1.2E+00	9.3E+00	1.2E+02	1.1E+00	1.2E+00
Diethyl Phthalate	0	--	--	1.7E+04	4.4E+04	--	--	1.8E+08	4.7E+08	--	--	1.7E+03	4.4E+03	--	--	1.8E+07	4.7E+07	--	--	1.8E+07	4.7E+07
2,4-Dimethylphenol	0	--	--	3.8E+02	8.5E+02	--	--	4.1E+06	9.1E+06	--	--	3.8E+01	8.5E+01	--	--	4.1E+05	9.1E+05	--	--	4.1E+05	9.1E+05
Dimethyl Phthalate	0	--	--	2.7E+05	1.1E+06	--	--	2.9E+09	1.2E+10	--	--	2.7E+04	1.1E+05	--	--	2.9E+08	1.2E+09	--	--	2.9E+08	1.2E+09
Di-n-Butyl Phthalate	0	--	--	2.0E+03	4.5E+03	--	--	2.1E+07	4.8E+07	--	--	2.0E+02	4.5E+02	--	--	2.1E+06	4.8E+06	--	--	2.1E+06	4.8E+06
2,4 Dinitrophenol	0	--	--	6.9E+01	5.3E+03	--	--	7.4E+05	5.7E+07	--	--	6.9E+00	5.3E+02	--	--	7.4E+04	5.7E+06	--	--	7.4E+04	5.7E+06
2-Methyl-4,6-Dinitrophenol	0	--	--	1.3E+01	2.8E+02	--	--	1.4E+05	3.0E+06	--	--	1.3E+00	2.8E+01	--	--	1.4E+04	3.0E+05	--	--	1.4E+04	3.0E+05
2,4-Dinitrotoluene[C]	0	--	--	1.1E+00	3.4E+01	--	--	2.4E+04	7.4E+05	--	--	1.1E-01	3.4E+00	--	--	2.4E+03	7.4E+04	--	--	2.4E+03	7.4E+04
Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin	0	--	--	5.0E-08	5.1E-08	--	--	5.3E-04	5.4E-04	--	--	5.0E-09	5.1E-09	--	--	5.3E-05	5.4E-05	--	--	5.3E-05	5.4E-05
1,2-Diphenylhydrazine[E]	0	--	--	3.6E-01	2.0E+00	--	--	7.8E+03	4.3E+04	--	--	3.6E-02	2.0E-01	--	--	7.8E+02	4.3E+03	--	--	7.8E+02	4.3E+03
Alpha-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	8.5E+00	1.5E+02	6.6E+05	9.5E+05	5.5E-02	1.4E-02	6.2E+00	8.9E+00	3.6E+02	1.2E+02	6.6E+04	9.5E+04	8.5E+00	1.2E+02	6.6E+04	9.5E+04
Beta-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	8.5E+00	1.5E+02	6.6E+05	9.5E+05	5.5E-02	1.4E-02	6.2E+00	8.9E+00	3.6E+02	1.2E+02	6.6E+04	9.5E+04	8.5E+00	1.2E+02	6.6E+04	9.5E+04
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	8.5E+00	1.5E+02	--	--	5.5E-02	1.4E-02	--	--	3.6E+02	1.2E+02	--	--	8.5E+00	1.2E+02	--	--
Endosulfan Sulfate	0	--	--	6.2E+01	8.9E+01	--	--	6.6E+05	9.5E+05	--	--	6.2E+00	8.9E+00	--	--	6.6E+04	9.5E+04	--	--	6.6E+04	9.5E+04
Endrin	0	8.6E-02	3.6E-02	5.9E-02	6.0E-02	3.3E+00	9.9E+01	6.3E+02	6.4E+02	2.2E-02	9.0E-03	5.9E-03	6.0E-03	1.4E+02	7.4E+01	6.3E+01	6.4E+01	3.3E+00	7.4E+01	6.3E+01	6.4E+01
Endrin Aldehyde	0	--	--	2.9E-01	3.0E-01	--	--	3.1E+03	3.2E+03	--	--	2.9E-02	3.0E-02	--	--	3.1E+02	3.2E+02	--	--	3.1E+02	3.2E+02

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	5.3E+02	2.1E+03	--	--	5.7E+06	2.2E+07	--	--	5.3E+01	2.1E+02	--	--	5.7E+05	2.2E+06	--	--	5.7E+05	2.2E+06
Fluoranthene	0	--	--	1.3E+02	1.4E+02	--	--	1.4E+06	1.5E+06	--	--	1.3E+01	1.4E+01	--	--	1.4E+05	1.5E+05	--	--	1.4E+05	1.5E+05
Fluorene	0	--	--	1.1E+03	5.3E+03	--	--	1.2E+07	5.7E+07	--	--	1.1E+02	5.3E+02	--	--	1.2E+06	5.7E+06	--	--	1.2E+06	5.7E+06
Foaming Agents	0	--	--	5.0E+02	--	--	--	5.3E+06	--	--	--	5.0E+01	--	--	--	5.3E+05	--	--	--	5.3E+05	--
Guthion	0	--	1.0E-02	--	--	--	2.7E+01	--	--	--	2.5E-03	--	--	--	2.1E+01	--	--	--	2.1E+01	--	--
Heptachlor [c]	0	5.2E-01	3.8E-03	7.9E-04	7.9E-04	2.0E+01	1.0E+01	1.7E+01	1.7E+01	1.3E-01	9.5E-04	7.9E-05	7.9E-05	8.6E+02	7.8E+00	1.7E+00	1.7E+00	2.0E+01	7.8E+00	1.7E+00	1.7E+00
Heptachlor Epoxide[c]	0	5.2E-01	3.8E-03	3.9E-04	3.9E-04	2.0E+01	1.0E+01	8.5E+00	8.5E+00	1.3E-01	9.5E-04	3.9E-05	3.9E-05	8.6E+02	7.8E+00	8.5E-01	8.5E-01	2.0E+01	7.8E+00	8.5E-01	8.5E-01
Hexachlorobenzene[c]	0	--	--	2.8E-03	2.9E-03	--	--	6.1E+01	6.3E+01	--	--	2.8E-04	2.9E-04	--	--	6.1E+00	6.3E+00	--	--	6.1E+00	6.3E+00
Hexachlorobutadiene[c]	0	--	--	4.4E+00	1.8E+02	--	--	9.6E+04	3.9E+06	--	--	4.4E-01	1.8E+01	--	--	9.6E+03	3.9E+05	--	--	9.6E+03	3.9E+05
Hexachlorocyclohexane Alpha-BHC[c]	0	--	--	2.6E-02	4.9E-02	--	--	5.6E+02	1.1E+03	--	--	2.6E-03	4.9E-03	--	--	5.6E+01	1.1E+02	--	--	5.6E+01	1.1E+02
Hexachlorocyclohexane Beta BHC[c]	0	--	--	9.1E-02	1.7E-01	--	--	2.0E+03	3.7E+03	--	--	9.1E-03	1.7E-02	--	--	2.0E+02	3.7E+02	--	--	2.0E+02	3.7E+02
Hexachlorocyclohexane Gamma-BHC[c] (Lindane)	0	9.5E-01	--	9.8E-01	1.8E+00	3.7E+01	--	2.1E+04	3.9E+04	2.4E-01	--	9.8E-02	1.8E-01	1.6E+03	--	2.1E+03	3.9E+03	3.7E+01	--	2.1E+03	3.9E+03
Hexachlorocyclopentadiene	0	--	--	4.0E+01	1.1E+03	--	--	4.3E+05	1.2E+07	--	--	4.0E+00	1.1E+02	--	--	4.3E+04	1.2E+06	--	--	4.3E+04	1.2E+06
Hexachloroethane[c]	0	--	--	1.4E+01	3.3E+01	--	--	3.0E+05	7.2E+05	--	--	1.4E+00	3.3E+00	--	--	3.0E+04	7.2E+04	--	--	3.0E+04	7.2E+04
Hydrogen Sulfide	0	--	2.0E+00	--	--	--	5.5E+03	--	--	--	5.0E-01	--	--	--	4.1E+03	--	--	--	4.1E+03	--	--
Indeno (1,2,3-cd) pyrene [c]	0	--	--	3.8E-02	1.8E-01	--	--	8.3E+02	3.9E+03	--	--	3.8E-03	1.8E-02	--	--	8.3E+01	3.9E+02	--	--	8.3E+01	3.9E+02
Iron	0	--	--	3.0E+02	--	--	--	3.2E+06	--	--	--	3.0E+01	--	--	--	3.2E+05	--	--	--	3.2E+05	--
Isophorone[c]	0	--	--	3.5E+02	9.6E+03	--	--	7.6E+06	2.1E+08	--	--	3.5E+01	9.6E+02	--	--	7.6E+05	2.1E+07	--	--	7.6E+05	2.1E+07
Kepone	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--
Lead	0	8.7E+01	9.8E+00	1.5E+01	--	3.4E+03	2.7E+04	1.6E+05	--	2.2E+01	2.5E+00	1.5E+00	--	1.4E+05	2.0E+04	1.6E+04	--	3.4E+03	2.0E+04	1.6E+04	--
Malathion	0	--	1.0E-01	--	--	--	2.7E+02	--	--	--	2.5E-02	--	--	--	2.1E+02	--	--	--	2.1E+02	--	--
Manganese	14.32	--	--	5.0E+01	--	--	--	3.8E+05	--	--	--	1.8E+01	--	--	--	3.8E+04	--	--	--	3.8E+04	--
Mercury	0	1.4E+00	7.7E-01	--	--	5.4E+01	2.1E+03	--	--	3.5E-01	1.9E-01	--	--	2.3E+03	1.6E+03	--	--	5.4E+01	1.6E+03	--	--
Methyl Bromide	0	--	--	4.7E+01	1.5E+03	--	--	5.0E+05	1.6E+07	--	--	4.7E+00	1.5E+02	--	--	5.0E+04	1.6E+06	--	--	5.0E+04	1.6E+06
Methylene Chloride [c]	0	--	--	4.6E+01	5.9E+03	--	--	1.0E+06	1.3E+08	--	--	4.6E+00	5.9E+02	--	--	1.0E+05	1.3E+07	--	--	1.0E+05	1.3E+07
Methoxychlor	0	--	3.0E-02	1.0E+02	--	--	8.2E+01	1.1E+06	--	--	7.5E-03	1.0E+01	--	--	6.2E+01	1.1E+05	--	--	6.2E+01	1.1E+05	--
Mirex	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--
Nickel	0.39	1.5E+02	1.6E+01	6.1E+02	4.6E+03	5.7E+03	4.4E+04	6.5E+06	4.9E+07	3.7E+01	4.4E+00	6.1E+01	4.6E+02	2.4E+05	3.3E+04	6.5E+05	4.9E+06	5.7E+03	3.3E+04	6.5E+05	4.9E+06
Nitrate (as N)	890	--	--	1.0E+04	--	--	--	9.7E+07	--	--	--	1.8E+03	--	--	--	9.7E+06	--	--	--	9.7E+06	--
Nitrobenzene	0	--	--	1.7E+01	6.9E+02	--	--	1.8E+05	7.4E+06	--	--	1.7E+00	6.9E+01	--	--	1.8E+04	7.4E+05	--	--	1.8E+04	7.4E+05
N-Nitrosodimethylamine[c]	0	--	--	6.9E-03	3.0E+01	--	--	1.5E+02	6.5E+05	--	--	6.9E-04	3.0E+00	--	--	1.5E+01	6.5E+04	--	--	1.5E+01	6.5E+04
N-Nitrosodiphenylamine[c]	0	--	--	3.3E+01	6.0E+01	--	--	7.2E+05	1.3E+06	--	--	3.3E+00	6.0E+00	--	--	7.2E+04	1.3E+05	--	--	7.2E+04	1.3E+05
N-Nitrosodi-n-propylamine[c]	0	--	--	5.0E-02	5.1E+00	--	--	1.1E+03	1.1E+05	--	--	5.0E-03	5.1E-01	--	--	1.1E+02	1.1E+04	--	--	1.1E+02	1.1E+04
Nonylphenol	0	2.8E+01	6.6E+00	--	--	1.1E+03	1.8E+04	--	--	7.0E+00	1.7E+00	--	--	4.6E+04	1.4E+04	--	--	1.1E+03	1.4E+04	--	--
Parathion	0	6.5E-02	1.3E-02	--	--	2.5E+00	3.6E+01	--	--	1.6E-02	3.3E-03	--	--	1.1E+02	2.7E+01	--	--	2.5E+00	2.7E+01	--	--
PCB Total[c]	0	--	1.4E-02	6.4E-04	6.4E-04	--	3.8E+01	1.4E+01	1.4E+01	--	3.5E-03	6.4E-05	6.4E-05	--	2.9E+01	1.4E+00	1.4E+00	--	2.9E+01	1.4E+00	1.4E+00
Pentachlorophenol [c]	0	1.2E+01	9.2E+00	2.7E+00	3.0E+01	4.7E+02	2.5E+04	5.9E+04	6.5E+05	3.0E+00	2.3E+00	2.7E-01	3.0E+00	2.0E+04	1.9E+04	5.9E+03	6.5E+04	4.7E+02	1.9E+04	5.9E+03	6.5E+04
Phenol	0	--	--	1.0E+04	8.6E+05	--	--	1.1E+08	9.2E+09	--	--	1.0E+03	8.6E+04	--	--	1.1E+07	9.2E+08	--	--	1.1E+07	9.2E+08
Pyrene	0	--	--	8.3E+02	4.0E+03	--	--	8.9E+06	4.3E+07	--	--	8.3E+01	4.0E+02	--	--	8.9E+05	4.3E+06	--	--	8.9E+05	4.3E+06
Radionuclides	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gross Alpha Activity (pCi/L)	0	--	--	1.5E+01	--	--	--	1.6E+05	--	--	--	1.5E+00	--	--	--	1.6E+04	--	--	--	1.6E+04	--
Beta and Photon Activity (mrem/yr)	0	--	--	4.0E+00	4.0E+00	--	--	4.3E+04	4.3E+04	--	--	4.0E-01	4.0E-01	--	--	4.3E+03	4.3E+03	--	--	4.3E+03	4.3E+03
Radium 226 + 228 (pCi/L)	0	--	--	5.0E+00	--	--	--	5.3E+04	--	--	--	5.0E-01	--	--	--	5.3E+03	--	--	--	5.3E+03	--
Uranium (ug/l)	0	--	--	3.0E+01	--	--	--	3.2E+05	--	--	--	3.0E+00	--	--	--	3.2E+04	--	--	--	3.2E+04	--

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	1.7E+02	4.2E+03	7.7E+02	1.4E+04	1.8E+06	4.5E+07	5.0E+00	1.3E+00	1.7E+01	4.2E+02	3.3E+04	1.0E+04	1.8E+05	4.5E+06	7.7E+02	1.0E+04	1.8E+05	4.5E+06
Silver	0	2.3E+00	--	--	--	8.7E+01	--	--	--	5.6E-01	--	--	--	3.7E+03	--	--	--	8.7E+01	--	--	--
Sulfate	7870	--	--	2.5E+05	--	--	--	2.6E+09	--	--	--	3.2E+04	--	--	--	2.6E+08	--	--	--	2.6E+08	--
1,1,2,2-Tetrachloroethane[c]	0	--	--	1.7E+00	4.0E+01	--	--	3.7E+04	8.7E+05	--	--	1.7E-01	4.0E+00	--	--	3.7E+03	8.7E+04	--	--	3.7E+03	8.7E+04
Tetrachloroethylene[c]	0	--	--	6.9E+00	3.3E+01	--	--	1.5E+05	7.2E+05	--	--	6.9E-01	3.3E+00	--	--	1.5E+04	7.2E+04	--	--	1.5E+04	7.2E+04
Thallium	0	--	--	2.4E-01	4.7E-01	--	--	2.6E+03	5.0E+03	--	--	2.4E-02	4.7E-02	--	--	2.6E+02	5.0E+02	--	--	2.6E+02	5.0E+02
Toluene	0	--	--	5.1E+02	6.0E+03	--	--	5.4E+06	6.4E+07	--	--	5.1E+01	6.0E+02	--	--	5.4E+05	6.4E+06	--	--	5.4E+05	6.4E+06
Total dissolved solids	0	--	--	5.0E+05	--	--	--	5.3E+09	--	--	--	5.0E+04	--	--	--	5.3E+08	--	--	--	5.3E+08	--
Toxaphene [c]	0	7.3E-01	2.0E-04	2.8E-03	2.8E-03	2.8E+01	5.5E-01	6.1E+01	6.1E+01	1.8E-01	5.0E-05	2.8E-04	2.8E-04	1.2E+03	4.1E-01	6.1E+00	6.1E+00	2.8E+01	4.1E-01	6.1E+00	6.1E+00
Tributyltin	0	4.6E-01	7.2E-02	--	--	1.8E+01	2.0E+02	--	--	1.2E-01	1.8E-02	--	--	7.6E+02	1.5E+02	--	--	1.8E+01	1.5E+02	--	--
1,2,4-Trichlorobenzene	0	--	--	3.5E+01	7.0E+01	--	--	3.7E+05	7.5E+05	--	--	3.5E+00	7.0E+00	--	--	3.7E+04	7.5E+04	--	--	3.7E+04	7.5E+04
1,1,2-Trichloroethane[c]	0	--	--	5.9E+00	1.6E+02	--	--	1.3E+05	3.5E+06	--	--	5.9E-01	1.6E+01	--	--	1.3E+04	3.5E+05	--	--	1.3E+04	3.5E+05
Trichloroethylene [c]	0	--	--	2.5E+01	3.0E+02	--	--	5.4E+05	6.5E+06	--	--	2.5E+00	3.0E+01	--	--	5.4E+04	6.5E+05	--	--	5.4E+04	6.5E+05
2,4,6-Trichlorophenol [c]	0	--	--	1.4E+01	2.4E+01	--	--	3.0E+05	5.2E+05	--	--	1.4E+00	2.4E+00	--	--	3.0E+04	5.2E+04	--	--	3.0E+04	5.2E+04
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	5.0E+01	--	--	--	5.3E+05	--	--	--	5.0E+00	--	--	--	5.3E+04	--	--	--	5.3E+04	--
Vinyl Chloride[c]	0	--	--	2.5E-01	2.4E+01	--	--	5.4E+03	5.2E+05	--	--	2.5E-02	2.4E+00	--	--	5.4E+02	5.2E+04	--	--	5.4E+02	5.2E+04
Zinc	3.68	9.5E+01	9.6E+01	7.4E+03	2.6E+04	3.5E+03	2.5E+05	7.9E+07	2.8E+08	2.6E+01	2.7E+01	7.4E+02	2.6E+03	1.5E+05	1.9E+05	7.9E+06	2.8E+07	3.5E+03	1.9E+05	7.9E+06	2.8E+07

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information. Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	6.0E+03
Arsenic	5.3E+03
Barium	2.1E+06
Cadmium	4.6E+01
Chromium III	7.2E+03
Chromium VI	2.5E+02
Copper	1.5E+02
Iron	3.2E+05
Lead	1.3E+03
Manganese	3.8E+04
Mercury	2.2E+01
Nickel	2.3E+03
Selenium	3.1E+02
Silver	3.5E+01
Zinc	1.4E+03

Note: do not use QL's lower than the minimum QL's provided in agency guidance

Mixing Zone Predictions for VA0000248 - 029

Effluent Flow = 1.57 MGD
Stream 7Q10 = 559 MGD
Stream 30Q10 = 646 MGD
Stream 1Q10 = 449 MGD
Stream slope = 0.001 ft/ft
Stream width = 500 ft
Bottom scale = 3
Channel scale = 1

Mixing Zone Predictions @ 7Q10

Depth = 2.3237 ft
Length = 117498.07 ft
Velocity = .7469 ft/sec
Residence Time = 1.8209 days

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used.

Mixing Zone Predictions @ 30Q10

Depth = 2.5347 ft
Length = 109229.34 ft
Velocity = .791 ft/sec
Residence Time = 1.5983 days

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used.

Mixing Zone Predictions @ 1Q10

Depth = 2.0374 ft
Length = 131207.28 ft
Velocity = .6847 ft/sec
Residence Time = 53.2311 hours

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than 1.88% of the 1Q10 is used.

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: RAAP - Outfall 029 Permit No.: VA0000248

Receiving Stream: New River Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO3) =	78	mg/L
90% Temperature (Annual) =	23.3	deg C
90% Temperature (Wet season) =	13.8	deg C
90% Maximum pH =	8.22	SU
10% Maximum pH =	7.32	SU
Tier Designation (1 or 2) =	2	
Public Water Supply (PWS) Y/N? =	y	
Trout Present Y/N? =	y	
Early Life Stages Present Y/N? =	y	

Stream Flows

1Q10 (Annual) =	449	MGD
7Q10 (Annual) =	559	MGD
30Q10 (Annual) =	646	MGD
1Q10 (Wet season) =	529	MGD
30Q10 (Wet season)	1067	MGD
30Q5 =	726	MGD
Harmonic Mean =	1520	MGD

Mixing Information

Annual - 1Q10 Mix =	1.88	%
- 7Q10 Mix =	100	%
- 30Q10 Mix =	100	%
Wet Season - 1Q10 Mix =	100	%
- 30Q10 Mix =	100	%

Effluent Information

Mean Hardness (as CaCO3) =	106	mg/L
90% Temp (Annual) =	25	deg C
90% Temp (Wet season) =	20	deg C
90% Maximum pH =	7.95	SU
10% Maximum pH =	7.5	SU
Discharge Flow =	1.57	MGD

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenapthene	0	--	--	6.7E+02	9.9E+02	--	--	3.1E+05	4.6E+05	--	--	6.7E+01	9.9E+01	--	--	3.1E+04	4.6E+04	--	--	3.1E+04	4.6E+04
Acrolein	0	--	--	6.1E+00	9.3E+00	--	--	2.8E+03	4.3E+03	--	--	6.1E-01	9.3E-01	--	--	2.8E+02	4.3E+02	--	--	2.8E+02	4.3E+02
Acrylonitrile[c]	0	--	--	5.1E-01	2.5E+00	--	--	4.9E+02	2.4E+03	--	--	5.1E-02	2.5E-01	--	--	4.9E+01	2.4E+02	--	--	4.9E+01	2.4E+02
Aldrin [c]	0	3.0E+00	--	4.9E-04	5.0E-04	1.9E+01	--	4.7E-01	4.8E-01	7.5E-01	--	4.9E-05	5.0E-05	2.2E+02	--	4.7E-02	4.8E-02	1.9E+01	--	4.7E-02	4.8E-02
Ammonia-N (mg/l) (Yearly)	0	4.09E+00	9.87E-01	--	--	2.6E+01	4.1E+02	--	--	9.22E-01	2.47E-01	--	--	2.6E+02	1.0E+02	--	--	2.6E+01	1.0E+02	--	--
Ammonia-N (mg/l) (High Flow)	0	3.69E+00	1.74E+00	--	--	1.2E+03	1.2E+03	--	--	9.22E-01	4.35E-01	--	--	3.1E+02	3.0E+02	--	--	3.1E+02	3.0E+02	--	--
Anthracene	0	--	--	8.3E+03	4.0E+04	--	--	3.8E+06	1.9E+07	--	--	8.3E+02	4.0E+03	--	--	3.8E+05	1.9E+06	--	--	3.8E+05	1.9E+06
Antimony	0	--	--	5.6E+00	6.4E+02	--	--	2.6E+03	3.0E+05	--	--	5.6E-01	6.4E+01	--	--	2.6E+02	3.0E+04	--	--	2.6E+02	3.0E+04
Arsenic	0.35	3.4E+02	1.5E+02	1.0E+01	--	2.2E+03	5.3E+04	4.5E+03	--	8.5E+01	3.8E+01	1.3E+00	--	2.4E+04	1.3E+04	4.5E+02	--	2.2E+03	1.3E+04	4.5E+02	--
Barium	0	--	--	2.0E+03	--	--	--	9.3E+05	--	--	--	2.0E+02	--	--	--	9.3E+04	--	--	--	9.3E+04	--
Benzene [c]	0	--	--	2.2E+01	5.1E+02	--	--	2.1E+04	4.9E+05	--	--	2.2E+00	5.1E+01	--	--	2.1E+03	4.9E+04	--	--	2.1E+03	4.9E+04
Benzidine[c]	0	--	--	8.6E-04	2.0E-03	--	--	8.3E-01	1.9E+00	--	--	8.6E-05	2.0E-04	--	--	8.3E-02	1.9E-01	--	--	8.3E-02	1.9E-01
Benzo (a) anthracene [c]	0	--	--	3.8E-02	1.8E-01	--	--	3.7E+01	1.7E+02	--	--	3.8E-03	1.8E-02	--	--	3.7E+00	1.7E+01	--	--	3.7E+00	1.7E+01
Benzo (b) fluoranthene [c]	0	--	--	3.8E-02	1.8E-01	--	--	3.7E+01	1.7E+02	--	--	3.8E-03	1.8E-02	--	--	3.7E+00	1.7E+01	--	--	3.7E+00	1.7E+01
Benzo (k) fluoranthene [c]	0	--	--	3.8E-02	1.8E-01	--	--	3.7E+01	1.7E+02	--	--	3.8E-03	1.8E-02	--	--	3.7E+00	1.7E+01	--	--	3.7E+00	1.7E+01
Benzo (a) pyrene [c]	0	--	--	3.8E-02	1.8E-01	--	--	3.7E+01	1.7E+02	--	--	3.8E-03	1.8E-02	--	--	3.7E+00	1.7E+01	--	--	3.7E+00	1.7E+01
Bis2-Chloroethyl Ether[c]	0	--	--	3.0E-01	5.3E+00	--	--	2.9E+02	5.1E+03	--	--	3.0E-02	5.3E-01	--	--	2.9E+01	5.1E+02	--	--	2.9E+01	5.1E+02
Bis2-Chloroisopropyl Ether	0	--	--	1.4E+03	6.5E+04	--	--	6.5E+05	3.0E+07	--	--	1.4E+02	6.5E+03	--	--	6.5E+04	3.0E+06	--	--	6.5E+04	3.0E+06
Bis 2-Ethylhexyl Phthalate[c]	0	--	--	1.2E+01	2.2E+01	--	--	1.2E+04	2.1E+04	--	--	1.2E+00	2.2E+00	--	--	1.2E+03	2.1E+03	--	--	1.2E+03	2.1E+03
Bromoform [c]	0	--	--	4.3E+01	1.4E+03	--	--	4.2E+04	1.4E+06	--	--	4.3E+00	1.4E+02	--	--	4.2E+03	1.4E+05	--	--	4.2E+03	1.4E+05
Butylbenzylphthalate	0	--	--	1.5E+03	1.9E+03	--	--	7.0E+05	8.8E+05	--	--	1.5E+02	1.9E+02	--	--	7.0E+04	8.8E+04	--	--	7.0E+04	8.8E+04
Cadmium	0	3.2E+00	9.3E-01	5.0E+00	--	2.0E+01	3.3E+02	2.3E+03	--	7.4E-01	2.3E-01	5.0E-01	--	2.1E+02	8.3E+01	2.3E+02	--	2.0E+01	8.3E+01	2.3E+02	--
Carbon Tetrachloride [c]	0	--	--	2.3E+00	1.6E+01	--	--	2.2E+03	1.6E+04	--	--	2.3E-01	1.6E+00	--	--	2.2E+02	1.6E+03	--	--	2.2E+02	1.6E+03
Chlordane [c]	0	2.4E+00	4.3E-03	8.0E-03	8.1E-03	1.5E+01	1.5E+00	7.8E+00	7.9E+00	6.0E-01	1.1E-03	8.0E-04	8.1E-04	1.7E+02	3.8E-01	7.8E-01	7.9E-01	1.5E+01	3.8E-01	7.8E-01	7.9E-01
Chloride	7960	8.6E+05	2.3E+05	2.5E+05	--	5.4E+06	7.9E+07	1.1E+08	--	2.2E+05	6.3E+04	3.2E+04	--	6.1E+07	2.0E+07	1.1E+07	--	5.4E+06	2.0E+07	1.1E+07	--
TRC	0	1.9E+01	1.1E+01	--	--	1.2E+02	3.9E+03	--	--	4.8E+00	2.8E+00	--	--	1.4E+03	9.8E+02	--	--	1.2E+02	9.8E+02	--	--
Chlorobenzene	0	--	--	1.3E+02	1.6E+03	--	--	6.0E+04	7.4E+05	--	--	1.3E+01	1.6E+02	--	--	6.0E+03	7.4E+04	--	--	6.0E+03	7.4E+04

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane[c]	0	--	--	4.0E+00	1.3E+02	--	--	3.9E+03	1.3E+05	--	--	4.0E-01	1.3E+01	--	--	3.9E+02	1.3E+04	--	--	3.9E+02	1.3E+04
Chloroform	0	--	--	3.4E+02	1.1E+04	--	--	1.6E+05	5.1E+06	--	--	3.4E+01	1.1E+03	--	--	1.6E+04	5.1E+05	--	--	1.6E+04	5.1E+05
2-Chloronaphthalene	0	--	--	1.0E+03	1.6E+03	--	--	4.6E+05	7.4E+05	--	--	1.0E+02	1.6E+02	--	--	4.6E+04	7.4E+04	--	--	4.6E+04	7.4E+04
2-Chlorophenol	0	--	--	8.1E+01	1.5E+02	--	--	3.8E+04	7.0E+04	--	--	8.1E+00	1.5E+01	--	--	3.8E+03	7.0E+03	--	--	3.8E+03	7.0E+03
Chlorpyrifos	0	8.3E-02	4.1E-02	--	--	5.3E-01	1.5E+01	--	--	2.1E-02	1.0E-02	--	--	6.0E+00	3.7E+00	--	--	5.3E-01	3.7E+00	--	--
Chromium III	0	4.9E+02	6.1E+01	--	--	3.1E+03	2.2E+04	--	--	1.2E+02	1.5E+01	--	--	3.3E+04	5.4E+03	--	--	3.1E+03	5.4E+03	--	--
Chromium VI	0	1.6E+01	1.1E+01	--	--	1.0E+02	3.9E+03	--	--	4.0E+00	2.8E+00	--	--	1.1E+03	9.8E+02	--	--	1.0E+02	9.8E+02	--	--
Chromium, Total	0.18	--	--	1.0E+02	--	--	--	4.6E+04	--	--	--	1.0E+01	--	--	--	4.6E+03	--	--	--	4.6E+03	--
Chrysene [c]	0	--	--	3.8E-03	1.8E-02	--	--	3.7E+00	1.7E+01	--	--	3.8E-04	1.8E-03	--	--	3.7E-01	1.7E+00	--	--	3.7E-01	1.7E+00
Copper	0.65	1.1E+01	7.2E+00	1.3E+03	--	6.8E+01	2.4E+03	6.0E+05	--	3.1E+00	2.3E+00	1.3E+02	--	7.2E+02	5.9E+02	6.0E+04	--	6.8E+01	5.9E+02	6.0E+04	--
Cyanide, Free	0	2.2E+01	5.2E+00	1.4E+02	1.6E+04	1.4E+02	1.9E+03	6.5E+04	7.4E+06	5.5E+00	1.3E+00	1.4E+01	1.6E+03	1.6E+03	4.6E+02	6.5E+03	7.4E+05	1.4E+02	4.6E+02	6.5E+03	7.4E+05
DDD [c]	0	--	--	3.1E-03	3.1E-03	--	--	3.0E+00	3.0E+00	--	--	3.1E-04	3.1E-04	--	--	3.0E-01	3.0E-01	--	--	3.0E-01	3.0E-01
DDE [c]	0	--	--	2.2E-03	2.2E-03	--	--	2.1E+00	2.1E+00	--	--	2.2E-04	2.2E-04	--	--	2.1E-01	2.1E-01	--	--	2.1E-01	2.1E-01
DDT [c]	0	1.1E+00	1.0E-03	2.2E-03	2.2E-03	7.0E+00	3.6E-01	2.1E+00	2.1E+00	2.8E-01	2.5E-04	2.2E-04	2.2E-04	7.9E+01	8.9E-02	2.1E-01	2.1E-01	7.0E+00	8.9E-02	2.1E-01	2.1E-01
Demeton	0	--	1.0E-01	--	--	--	3.6E+01	--	--	--	2.5E-02	--	--	--	8.9E+00	--	--	--	8.9E+00	--	--
Diazinon	0	1.7E-01	1.7E-01	--	--	1.1E+00	6.1E+01	--	--	4.3E-02	4.3E-02	--	--	1.2E+01	1.5E+01	--	--	1.1E+00	1.5E+01	--	--
Dibenz(a,h)anthracene [c]	0	--	--	3.8E-02	1.8E-01	--	--	3.7E+01	1.7E+02	--	--	3.8E-03	1.8E-02	--	--	3.7E+00	1.7E+01	--	--	3.7E+00	1.7E+01
1,2-Dichlorobenzene	0	--	--	4.2E+02	1.3E+03	--	--	1.9E+05	6.0E+05	--	--	4.2E+01	1.3E+02	--	--	1.9E+04	6.0E+04	--	--	1.9E+04	6.0E+04
1,3-Dichlorobenzene	0	--	--	3.2E+02	9.6E+02	--	--	1.5E+05	4.4E+05	--	--	3.2E+01	9.6E+01	--	--	1.5E+04	4.4E+04	--	--	1.5E+04	4.4E+04
1,4-Dichlorobenzene	0	--	--	6.3E+01	1.9E+02	--	--	2.9E+04	8.8E+04	--	--	6.3E+00	1.9E+01	--	--	2.9E+03	8.8E+03	--	--	2.9E+03	8.8E+03
3,3-Dichlorobenzidine[c]	0	--	--	2.1E-01	2.8E-01	--	--	2.0E+02	2.7E+02	--	--	2.1E-02	2.8E-02	--	--	2.0E+01	2.7E+01	--	--	2.0E+01	2.7E+01
Dichlorobromomethane [c]	0	--	--	5.5E+00	1.7E+02	--	--	5.3E+03	1.6E+05	--	--	5.5E-01	1.7E+01	--	--	5.3E+02	1.6E+04	--	--	5.3E+02	1.6E+04
1,2-Dichloroethane [c]	0	--	--	3.8E+00	3.7E+02	--	--	3.7E+03	3.6E+05	--	--	3.8E-01	3.7E+01	--	--	3.7E+02	3.6E+04	--	--	3.7E+02	3.6E+04
1,1-Dichloroethylene	0	--	--	3.3E+02	7.1E+03	--	--	1.5E+05	3.3E+06	--	--	3.3E+01	7.1E+02	--	--	1.5E+04	3.3E+05	--	--	1.5E+04	3.3E+05
1,2-trans-dichloroethylene	0	--	--	1.4E+02	1.0E+04	--	--	6.5E+04	4.6E+06	--	--	1.4E+01	1.0E+03	--	--	6.5E+03	4.6E+05	--	--	6.5E+03	4.6E+05
2,4-Dichlorophenol	0	--	--	7.7E+01	2.9E+02	--	--	3.6E+04	1.3E+05	--	--	7.7E+00	2.9E+01	--	--	3.6E+03	1.3E+04	--	--	3.6E+03	1.3E+04
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	1.0E+02	--	--	--	4.6E+04	--	--	--	1.0E+01	--	--	--	4.6E+03	--	--	--	4.6E+03	--
1,2-Dichloropropane[c]	0	--	--	5.0E+00	1.5E+02	--	--	4.8E+03	1.5E+05	--	--	5.0E-01	1.5E+01	--	--	4.8E+02	1.5E+04	--	--	4.8E+02	1.5E+04
1,3-Dichloropropene [c]	0	--	--	3.4E+00	2.1E+02	--	--	3.3E+03	2.0E+05	--	--	3.4E-01	2.1E+01	--	--	3.3E+02	2.0E+04	--	--	3.3E+02	2.0E+04
Dieldrin [c]	0	2.4E-01	5.6E-02	5.2E-04	5.4E-04	1.5E+00	2.0E+01	5.0E-01	5.2E-01	6.0E-02	1.4E-02	5.2E-05	5.4E-05	1.7E+01	5.0E+00	5.0E-02	5.2E-02	1.5E+00	5.0E+00	5.0E-02	5.2E-02
Diethyl Phthalate	0	--	--	1.7E+04	4.4E+04	--	--	7.9E+06	2.0E+07	--	--	1.7E+03	4.4E+03	--	--	7.9E+05	2.0E+06	--	--	7.9E+05	2.0E+06
2,4-Dimethylphenol	0	--	--	3.8E+02	8.5E+02	--	--	1.8E+05	3.9E+05	--	--	3.8E+01	8.5E+01	--	--	1.8E+04	3.9E+04	--	--	1.8E+04	3.9E+04
Dimethyl Phthalate	0	--	--	2.7E+05	1.1E+06	--	--	1.3E+08	5.1E+08	--	--	2.7E+04	1.1E+05	--	--	1.3E+07	5.1E+07	--	--	1.3E+07	5.1E+07
Di-n-Butyl Phthalate	0	--	--	2.0E+03	4.5E+03	--	--	9.3E+05	2.1E+06	--	--	2.0E+02	4.5E+02	--	--	9.3E+04	2.1E+05	--	--	9.3E+04	2.1E+05
2,4 Dinitrophenol	0	--	--	6.9E+01	5.3E+03	--	--	3.2E+04	2.5E+06	--	--	6.9E+00	5.3E+02	--	--	3.2E+03	2.5E+05	--	--	3.2E+03	2.5E+05
2-Methyl-4,6-Dinitrophenol	0	--	--	1.3E+01	2.8E+02	--	--	6.0E+03	1.3E+05	--	--	1.3E+00	2.8E+01	--	--	6.0E+02	1.3E+04	--	--	6.0E+02	1.3E+04
2,4-Dinitrotoluene [c]	0	--	--	1.1E+00	3.4E+01	--	--	1.1E+03	3.3E+04	--	--	1.1E-01	3.4E+00	--	--	1.1E+02	3.3E+03	--	--	1.1E+02	3.3E+03
Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin	0	--	--	5.0E-08	5.1E-08	--	--	2.3E-05	2.4E-05	--	--	5.0E-09	5.1E-09	--	--	2.3E-06	2.4E-06	--	--	2.3E-06	2.4E-06
1,2-Diphenylhydrazine[c]	0	--	--	3.6E-01	2.0E+00	--	--	3.5E+02	1.9E+03	--	--	3.6E-02	2.0E-01	--	--	3.5E+01	1.9E+02	--	--	3.5E+01	1.9E+02
Alpha-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	1.4E+00	2.0E+01	2.9E+04	4.1E+04	5.5E-02	1.4E-02	6.2E+00	8.9E+00	1.6E+01	5.0E+00	2.9E+03	4.1E+03	1.4E+00	5.0E+00	2.9E+03	4.1E+03
Beta-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	1.4E+00	2.0E+01	2.9E+04	4.1E+04	5.5E-02	1.4E-02	6.2E+00	8.9E+00	1.6E+01	5.0E+00	2.9E+03	4.1E+03	1.4E+00	5.0E+00	2.9E+03	4.1E+03
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	1.4E+00	2.0E+01	--	--	5.5E-02	1.4E-02	--	--	1.6E+01	5.0E+00	--	--	1.4E+00	5.0E+00	--	--
Endosulfan Sulfate	0	--	--	6.2E+01	8.9E+01	--	--	2.9E+04	4.1E+04	--	--	6.2E+00	8.9E+00	--	--	2.9E+03	4.1E+03	--	--	2.9E+03	4.1E+03
Endrin	0	8.6E-02	3.6E-02	5.9E-02	6.0E-02	5.5E-01	1.3E+01	2.7E+01	2.8E+01	2.2E-02	9.0E-03	5.9E-03	6.0E-03	6.2E+00	3.2E+00	2.7E+00	2.8E+00	5.5E-01	3.2E+00	2.7E+00	2.8E+00
Endrin Aldehyde	0	--	--	2.9E-01	3.0E-01	--	--	1.3E+02	1.4E+02	--	--	2.9E-02	3.0E-02	--	--	1.3E+01	1.4E+01	--	--	1.3E+01	1.4E+01

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	5.3E+02	2.1E+03	--	--	2.5E+05	9.7E+05	--	--	5.3E+01	2.1E+02	--	--	2.5E+04	9.7E+04	--	--	2.5E+04	9.7E+04
Fluoranthene	0	--	--	1.3E+02	1.4E+02	--	--	6.0E+04	6.5E+04	--	--	1.3E+01	1.4E+01	--	--	6.0E+03	6.5E+03	--	--	6.0E+03	6.5E+03
Fluorene	0	--	--	1.1E+03	5.3E+03	--	--	5.1E+05	2.5E+06	--	--	1.1E+02	5.3E+02	--	--	5.1E+04	2.5E+05	--	--	5.1E+04	2.5E+05
Foaming Agents	0	--	--	5.0E+02	--	--	--	2.3E+05	--	--	--	5.0E+01	--	--	--	2.3E+04	--	--	--	2.3E+04	--
Guthion	0	--	1.0E-02	--	--	--	3.6E+00	--	--	--	2.5E-03	--	--	--	8.9E-01	--	--	--	8.9E-01	--	--
Heptachlor [c]	0	5.2E-01	3.8E-03	7.9E-04	7.9E-04	3.3E+00	1.4E+00	7.7E-01	7.7E-01	1.3E-01	9.5E-04	7.9E-05	7.9E-05	3.7E+01	3.4E-01	7.7E-02	7.7E-02	3.3E+00	3.4E-01	7.7E-02	7.7E-02
Heptachlor Epoxide[c]	0	5.2E-01	3.8E-03	3.9E-04	3.9E-04	3.3E+00	1.4E+00	3.8E-01	3.8E-01	1.3E-01	9.5E-04	3.9E-05	3.9E-05	3.7E+01	3.4E-01	3.8E-02	3.8E-02	3.3E+00	3.4E-01	3.8E-02	3.8E-02
Hexachlorobenzene[c]	0	--	--	2.8E-03	2.9E-03	--	--	2.7E+00	2.8E+00	--	--	2.8E-04	2.9E-04	--	--	2.7E-01	2.8E-01	--	--	2.7E-01	2.8E-01
Hexachlorobutadiene[c]	0	--	--	4.4E+00	1.8E+02	--	--	4.3E+03	1.7E+05	--	--	4.4E-01	1.8E+01	--	--	4.3E+02	1.7E+04	--	--	4.3E+02	1.7E+04
Hexachlorocyclohexane Alpha-BHC[c]	0	--	--	2.6E-02	4.9E-02	--	--	2.5E+01	4.7E+01	--	--	2.6E-03	4.9E-03	--	--	2.5E+00	4.7E+00	--	--	2.5E+00	4.7E+00
Hexachlorocyclohexane Beta BHC[c]	0	--	--	9.1E-02	1.7E-01	--	--	8.8E+01	1.6E+02	--	--	9.1E-03	1.7E-02	--	--	8.8E+00	1.6E+01	--	--	8.8E+00	1.6E+01
Hexachlorocyclohexane Gamma-BHC[c] (Lindane)	0	9.5E-01	--	9.8E-01	1.8E+00	6.1E+00	--	9.5E+02	1.7E+03	2.4E-01	--	9.8E-02	1.8E-01	6.8E+01	--	9.5E+01	1.7E+02	6.1E+00	--	9.5E+01	1.7E+02
Hexachlorocyclopentadiene	0	--	--	4.0E+01	1.1E+03	--	--	1.9E+04	5.1E+05	--	--	4.0E+00	1.1E+02	--	--	1.9E+03	5.1E+04	--	--	1.9E+03	5.1E+04
Hexachloroethane[c]	0	--	--	1.4E+01	3.3E+01	--	--	1.4E+04	3.2E+04	--	--	1.4E+00	3.3E+00	--	--	1.4E+03	3.2E+03	--	--	1.4E+03	3.2E+03
Hydrogen Sulfide	0	--	2.0E+00	--	--	--	7.1E+02	--	--	--	5.0E-01	--	--	--	1.8E+02	--	--	--	1.8E+02	--	--
Indeno (1,2,3-cd) pyrene [c]	0	--	--	3.8E-02	1.8E-01	--	--	3.7E+01	1.7E+02	--	--	3.8E-03	1.8E-02	--	--	3.7E+00	1.7E+01	--	--	3.7E+00	1.7E+01
Iron	0	--	--	3.0E+02	--	--	--	1.4E+05	--	--	--	3.0E+01	--	--	--	1.4E+04	--	--	--	1.4E+04	--
Isophorone[c]	0	--	--	3.5E+02	9.6E+03	--	--	3.4E+05	9.3E+06	--	--	3.5E+01	9.6E+02	--	--	3.4E+04	9.3E+05	--	--	3.4E+04	9.3E+05
Kepone	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--
Lead	0	9.3E+01	9.9E+00	1.5E+01	--	5.9E+02	3.5E+03	7.0E+03	--	2.2E+01	2.5E+00	1.5E+00	--	6.2E+03	8.8E+02	7.0E+02	--	5.9E+02	8.8E+02	7.0E+02	--
Malathion	0	--	1.0E-01	--	--	--	3.6E+01	--	--	--	2.5E-02	--	--	--	8.9E+00	--	--	--	8.9E+00	--	--
Manganese	14.32	--	--	5.0E+01	--	--	--	1.7E+04	--	--	--	1.8E+01	--	--	--	1.7E+03	--	--	--	1.7E+03	--
Mercury	0	1.4E+00	7.7E-01	--	--	8.9E+00	2.7E+02	--	--	3.5E-01	1.9E-01	--	--	1.0E+02	6.9E+01	--	--	8.9E+00	6.9E+01	--	--
Methyl Bromide	0	--	--	4.7E+01	1.5E+03	--	--	2.2E+04	7.0E+05	--	--	4.7E+00	1.5E+02	--	--	2.2E+03	7.0E+04	--	--	2.2E+03	7.0E+04
Methylene Chloride [c]	0	--	--	4.6E+01	5.9E+03	--	--	4.5E+04	5.7E+06	--	--	4.6E+00	5.9E+02	--	--	4.5E+03	5.7E+05	--	--	4.5E+03	5.7E+05
Methoxychlor	0	--	3.0E-02	1.0E+02	--	--	1.1E+01	4.6E+04	--	--	7.5E-03	1.0E+01	--	--	2.7E+00	4.6E+03	--	--	2.7E+00	4.6E+03	--
Mirex	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--
Nickel	0.39	1.5E+02	1.6E+01	6.1E+02	4.6E+03	9.8E+02	5.7E+03	2.8E+05	2.1E+06	3.7E+01	4.4E+00	6.1E+01	4.6E+02	1.1E+04	1.4E+03	2.8E+04	2.1E+05	9.8E+02	1.4E+03	2.8E+04	2.1E+05
Nitrate (as N)	890	--	--	1.0E+04	--	--	--	4.2E+06	--	--	--	1.8E+03	--	--	--	4.2E+05	--	--	--	4.2E+05	--
Nitrobenzene	0	--	--	1.7E+01	6.9E+02	--	--	7.9E+03	3.2E+05	--	--	1.7E+00	6.9E+01	--	--	7.9E+02	3.2E+04	--	--	7.9E+02	3.2E+04
N-Nitrosodimethylamine[c]	0	--	--	6.9E-03	3.0E+01	--	--	6.7E+00	2.9E+04	--	--	6.9E-04	3.0E+00	--	--	6.7E-01	2.9E+03	--	--	6.7E-01	2.9E+03
N-Nitrosodiphenylamine[c]	0	--	--	3.3E+01	6.0E+01	--	--	3.2E+04	5.8E+04	--	--	3.3E+00	6.0E+00	--	--	3.2E+03	5.8E+03	--	--	3.2E+03	5.8E+03
N-Nitrosodi-n-propylamine[c]	0	--	--	5.0E-02	5.1E+00	--	--	4.8E+01	4.9E+03	--	--	5.0E-03	5.1E-01	--	--	4.8E+00	4.9E+02	--	--	4.8E+00	4.9E+02
Nonylphenol	0	2.8E+01	6.6E+00	--	--	1.8E+02	2.4E+03	--	--	7.0E+00	1.7E+00	--	--	2.0E+03	5.9E+02	--	--	1.8E+02	5.9E+02	--	--
Parathion	0	6.5E-02	1.3E-02	--	--	4.1E-01	4.6E+00	--	--	1.6E-02	3.3E-03	--	--	4.7E+00	1.2E+00	--	--	4.1E-01	1.2E+00	--	--
PCB Total[c]	0	--	1.4E-02	6.4E-04	6.4E-04	--	5.0E+00	6.2E-01	6.2E-01	--	3.5E-03	6.4E-05	6.4E-05	--	1.2E+00	6.2E-02	6.2E-02	--	1.2E+00	6.2E-02	6.2E-02
Pentachlorophenol [c]	0	1.2E+01	9.2E+00	2.7E+00	3.0E+01	7.9E+01	3.3E+03	2.6E+03	2.9E+04	3.0E+00	2.3E+00	2.7E-01	3.0E+00	8.6E+02	8.2E+02	2.6E+02	2.9E+03	7.9E+01	8.2E+02	2.6E+02	2.9E+03
Phenol	0	--	--	1.0E+04	8.6E+05	--	--	4.6E+06	4.0E+08	--	--	1.0E+03	8.6E+04	--	--	4.6E+05	4.0E+07	--	--	4.6E+05	4.0E+07
Pyrene	0	--	--	8.3E+02	4.0E+03	--	--	3.8E+05	1.9E+06	--	--	8.3E+01	4.0E+02	--	--	3.8E+04	1.9E+05	--	--	3.8E+04	1.9E+05
Radionuclides	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gross Alpha Activity (pCi/L)	0	--	--	1.5E+01	--	--	--	7.0E+03	--	--	--	1.5E+00	--	--	--	7.0E+02	--	--	--	7.0E+02	--
Beta and Photon Activity (mrem/yr)	0	--	--	4.0E+00	4.0E+00	--	--	1.9E+03	1.9E+03	--	--	4.0E-01	4.0E-01	--	--	1.9E+02	1.9E+02	--	--	1.9E+02	1.9E+02
Radium 226 + 228 (pCi/L)	0	--	--	5.0E+00	--	--	--	2.3E+03	--	--	--	5.0E-01	--	--	--	2.3E+02	--	--	--	2.3E+02	--
Uranium (ug/l)	0	--	--	3.0E+01	--	--	--	1.4E+04	--	--	--	3.0E+00	--	--	--	1.4E+03	--	--	--	1.4E+03	--

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	1.7E+02	4.2E+03	1.3E+02	1.8E+03	7.9E+04	1.9E+06	5.0E+00	1.3E+00	1.7E+01	4.2E+02	1.4E+03	4.5E+02	7.9E+03	1.9E+05	1.3E+02	4.5E+02	7.9E+03	1.9E+05
Silver	0	2.5E+00	--	--	--	1.6E+01	--	--	--	5.6E-01	--	--	--	1.6E+02	--	--	--	1.6E+01	--	--	--
Sulfate	7870	--	--	2.5E+05	--	--	--	1.1E+08	--	--	--	3.2E+04	--	--	--	1.1E+07	--	--	--	1.1E+07	--
1,1,2,2-Tetrachloroethane[c]	0	--	--	1.7E+00	4.0E+01	--	--	1.6E+03	3.9E+04	--	--	1.7E-01	4.0E+00	--	--	1.6E+02	3.9E+03	--	--	1.6E+02	3.9E+03
Tetrachloroethylene[c]	0	--	--	6.9E+00	3.3E+01	--	--	6.7E+03	3.2E+04	--	--	6.9E-01	3.3E+00	--	--	6.7E+02	3.2E+03	--	--	6.7E+02	3.2E+03
Thallium	0	--	--	2.4E-01	4.7E-01	--	--	1.1E+02	2.2E+02	--	--	2.4E-02	4.7E-02	--	--	1.1E+01	2.2E+01	--	--	1.1E+01	2.2E+01
Toluene	0	--	--	5.1E+02	6.0E+03	--	--	2.4E+05	2.8E+06	--	--	5.1E+01	6.0E+02	--	--	2.4E+04	2.8E+05	--	--	2.4E+04	2.8E+05
Total dissolved solids	0	--	--	5.0E+05	--	--	--	2.3E+08	--	--	--	5.0E+04	--	--	--	2.3E+07	--	--	--	2.3E+07	--
Toxaphene [c]	0	7.3E-01	2.0E-04	2.8E-03	2.8E-03	4.7E+00	7.1E-02	2.7E+00	2.7E+00	1.8E-01	5.0E-05	2.8E-04	2.8E-04	5.2E+01	1.8E-02	2.7E-01	2.7E-01	4.7E+00	1.8E-02	2.7E-01	2.7E-01
Tributyltin	0	4.6E-01	7.2E-02	--	--	2.9E+00	2.6E+01	--	--	1.2E-01	1.8E-02	--	--	3.3E+01	6.4E+00	--	--	2.9E+00	6.4E+00	--	--
1,2,4-Trichlorobenzene	0	--	--	3.5E+01	7.0E+01	--	--	1.6E+04	3.2E+04	--	--	3.5E+00	7.0E+00	--	--	1.6E+03	3.2E+03	--	--	1.6E+03	3.2E+03
1,1,2-Trichloroethane[c]	0	--	--	5.9E+00	1.6E+02	--	--	5.7E+03	1.6E+05	--	--	5.9E-01	1.6E+01	--	--	5.7E+02	1.6E+04	--	--	5.7E+02	1.6E+04
Trichloroethylene [c]	0	--	--	2.5E+01	3.0E+02	--	--	2.4E+04	2.9E+05	--	--	2.5E+00	3.0E+01	--	--	2.4E+03	2.9E+04	--	--	2.4E+03	2.9E+04
2,4,6-Trichlorophenol [c]	0	--	--	1.4E+01	2.4E+01	--	--	1.4E+04	2.3E+04	--	--	1.4E+00	2.4E+00	--	--	1.4E+03	2.3E+03	--	--	1.4E+03	2.3E+03
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	5.0E+01	--	--	--	2.3E+04	--	--	--	5.0E+00	--	--	--	2.3E+03	--	--	--	2.3E+03	--
Vinyl Chloride[c]	0	--	--	2.5E-01	2.4E+01	--	--	2.4E+02	2.3E+04	--	--	2.5E-02	2.4E+00	--	--	2.4E+01	2.3E+03	--	--	2.4E+01	2.3E+03
Zinc	3.68	9.9E+01	9.6E+01	7.4E+03	2.6E+04	6.1E+02	3.3E+04	3.4E+06	1.2E+07	2.7E+01	2.7E+01	7.4E+02	2.6E+03	6.6E+03	8.2E+03	3.4E+05	1.2E+06	6.1E+02	8.2E+03	3.4E+05	1.2E+06

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
   Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	2.6E+02
Arsenic	4.5E+02
Barium	9.3E+04
Cadmium	8.0E+00
Chromium III	1.2E+03
Chromium VI	4.1E+01
Copper	2.7E+01
Iron	1.4E+04
Lead	2.4E+02
Manganese	1.7E+03
Mercury	3.6E+00
Nickel	3.9E+02
Selenium	5.1E+01
Silver	6.3E+00
Zinc	2.5E+02

Note: do not use QL's lower than the minimum QL's provided in agency guidance

4/12/2010 1:57:15 PM

Facility = VA0000248 - 029
Chemical = Copper,.Total
Chronic averaging period = 4
WLAa = 68
WLAc = 590
Q.L. = 10
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 12.7
Variance = 58.0644
C.V. = 0.6
97th percentile daily values = 30.9044
97th percentile 4 day average = 21.1301
97th percentile 30 day average= 15.3168
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

12.7

4/12/2010 1:58:05 PM

Facility = VA0000248 - 029
Chemical = Lead, Total
Chronic averaging period = 4
WLAa = 590
WLAc = 880
Q.L. = 10
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 26.2
Variance = 247.118
C.V. = 0.6
97th percentile daily values = 63.7555
97th percentile 4 day average = 43.5913
97th percentile 30 day average= 31.5985
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

26.2

4/12/2010 1:58:37 PM

Facility = VA0000248 - 029
Chemical = Nickel, Total
Chronic averaging period = 4
WLAa = 980
WLAc = 1400
Q.L. = 10
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 10
Variance = 36
C.V. = 0.6
97th percentile daily values = 24.3341
97th percentile 4 day average = 16.6379
97th percentile 30 day average= 12.0605
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

10

4/12/2010 1:59:22 PM

Facility = VA0000248 - 029
Chemical = Zinc, Total
Chronic averaging period = 4
WLAa = 610
WLAc = 8200
Q.L. = 10
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 19.9
Variance = 142.563
C.V. = 0.6
97th percentile daily values = 48.4250
97th percentile 4 day average = 33.1094
97th percentile 30 day average= 24.0004
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

19.9

4/12/2010 2:01:18 PM

Facility = VA0000248 - 029
Chemical = Sulfate
Chronic averaging period = 4
WLAa =
WLAc = 10000000
Q.L. = 5
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 76.9
Variance = 2128.89
C.V. = 0.6
97th percentile daily values = 187.129
97th percentile 4 day average = 127.945
97th percentile 30 day average= 92.7454
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

76.9

4/12/2010 2:02:48 PM

Facility = VA0000248 - 029
Chemical = 2,4-Dinitrotoluene
Chronic averaging period = 4
WLAa =
WLAc = 110
Q.L. = 10
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 38.9
Variance = 544.755
C.V. = 0.6
97th percentile daily values = 94.6599
97th percentile 4 day average = 64.7214
97th percentile 30 day average= 46.9154
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

38.9

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: RAAP - Generic SW Outfall Permit No.: VA0000248

Receiving Stream: New River Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO3) =	78	mg/L
90% Temperature (Annual) =	23.3	deg C
90% Temperature (Wet season) =	13.8	deg C
90% Maximum pH =	8.22	SU
10% Maximum pH =	7.32	SU
Tier Designation (1 or 2) =	2	
Public Water Supply (PWS) Y/N? =	y	
Trout Present Y/N? =	y	
Early Life Stages Present Y/N? =	y	

Stream Flows

1Q10 (Annual) =	449	MGD
7Q10 (Annual) =	559	MGD
30Q10 (Annual) =	646	MGD
1Q10 (Wet season) =	529	MGD
30Q10 (Wet season)	1067	MGD
30Q5 =	726	MGD
Harmonic Mean =	1520	MGD

Mixing Information

Annual - 1Q10 Mix =	100	%
- 7Q10 Mix =	100	%
- 30Q10 Mix =	100	%
Wet Season - 1Q10 Mix =	100	%
- 30Q10 Mix =	100	%

Effluent Information

Mean Hardness (as CaCO3) =	78	mg/L
90% Temp (Annual) =	23.3	deg C
90% Temp (Wet season) =	13.8	deg C
90% Maximum pH =	8.22	SU
10% Maximum pH =	7.32	SU
Discharge Flow =	0	MGD

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenapthene	0	--	--	6.7E+02	9.9E+02	--	--	#DIV/0!	#DIV/0!	--	--	6.7E+01	9.9E+01	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Acrolein	0	--	--	6.1E+00	9.3E+00	--	--	#DIV/0!	#DIV/0!	--	--	6.1E-01	9.3E-01	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Acrylonitrile[c]	0	--	--	5.1E-01	2.5E+00	--	--	#DIV/0!	#DIV/0!	--	--	5.1E-02	2.5E-01	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Aldrin [c]	0	3.0E+00	--	4.9E-04	5.0E-04	#DIV/0!	--	#DIV/0!	#DIV/0!	7.5E-01	--	4.9E-05	5.0E-05	#DIV/0!	--	#DIV/0!	#DIV/0!	#DIV/0!	--	#DIV/0!	#DIV/0!
Ammonia-N (mg/l) (Yearly)	0	3.68E+00	9.86E-01	--	--	#DIV/0!	#DIV/0!	--	--	9.20E-01	2.46E-01	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!	--	--
Ammonia-N (mg/l) (High Flow)	0	3.68E+00	1.74E+00	--	--	#DIV/0!	#DIV/0!	--	--	9.20E-01	4.34E-01	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!	--	--
Anthracene	0	--	--	8.3E+03	4.0E+04	--	--	#DIV/0!	#DIV/0!	--	--	8.3E+02	4.0E+03	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Antimony	0	--	--	5.6E+00	6.4E+02	--	--	#DIV/0!	#DIV/0!	--	--	5.6E-01	6.4E+01	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Arsenic	0.35	3.4E+02	1.5E+02	1.0E+01	--	#DIV/0!	#DIV/0!	#DIV/0!	--	8.5E+01	3.8E+01	1.3E+00	--	#DIV/0!	#DIV/0!	#DIV/0!	--	#DIV/0!	#DIV/0!	#DIV/0!	--
Barium	0	--	--	2.0E+03	--	--	--	#DIV/0!	--	--	--	2.0E+02	--	--	--	#DIV/0!	--	--	--	#DIV/0!	--
Benzene [c]	0	--	--	2.2E+01	5.1E+02	--	--	#DIV/0!	#DIV/0!	--	--	2.2E+00	5.1E+01	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Benzidine[c]	0	--	--	8.6E-04	2.0E-03	--	--	#DIV/0!	#DIV/0!	--	--	8.6E-05	2.0E-04	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Benzo (a) anthracene [c]	0	--	--	3.8E-02	1.8E-01	--	--	#DIV/0!	#DIV/0!	--	--	3.8E-03	1.8E-02	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Benzo (b) fluoranthene [c]	0	--	--	3.8E-02	1.8E-01	--	--	#DIV/0!	#DIV/0!	--	--	3.8E-03	1.8E-02	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Benzo (k) fluoranthene [c]	0	--	--	3.8E-02	1.8E-01	--	--	#DIV/0!	#DIV/0!	--	--	3.8E-03	1.8E-02	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Benzo (a) pyrene [c]	0	--	--	3.8E-02	1.8E-01	--	--	#DIV/0!	#DIV/0!	--	--	3.8E-03	1.8E-02	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Bis2-Chloroethyl Ether[c]	0	--	--	3.0E-01	5.3E+00	--	--	#DIV/0!	#DIV/0!	--	--	3.0E-02	5.3E-01	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Bis2-Chloroisopropyl Ether	0	--	--	1.4E+03	6.5E+04	--	--	#DIV/0!	#DIV/0!	--	--	1.4E+02	6.5E+03	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Bis 2-Ethylhexyl Phthalate[c]	0	--	--	1.2E+01	2.2E+01	--	--	#DIV/0!	#DIV/0!	--	--	1.2E+00	2.2E+00	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Bromoform [c]	0	--	--	4.3E+01	1.4E+03	--	--	#DIV/0!	#DIV/0!	--	--	4.3E+00	1.4E+02	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Butylbenzylphthalate	0	--	--	1.5E+03	1.9E+03	--	--	#DIV/0!	#DIV/0!	--	--	1.5E+02	1.9E+02	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Cadmium	0	3.0E+00	9.3E-01	5.0E+00	--	#DIV/0!	#DIV/0!	#DIV/0!	--	7.4E-01	2.3E-01	5.0E-01	--	#DIV/0!	#DIV/0!	#DIV/0!	--	#DIV/0!	#DIV/0!	#DIV/0!	--
Carbon Tetrachloride [c]	0	--	--	2.3E+00	1.6E+01	--	--	#DIV/0!	#DIV/0!	--	--	2.3E-01	1.6E+00	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Chlordane [c]	0	2.4E+00	4.3E-03	8.0E-03	8.1E-03	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	6.0E-01	1.1E-03	8.0E-04	8.1E-04	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Chloride	7960	8.6E+05	2.3E+05	2.5E+05	--	#DIV/0!	#DIV/0!	#DIV/0!	--	2.2E+05	6.3E+04	3.2E+04	--	#DIV/0!	#DIV/0!	#DIV/0!	--	#DIV/0!	#DIV/0!	#DIV/0!	--
TRC	0	1.9E+01	1.1E+01	--	--	#DIV/0!	#DIV/0!	--	--	4.8E+00	2.8E+00	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!	--	--
Chlorobenzene	0	--	--	1.3E+02	1.6E+03	--	--	#DIV/0!	#DIV/0!	--	--	1.3E+01	1.6E+02	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane[c]	0	--	--	4.0E+00	1.3E+02	--	--	#DIV/0!	#DIV/0!	--	--	4.0E-01	1.3E+01	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Chloroform	0	--	--	3.4E+02	1.1E+04	--	--	#DIV/0!	#DIV/0!	--	--	3.4E+01	1.1E+03	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
2-Chloronaphthalene	0	--	--	1.0E+03	1.6E+03	--	--	#DIV/0!	#DIV/0!	--	--	1.0E+02	1.6E+02	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
2-Chlorophenol	0	--	--	8.1E+01	1.5E+02	--	--	#DIV/0!	#DIV/0!	--	--	8.1E+00	1.5E+01	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Chlorpyrifos	0	8.3E-02	4.1E-02	--	--	#DIV/0!	#DIV/0!	--	--	2.1E-02	1.0E-02	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!	--	--
Chromium III	0	4.6E+02	6.0E+01	--	--	#DIV/0!	#DIV/0!	--	--	1.2E+02	1.5E+01	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!	--	--
Chromium VI	0	1.6E+01	1.1E+01	--	--	#DIV/0!	#DIV/0!	--	--	4.0E+00	2.8E+00	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!	--	--
Chromium, Total	0.18	--	--	1.0E+02	--	--	--	#DIV/0!	--	--	--	1.0E+01	--	--	--	#DIV/0!	--	--	--	#DIV/0!	--
Chrysene[c]	0	--	--	3.8E-03	1.8E-02	--	--	#DIV/0!	#DIV/0!	--	--	3.8E-04	1.8E-03	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Copper	0.65	1.1E+01	7.2E+00	1.3E+03	--	#DIV/0!	#DIV/0!	#DIV/0!	--	3.1E+00	2.3E+00	1.3E+02	--	#DIV/0!	#DIV/0!	#DIV/0!	--	#DIV/0!	#DIV/0!	#DIV/0!	--
Cyanide, Free	0	2.2E+01	5.2E+00	1.4E+02	1.6E+04	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	5.5E+00	1.3E+00	1.4E+01	1.6E+03	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
DDD[c]	0	--	--	3.1E-03	3.1E-03	--	--	#DIV/0!	#DIV/0!	--	--	3.1E-04	3.1E-04	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
DDE[c]	0	--	--	2.2E-03	2.2E-03	--	--	#DIV/0!	#DIV/0!	--	--	2.2E-04	2.2E-04	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
DDT[c]	0	1.1E+00	1.0E-03	2.2E-03	2.2E-03	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	2.8E-01	2.5E-04	2.2E-04	2.2E-04	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Demeton	0	--	1.0E-01	--	--	--	#DIV/0!	--	--	--	2.5E-02	--	--	--	#DIV/0!	--	--	--	#DIV/0!	--	--
Diazinon	0	1.7E-01	1.7E-01	--	--	#DIV/0!	#DIV/0!	--	--	4.3E-02	4.3E-02	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!	--	--
Dibenz(a,h)anthracene[c]	0	--	--	3.8E-02	1.8E-01	--	--	#DIV/0!	#DIV/0!	--	--	3.8E-03	1.8E-02	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
1,2-Dichlorobenzene	0	--	--	4.2E+02	1.3E+03	--	--	#DIV/0!	#DIV/0!	--	--	4.2E+01	1.3E+02	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
1,3-Dichlorobenzene	0	--	--	3.2E+02	9.6E+02	--	--	#DIV/0!	#DIV/0!	--	--	3.2E+01	9.6E+01	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
1,4-Dichlorobenzene	0	--	--	6.3E+01	1.9E+02	--	--	#DIV/0!	#DIV/0!	--	--	6.3E+00	1.9E+01	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
3,3-Dichlorobenzidine[c]	0	--	--	2.1E-01	2.8E-01	--	--	#DIV/0!	#DIV/0!	--	--	2.1E-02	2.8E-02	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Dichlorobromomethane[c]	0	--	--	5.5E+00	1.7E+02	--	--	#DIV/0!	#DIV/0!	--	--	5.5E-01	1.7E+01	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
1,2-Dichloroethane[c]	0	--	--	3.8E+00	3.7E+02	--	--	#DIV/0!	#DIV/0!	--	--	3.8E-01	3.7E+01	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
1,1-Dichloroethylene	0	--	--	3.3E+02	7.1E+03	--	--	#DIV/0!	#DIV/0!	--	--	3.3E+01	7.1E+02	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
1,2-trans-dichloroethylene	0	--	--	1.4E+02	1.0E+04	--	--	#DIV/0!	#DIV/0!	--	--	1.4E+01	1.0E+03	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
2,4-Dichlorophenol	0	--	--	7.7E+01	2.9E+02	--	--	#DIV/0!	#DIV/0!	--	--	7.7E+00	2.9E+01	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	1.0E+02	--	--	--	#DIV/0!	--	--	--	1.0E+01	--	--	--	#DIV/0!	--	--	--	#DIV/0!	--
1,2-Dichloropropane[c]	0	--	--	5.0E+00	1.5E+02	--	--	#DIV/0!	#DIV/0!	--	--	5.0E-01	1.5E+01	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
1,3-Dichloropropene[c]	0	--	--	3.4E+00	2.1E+02	--	--	#DIV/0!	#DIV/0!	--	--	3.4E-01	2.1E+01	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Dieldrin[c]	0	2.4E-01	5.6E-02	5.2E-04	5.4E-04	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	6.0E-02	1.4E-02	5.2E-05	5.4E-05	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Diethyl Phthalate	0	--	--	1.7E+04	4.4E+04	--	--	#DIV/0!	#DIV/0!	--	--	1.7E+03	4.4E+03	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
2,4-Dimethylphenol	0	--	--	3.8E+02	8.5E+02	--	--	#DIV/0!	#DIV/0!	--	--	3.8E+01	8.5E+01	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Dimethyl Phthalate	0	--	--	2.7E+05	1.1E+06	--	--	#DIV/0!	#DIV/0!	--	--	2.7E+04	1.1E+05	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Di-n-Butyl Phthalate	0	--	--	2.0E+03	4.5E+03	--	--	#DIV/0!	#DIV/0!	--	--	2.0E+02	4.5E+02	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
2,4 Dinitrophenol	0	--	--	6.9E+01	5.3E+03	--	--	#DIV/0!	#DIV/0!	--	--	6.9E+00	5.3E+02	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
2-Methyl-4,6-Dinitrophenol	0	--	--	1.3E+01	2.8E+02	--	--	#DIV/0!	#DIV/0!	--	--	1.3E+00	2.8E+01	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
2,4-Dinitrotoluene[c]	0	--	--	1.1E+00	3.4E+01	--	--	#DIV/0!	#DIV/0!	--	--	1.1E-01	3.4E+00	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin	0	--	--	5.0E-08	5.1E-08	--	--	#DIV/0!	#DIV/0!	--	--	5.0E-09	5.1E-09	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
1,2-Diphenylhydrazine[c]	0	--	--	3.6E-01	2.0E+00	--	--	#DIV/0!	#DIV/0!	--	--	3.6E-02	2.0E-01	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Alpha-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	5.5E-02	1.4E-02	6.2E+00	8.9E+00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Beta-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	5.5E-02	1.4E-02	6.2E+00	8.9E+00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	#DIV/0!	#DIV/0!	--	--	5.5E-02	1.4E-02	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!	--	--
Endosulfan Sulfate	0	--	--	6.2E+01	8.9E+01	--	--	#DIV/0!	#DIV/0!	--	--	6.2E+00	8.9E+00	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Endrin	0	8.6E-02	3.6E-02	5.9E-02	6.0E-02	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	2.2E-02	9.0E-03	5.9E-03	6.0E-03	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Endrin Aldehyde	0	--	--	2.9E-01	3.0E-01	--	--	#DIV/0!	#DIV/0!	--	--	2.9E-02	3.0E-02	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	5.3E+02	2.1E+03	--	--	#DIV/0!	#DIV/0!	--	--	5.3E+01	2.1E+02	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Fluoranthene	0	--	--	1.3E+02	1.4E+02	--	--	#DIV/0!	#DIV/0!	--	--	1.3E+01	1.4E+01	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Fluorene	0	--	--	1.1E+03	5.3E+03	--	--	#DIV/0!	#DIV/0!	--	--	1.1E+02	5.3E+02	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Foaming Agents	0	--	--	5.0E+02	--	--	--	#DIV/0!	--	--	--	5.0E+01	--	--	--	#DIV/0!	--	--	--	#DIV/0!	--
Guthion	0	--	1.0E-02	--	--	--	#DIV/0!	--	--	--	2.5E-03	--	--	--	#DIV/0!	--	--	--	#DIV/0!	--	--
Heptachlor [c]	0	5.2E-01	3.8E-03	7.9E-04	7.9E-04	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	1.3E-01	9.5E-04	7.9E-05	7.9E-05	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Heptachlor Epoxide[c]	0	5.2E-01	3.8E-03	3.9E-04	3.9E-04	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	1.3E-01	9.5E-04	3.9E-05	3.9E-05	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Hexachlorobenzene[c]	0	--	--	2.8E-03	2.9E-03	--	--	#DIV/0!	#DIV/0!	--	--	2.8E-04	2.9E-04	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Hexachlorobutadiene[c]	0	--	--	4.4E+00	1.8E+02	--	--	#DIV/0!	#DIV/0!	--	--	4.4E-01	1.8E+01	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Hexachlorocyclohexane Alpha-BHC[c]	0	--	--	2.6E-02	4.9E-02	--	--	#DIV/0!	#DIV/0!	--	--	2.6E-03	4.9E-03	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Hexachlorocyclohexane Beta BHC[c]	0	--	--	9.1E-02	1.7E-01	--	--	#DIV/0!	#DIV/0!	--	--	9.1E-03	1.7E-02	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Hexachlorocyclohexane Gamma-BHC[c] (Lindane)	0	9.5E-01	--	9.8E-01	1.8E+00	#DIV/0!	--	#DIV/0!	#DIV/0!	2.4E-01	--	9.8E-02	1.8E-01	#DIV/0!	--	#DIV/0!	#DIV/0!	#DIV/0!	--	#DIV/0!	#DIV/0!
Hexachlorocyclopentadiene	0	--	--	4.0E+01	1.1E+03	--	--	#DIV/0!	#DIV/0!	--	--	4.0E+00	1.1E+02	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Hexachloroethane[c]	0	--	--	1.4E+01	3.3E+01	--	--	#DIV/0!	#DIV/0!	--	--	1.4E+00	3.3E+00	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Hydrogen Sulfide	0	--	2.0E+00	--	--	--	#DIV/0!	--	--	--	5.0E-01	--	--	--	#DIV/0!	--	--	--	#DIV/0!	--	--
Indeno (1,2,3-cd) pyrene [c]	0	--	--	3.8E-02	1.8E-01	--	--	#DIV/0!	#DIV/0!	--	--	3.8E-03	1.8E-02	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Iron	0	--	--	3.0E+02	--	--	--	#DIV/0!	--	--	--	3.0E+01	--	--	--	#DIV/0!	--	--	--	#DIV/0!	--
Isophorone[c]	0	--	--	3.5E+02	9.6E+03	--	--	#DIV/0!	#DIV/0!	--	--	3.5E+01	9.6E+02	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Kepone	0	--	0.0E+00	--	--	--	#DIV/0!	--	--	--	0.0E+00	--	--	--	#DIV/0!	--	--	--	#DIV/0!	--	--
Lead	0	8.7E+01	9.8E+00	1.5E+01	--	#DIV/0!	#DIV/0!	#DIV/0!	--	2.2E+01	2.5E+00	1.5E+00	--	#DIV/0!	#DIV/0!	#DIV/0!	--	#DIV/0!	#DIV/0!	#DIV/0!	--
Malathion	0	--	1.0E-01	--	--	--	#DIV/0!	--	--	--	2.5E-02	--	--	--	#DIV/0!	--	--	--	#DIV/0!	--	--
Manganese	14.32	--	--	5.0E+01	--	--	--	#DIV/0!	--	--	--	1.8E+01	--	--	--	#DIV/0!	--	--	--	#DIV/0!	--
Mercury	0	1.4E+00	7.7E-01	--	--	#DIV/0!	#DIV/0!	--	--	3.5E-01	1.9E-01	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!	--	--
Methyl Bromide	0	--	--	4.7E+01	1.5E+03	--	--	#DIV/0!	#DIV/0!	--	--	4.7E+00	1.5E+02	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Methylene Chloride [c]	0	--	--	4.6E+01	5.9E+03	--	--	#DIV/0!	#DIV/0!	--	--	4.6E+00	5.9E+02	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Methoxychlor	0	--	3.0E-02	1.0E+02	--	--	#DIV/0!	#DIV/0!	--	--	7.5E-03	1.0E+01	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!	--
Mirex	0	--	0.0E+00	--	--	--	#DIV/0!	--	--	--	0.0E+00	--	--	--	#DIV/0!	--	--	--	#DIV/0!	--	--
Nickel	0.39	1.5E+02	1.6E+01	6.1E+02	4.6E+03	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	3.7E+01	4.4E+00	6.1E+01	4.6E+02	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Nitrate (as N)	890	--	--	1.0E+04	--	--	--	#DIV/0!	--	--	--	1.8E+03	--	--	--	#DIV/0!	--	--	--	#DIV/0!	--
Nitrobenzene	0	--	--	1.7E+01	6.9E+02	--	--	#DIV/0!	#DIV/0!	--	--	1.7E+00	6.9E+01	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
N-Nitrosodimethylamine[c]	0	--	--	6.9E-03	3.0E+01	--	--	#DIV/0!	#DIV/0!	--	--	6.9E-04	3.0E+00	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
N-Nitrosodiphenylamine[c]	0	--	--	3.3E+01	6.0E+01	--	--	#DIV/0!	#DIV/0!	--	--	3.3E+00	6.0E+00	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
N-Nitrosodi-n-propylamine[c]	0	--	--	5.0E-02	5.1E+00	--	--	#DIV/0!	#DIV/0!	--	--	5.0E-03	5.1E-01	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Nonylphenol	0	2.8E+01	6.6E+00	--	--	#DIV/0!	#DIV/0!	--	--	7.0E+00	1.7E+00	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!	--	--
Parathion	0	6.5E-02	1.3E-02	--	--	#DIV/0!	#DIV/0!	--	--	1.6E-02	3.3E-03	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!	--	--
PCB Total[c]	0	--	1.4E-02	6.4E-04	6.4E-04	--	#DIV/0!	#DIV/0!	#DIV/0!	--	3.5E-03	6.4E-05	6.4E-05	--	#DIV/0!	#DIV/0!	#DIV/0!	--	#DIV/0!	#DIV/0!	#DIV/0!
Pentachlorophenol [c]	0	1.2E+01	9.2E+00	2.7E+00	3.0E+01	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	3.0E+00	2.3E+00	2.7E-01	3.0E+00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Phenol	0	--	--	1.0E+04	8.6E+05	--	--	#DIV/0!	#DIV/0!	--	--	1.0E+03	8.6E+04	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Pyrene	0	--	--	8.3E+02	4.0E+03	--	--	#DIV/0!	#DIV/0!	--	--	8.3E+01	4.0E+02	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Radionuclides	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gross Alpha Activity (pCi/L)	0	--	--	1.5E+01	--	--	--	#DIV/0!	--	--	--	1.5E+00	--	--	--	#DIV/0!	--	--	--	#DIV/0!	--
Beta and Photon Activity (mrem/yr)	0	--	--	4.0E+00	4.0E+00	--	--	#DIV/0!	#DIV/0!	--	--	4.0E-01	4.0E-01	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Radium 226 + 228 (pCi/L)	0	--	--	5.0E+00	--	--	--	#DIV/0!	--	--	--	5.0E-01	--	--	--	#DIV/0!	--	--	--	#DIV/0!	--
Uranium (ug/l)	0	--	--	3.0E+01	--	--	--	#DIV/0!	--	--	--	3.0E+00	--	--	--	#DIV/0!	--	--	--	#DIV/0!	--

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	1.7E+02	4.2E+03	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	5.0E+00	1.3E+00	1.7E+01	4.2E+02	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Silver	0	2.3E+00	--	--	--	#DIV/0!	--	--	--	5.6E-01	--	--	--	#DIV/0!	--	--	--	#DIV/0!	--	--	--
Sulfate	7870	--	--	2.5E+05	--	--	--	#DIV/0!	--	--	--	3.2E+04	--	--	--	#DIV/0!	--	--	--	#DIV/0!	--
1,1,2,2-Tetrachloroethane[c]	0	--	--	1.7E+00	4.0E+01	--	--	#DIV/0!	#DIV/0!	--	--	1.7E-01	4.0E+00	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Tetrachloroethylene[c]	0	--	--	6.9E+00	3.3E+01	--	--	#DIV/0!	#DIV/0!	--	--	6.9E-01	3.3E+00	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Thallium	0	--	--	2.4E-01	4.7E-01	--	--	#DIV/0!	#DIV/0!	--	--	2.4E-02	4.7E-02	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Toluene	0	--	--	5.1E+02	6.0E+03	--	--	#DIV/0!	#DIV/0!	--	--	5.1E+01	6.0E+02	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Total dissolved solids	0	--	--	5.0E+05	--	--	--	#DIV/0!	--	--	--	5.0E+04	--	--	--	#DIV/0!	--	--	--	#DIV/0!	--
Toxaphene [c]	0	7.3E-01	2.0E-04	2.8E-03	2.8E-03	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	1.8E-01	5.0E-05	2.8E-04	2.8E-04	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Tributyltin	0	4.6E-01	7.2E-02	--	--	#DIV/0!	#DIV/0!	--	--	1.2E-01	1.8E-02	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!	--	--
1,2,4-Trichlorobenzene	0	--	--	3.5E+01	7.0E+01	--	--	#DIV/0!	#DIV/0!	--	--	3.5E+00	7.0E+00	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
1,1,2-Trichloroethane[c]	0	--	--	5.9E+00	1.6E+02	--	--	#DIV/0!	#DIV/0!	--	--	5.9E-01	1.6E+01	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Trichloroethylene [c]	0	--	--	2.5E+01	3.0E+02	--	--	#DIV/0!	#DIV/0!	--	--	2.5E+00	3.0E+01	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
2,4,6-Trichlorophenol [c]	0	--	--	1.4E+01	2.4E+01	--	--	#DIV/0!	#DIV/0!	--	--	1.4E+00	2.4E+00	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	5.0E+01	--	--	--	#DIV/0!	--	--	--	5.0E+00	--	--	--	#DIV/0!	--	--	--	#DIV/0!	--
Vinyl Chloride[c]	0	--	--	2.5E-01	2.4E+01	--	--	#DIV/0!	#DIV/0!	--	--	2.5E-02	2.4E+00	--	--	#DIV/0!	#DIV/0!	--	--	#DIV/0!	#DIV/0!
Zinc	3.68	9.5E+01	9.6E+01	7.4E+03	2.6E+04	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	2.6E+01	2.7E+01	7.4E+02	2.6E+03	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
   Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	#DIV/0!
Arsenic	#DIV/0!
Barium	#DIV/0!
Cadmium	#DIV/0!
Chromium III	#DIV/0!
Chromium VI	#DIV/0!
Copper	#DIV/0!
Iron	#DIV/0!
Lead	#DIV/0!
Manganese	#DIV/0!
Mercury	#DIV/0!
Nickel	#DIV/0!
Selenium	#DIV/0!
Silver	#DIV/0!
Zinc	#DIV/0!

Note: do not use QL's lower than the minimum QL's provided in agency guidance

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: RAAP - Outfall 999

Permit No.: VA0000248

Receiving Stream: New River

Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO3) =	78	mg/L
90% Temperature (Annual) =	23.3	deg C
90% Temperature (Wet season) =	13.8	deg C
90% Maximum pH =	8.22	SU
10% Maximum pH =	7.32	SU
Tier Designation (1 or 2) =	2	
Public Water Supply (PWS) Y/N? =	y	
Trout Present Y/N? =	y	
Early Life Stages Present Y/N? =	y	

Stream Flows

1Q10 (Annual) =	449	MGD
7Q10 (Annual) =	559	MGD
30Q10 (Annual) =	646	MGD
1Q10 (Wet season) =	528	MGD
30Q10 (Wet season)	1067	MGD
30Q5 =	726	MGD
Harmonic Mean =	1520	MGD

Mixing Information

Annual - 1Q10 Mix =	100	%
- 7Q10 Mix =	100	%
- 30Q10 Mix =	100	%
Wet Season - 1Q10 Mix =	100	%
- 30Q10 Mix =	100	%

Effluent Information

Mean Hardness (as CaCO3) =	78	mg/L
90% Temp (Annual) =	23.3	deg C
90% Temp (Wet season) =	13.8	deg C
90% Maximum pH =	8.22	SU
10% Maximum pH =	7.32	SU
Discharge Flow =	22	MGD

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenapthene	0	--	--	6.7E+02	9.9E+02	--	--	2.3E+04	3.4E+04	--	--	6.7E+01	9.9E+01	--	--	2.3E+03	3.4E+03	--	--	2.3E+03	3.4E+03
Acrolein	0	--	--	6.1E+00	9.3E+00	--	--	2.1E+02	3.2E+02	--	--	6.1E-01	9.3E-01	--	--	2.1E+01	3.2E+01	--	--	2.1E+01	3.2E+01
Acrylonitrile[c]	0	--	--	5.1E-01	2.5E+00	--	--	3.6E+01	1.8E+02	--	--	5.1E-02	2.5E-01	--	--	3.6E+00	1.8E+01	--	--	3.6E+00	1.8E+01
Aldrin [c]	0	3.0E+00	--	4.9E-04	5.0E-04	6.4E+01	--	3.4E-02	3.5E-02	7.5E-01	--	4.9E-05	5.0E-05	1.6E+01	--	3.4E-03	3.5E-03	1.6E+01	--	3.4E-03	3.5E-03
Ammonia-N (mg/l) (Yearly)	0	3.68E+00	9.86E-01	--	--	7.9E+01	3.0E+01	--	--	9.20E-01	2.46E-01	--	--	2.0E+01	7.5E+00	--	--	2.0E+01	7.5E+00	--	--
Ammonia-N (mg/l) (High Flow)	0	3.68E+00	1.74E+00	--	--	9.2E+01	8.6E+01	--	--	9.20E-01	4.34E-01	--	--	2.3E+01	2.1E+01	--	--	2.3E+01	2.1E+01	--	--
Anthracene	0	--	--	8.3E+03	4.0E+04	--	--	2.8E+05	1.4E+06	--	--	8.3E+02	4.0E+03	--	--	2.8E+04	1.4E+05	--	--	2.8E+04	1.4E+05
Antimony	0	--	--	5.6E+00	6.4E+02	--	--	1.9E+02	2.2E+04	--	--	5.6E-01	6.4E+01	--	--	1.9E+01	2.2E+03	--	--	1.9E+01	2.2E+03
Arsenic	0.35	3.4E+02	1.5E+02	1.0E+01	--	7.3E+03	4.0E+03	3.3E+02	--	8.5E+01	3.8E+01	1.3E+00	--	1.8E+03	9.9E+02	3.3E+01	--	1.8E+03	9.9E+02	3.3E+01	--
Barium	0	--	--	2.0E+03	--	--	--	6.8E+04	--	--	--	2.0E+02	--	--	--	6.8E+03	--	--	--	6.8E+03	--
Benzene [c]	0	--	--	2.2E+01	5.1E+02	--	--	1.5E+03	3.6E+04	--	--	2.2E+00	5.1E+01	--	--	1.5E+02	3.6E+03	--	--	1.5E+02	3.6E+03
Benzidine[c]	0	--	--	8.6E-04	2.0E-03	--	--	6.0E-02	1.4E-01	--	--	8.6E-05	2.0E-04	--	--	6.0E-03	1.4E-02	--	--	6.0E-03	1.4E-02
Benzo (a) anthracene [c]	0	--	--	3.8E-02	1.8E-01	--	--	2.7E+00	1.3E+01	--	--	3.8E-03	1.8E-02	--	--	2.7E-01	1.3E+00	--	--	2.7E-01	1.3E+00
Benzo (b) fluoranthene [c]	0	--	--	3.8E-02	1.8E-01	--	--	2.7E+00	1.3E+01	--	--	3.8E-03	1.8E-02	--	--	2.7E-01	1.3E+00	--	--	2.7E-01	1.3E+00
Benzo (k) fluoranthene [c]	0	--	--	3.8E-02	1.8E-01	--	--	2.7E+00	1.3E+01	--	--	3.8E-03	1.8E-02	--	--	2.7E-01	1.3E+00	--	--	2.7E-01	1.3E+00
Benzo (a) pyrene [c]	0	--	--	3.8E-02	1.8E-01	--	--	2.7E+00	1.3E+01	--	--	3.8E-03	1.8E-02	--	--	2.7E-01	1.3E+00	--	--	2.7E-01	1.3E+00
Bis2-Chloroethyl Ether[c]	0	--	--	3.0E-01	5.3E+00	--	--	2.1E+01	3.7E+02	--	--	3.0E-02	5.3E-01	--	--	2.1E+00	3.7E+01	--	--	2.1E+00	3.7E+01
Bis2-Chloroisopropyl Ether	0	--	--	1.4E+03	6.5E+04	--	--	4.8E+04	2.2E+06	--	--	1.4E+02	6.5E+03	--	--	4.8E+03	2.2E+05	--	--	4.8E+03	2.2E+05
Bis 2-Ethylhexyl Phthalate[c]	0	--	--	1.2E+01	2.2E+01	--	--	8.4E+02	1.5E+03	--	--	1.2E+00	2.2E+00	--	--	8.4E+01	1.5E+02	--	--	8.4E+01	1.5E+02
Bromoform [c]	0	--	--	4.3E+01	1.4E+03	--	--	3.0E+03	9.8E+04	--	--	4.3E+00	1.4E+02	--	--	3.0E+02	9.8E+03	--	--	3.0E+02	9.8E+03
Butylbenzylphthalate	0	--	--	1.5E+03	1.9E+03	--	--	5.1E+04	6.5E+04	--	--	1.5E+02	1.9E+02	--	--	5.1E+03	6.5E+03	--	--	5.1E+03	6.5E+03
Cadmium	0	3.0E+00	9.3E-01	5.0E+00	--	6.3E+01	2.5E+01	1.7E+02	--	7.4E-01	2.3E-01	5.0E-01	--	1.6E+01	6.2E+00	1.7E+01	--	1.6E+01	6.2E+00	1.7E+01	--
Carbon Tetrachloride [c]	0	--	--	2.3E+00	1.6E+01	--	--	1.6E+02	1.1E+03	--	--	2.3E-01	1.6E+00	--	--	1.6E+01	1.1E+02	--	--	1.6E+01	1.1E+02
Chlordane [c]	0	2.4E+00	4.3E-03	8.0E-03	8.1E-03	5.1E+01	1.1E-01	5.6E-01	5.7E-01	6.0E-01	1.1E-03	8.0E-04	8.1E-04	1.3E+01	2.8E-02	5.6E-02	5.7E-02	1.3E+01	2.8E-02	5.6E-02	5.7E-02
Chloride	7960	8.6E+05	2.3E+05	2.5E+05	--	1.8E+07	5.9E+06	8.2E+06	--	2.2E+05	6.3E+04	3.2E+04	--	4.6E+06	1.5E+06	8.3E+05	--	4.6E+06	1.5E+06	8.3E+05	--
TRC	0	1.9E+01	1.1E+01	--	--	4.1E+02	2.9E+02	--	--	4.8E+00	2.8E+00	--	--	1.0E+02	7.3E+01	--	--	1.0E+02	7.3E+01	--	--
Chlorobenzene	0	--	--	1.3E+02	1.6E+03	--	--	4.4E+03	5.4E+04	--	--	1.3E+01	1.6E+02	--	--	4.4E+02	5.4E+03	--	--	4.4E+02	5.4E+03

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane[E]	0	--	--	4.0E+00	1.3E+02	--	--	2.8E+02	9.1E+03	--	--	4.0E-01	1.3E+01	--	--	2.8E+01	9.1E+02	--	--	2.8E+01	9.1E+02
Chloroform	0	--	--	3.4E+02	1.1E+04	--	--	1.2E+04	3.7E+05	--	--	3.4E+01	1.1E+03	--	--	1.2E+03	3.7E+04	--	--	1.2E+03	3.7E+04
2-Chloronaphthalene	0	--	--	1.0E+03	1.6E+03	--	--	3.4E+04	5.4E+04	--	--	1.0E+02	1.6E+02	--	--	3.4E+03	5.4E+03	--	--	3.4E+03	5.4E+03
2-Chlorophenol	0	--	--	8.1E+01	1.5E+02	--	--	2.8E+03	5.1E+03	--	--	8.1E+00	1.5E+01	--	--	2.8E+02	5.1E+02	--	--	2.8E+02	5.1E+02
Chlorpyrifos	0	8.3E-02	4.1E-02	--	--	1.8E+00	1.1E+00	--	--	2.1E-02	1.0E-02	--	--	4.4E-01	2.7E-01	--	--	4.4E-01	2.7E-01	--	--
Chromium III	0	4.6E+02	6.0E+01	--	--	1.0E+04	1.6E+03	--	--	1.2E+02	1.5E+01	--	--	2.5E+03	4.0E+02	--	--	2.5E+03	4.0E+02	--	--
Chromium VI	0	1.6E+01	1.1E+01	--	--	3.4E+02	2.9E+02	--	--	4.0E+00	2.8E+00	--	--	8.6E+01	7.3E+01	--	--	8.6E+01	7.3E+01	--	--
Chromium, Total	0.18	--	--	1.0E+02	--	--	--	3.4E+03	--	--	--	1.0E+01	--	--	--	3.4E+02	--	--	--	3.4E+02	--
Chrysene[C]	0	--	--	3.8E-03	1.8E-02	--	--	2.7E-01	1.3E+00	--	--	3.8E-04	1.8E-03	--	--	2.7E-02	1.3E-01	--	--	2.7E-02	1.3E-01
Copper	0.65	1.1E+01	7.2E+00	1.3E+03	--	2.1E+02	1.7E+02	4.4E+04	--	3.1E+00	2.3E+00	1.3E+02	--	5.4E+01	4.4E+01	4.4E+03	--	5.4E+01	4.4E+01	4.4E+03	--
Cyanide, Free	0	2.2E+01	5.2E+00	1.4E+02	1.6E+04	4.7E+02	1.4E+02	4.8E+03	5.4E+05	5.5E+00	1.3E+00	1.4E+01	1.6E+03	1.2E+02	3.4E+01	4.8E+02	5.4E+04	1.2E+02	3.4E+01	4.8E+02	5.4E+04
DDD[C]	0	--	--	3.1E-03	3.1E-03	--	--	2.2E-01	2.2E-01	--	--	3.1E-04	3.1E-04	--	--	2.2E-02	2.2E-02	--	--	2.2E-02	2.2E-02
DDE[C]	0	--	--	2.2E-03	2.2E-03	--	--	1.5E-01	1.5E-01	--	--	2.2E-04	2.2E-04	--	--	1.5E-02	1.5E-02	--	--	1.5E-02	1.5E-02
DDT[C]	0	1.1E+00	1.0E-03	2.2E-03	2.2E-03	2.4E+01	2.6E-02	1.5E-01	1.5E-01	2.8E-01	2.5E-04	2.2E-04	2.2E-04	5.9E+00	6.6E-03	1.5E-02	1.5E-02	5.9E+00	6.6E-03	1.5E-02	1.5E-02
Demeton	0	--	1.0E-01	--	--	--	2.6E+00	--	--	--	2.5E-02	--	--	--	6.6E-01	--	--	--	6.6E-01	--	--
Diazinon	0	1.7E-01	1.7E-01	--	--	3.6E+00	4.5E+00	--	--	4.3E-02	4.3E-02	--	--	9.1E-01	1.1E+00	--	--	9.1E-01	1.1E+00	--	--
Dibenz(a,h)anthracene[C]	0	--	--	3.8E-02	1.8E-01	--	--	2.7E+00	1.3E+01	--	--	3.8E-03	1.8E-02	--	--	2.7E-01	1.3E+00	--	--	2.7E-01	1.3E+00
1,2-Dichlorobenzene	0	--	--	4.2E+02	1.3E+03	--	--	1.4E+04	4.4E+04	--	--	4.2E+01	1.3E+02	--	--	1.4E+03	4.4E+03	--	--	1.4E+03	4.4E+03
1,3-Dichlorobenzene	0	--	--	3.2E+02	9.6E+02	--	--	1.1E+04	3.3E+04	--	--	3.2E+01	9.6E+01	--	--	1.1E+03	3.3E+03	--	--	1.1E+03	3.3E+03
1,4-Dichlorobenzene	0	--	--	6.3E+01	1.9E+02	--	--	2.1E+03	6.5E+03	--	--	6.3E+00	1.9E+01	--	--	2.1E+02	6.5E+02	--	--	2.1E+02	6.5E+02
3,3-Dichlorobenzidine[E]	0	--	--	2.1E-01	2.8E-01	--	--	1.5E+01	2.0E+01	--	--	2.1E-02	2.8E-02	--	--	1.5E+00	2.0E+00	--	--	1.5E+00	2.0E+00
Dichlorobromomethane[C]	0	--	--	5.5E+00	1.7E+02	--	--	3.9E+02	1.2E+04	--	--	5.5E-01	1.7E+01	--	--	3.9E+01	1.2E+03	--	--	3.9E+01	1.2E+03
1,2-Dichloroethane[C]	0	--	--	3.8E+00	3.7E+02	--	--	2.7E+02	2.6E+04	--	--	3.8E-01	3.7E+01	--	--	2.7E+01	2.6E+03	--	--	2.7E+01	2.6E+03
1,1-Dichloroethylene	0	--	--	3.3E+02	7.1E+03	--	--	1.1E+04	2.4E+05	--	--	3.3E+01	7.1E+02	--	--	1.1E+03	2.4E+04	--	--	1.1E+03	2.4E+04
1,2-trans-dichloroethylene	0	--	--	1.4E+02	1.0E+04	--	--	4.8E+03	3.4E+05	--	--	1.4E+01	1.0E+03	--	--	4.8E+02	3.4E+04	--	--	4.8E+02	3.4E+04
2,4-Dichlorophenol	0	--	--	7.7E+01	2.9E+02	--	--	2.6E+03	9.9E+03	--	--	7.7E+00	2.9E+01	--	--	2.6E+02	9.9E+02	--	--	2.6E+02	9.9E+02
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	1.0E+02	--	--	--	3.4E+03	--	--	--	1.0E+01	--	--	--	3.4E+02	--	--	--	3.4E+02	--
1,2-Dichloropropane[E]	0	--	--	5.0E+00	1.5E+02	--	--	3.5E+02	1.1E+04	--	--	5.0E-01	1.5E+01	--	--	3.5E+01	1.1E+03	--	--	3.5E+01	1.1E+03
1,3-Dichloropropene[C]	0	--	--	3.4E+00	2.1E+02	--	--	2.4E+02	1.5E+04	--	--	3.4E-01	2.1E+01	--	--	2.4E+01	1.5E+03	--	--	2.4E+01	1.5E+03
Dieldrin[C]	0	2.4E-01	5.6E-02	5.2E-04	5.4E-04	5.1E+00	1.5E+00	3.6E-02	3.8E-02	6.0E-02	1.4E-02	5.2E-05	5.4E-05	1.3E+00	3.7E-01	3.6E-03	3.8E-03	1.3E+00	3.7E-01	3.6E-03	3.8E-03
Diethyl Phthalate	0	--	--	1.7E+04	4.4E+04	--	--	5.8E+05	1.5E+06	--	--	1.7E+03	4.4E+03	--	--	5.8E+04	1.5E+05	--	--	5.8E+04	1.5E+05
2,4-Dimethylphenol	0	--	--	3.8E+02	8.5E+02	--	--	1.3E+04	2.9E+04	--	--	3.8E+01	8.5E+01	--	--	1.3E+03	2.9E+03	--	--	1.3E+03	2.9E+03
Dimethyl Phthalate	0	--	--	2.7E+05	1.1E+06	--	--	9.2E+06	3.7E+07	--	--	2.7E+04	1.1E+05	--	--	9.2E+05	3.7E+06	--	--	9.2E+05	3.7E+06
Di-n-Butyl Phthalate	0	--	--	2.0E+03	4.5E+03	--	--	6.8E+04	1.5E+05	--	--	2.0E+02	4.5E+02	--	--	6.8E+03	1.5E+04	--	--	6.8E+03	1.5E+04
2,4 Dinitrophenol	0	--	--	6.9E+01	5.3E+03	--	--	2.3E+03	1.8E+05	--	--	6.9E+00	5.3E+02	--	--	2.3E+02	1.8E+04	--	--	2.3E+02	1.8E+04
2-Methyl-4,6-Dinitrophenol	0	--	--	1.3E+01	2.8E+02	--	--	4.4E+02	9.5E+03	--	--	1.3E+00	2.8E+01	--	--	4.4E+01	9.5E+02	--	--	4.4E+01	9.5E+02
2,4-Dinitrotoluene[C]	0	--	--	1.1E+00	3.4E+01	--	--	7.7E+01	2.4E+03	--	--	1.1E-01	3.4E+00	--	--	7.7E+00	2.4E+02	--	--	7.7E+00	2.4E+02
Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin	0	--	--	5.0E-08	5.1E-08	--	--	1.7E-06	1.7E-06	--	--	5.0E-09	5.1E-09	--	--	1.7E-07	1.7E-07	--	--	1.7E-07	1.7E-07
1,2-Diphenylhydrazine[E]	0	--	--	3.6E-01	2.0E+00	--	--	2.5E+01	1.4E+02	--	--	3.6E-02	2.0E-01	--	--	2.5E+00	1.4E+01	--	--	2.5E+00	1.4E+01
Alpha-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	4.7E+00	1.5E+00	2.1E+03	3.0E+03	5.5E-02	1.4E-02	6.2E+00	8.9E+00	1.2E+00	3.7E-01	2.1E+02	3.0E+02	1.2E+00	3.7E-01	2.1E+02	3.0E+02
Beta-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	4.7E+00	1.5E+00	2.1E+03	3.0E+03	5.5E-02	1.4E-02	6.2E+00	8.9E+00	1.2E+00	3.7E-01	2.1E+02	3.0E+02	1.2E+00	3.7E-01	2.1E+02	3.0E+02
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	4.7E+00	1.5E+00	--	--	5.5E-02	1.4E-02	--	--	1.2E+00	3.7E-01	--	--	1.2E+00	3.7E-01	--	--
Endosulfan Sulfate	0	--	--	6.2E+01	8.9E+01	--	--	2.1E+03	3.0E+03	--	--	6.2E+00	8.9E+00	--	--	2.1E+02	3.0E+02	--	--	2.1E+02	3.0E+02
Endrin	0	8.6E-02	3.6E-02	5.9E-02	6.0E-02	1.8E+00	9.5E-01	2.0E+00	2.0E+00	2.2E-02	9.0E-03	5.9E-03	6.0E-03	4.6E-01	2.4E-01	2.0E-01	2.0E-01	4.6E-01	2.4E-01	2.0E-01	2.0E-01
Endrin Aldehyde	0	--	--	2.9E-01	3.0E-01	--	--	9.9E+00	1.0E+01	--	--	2.9E-02	3.0E-02	--	--	9.9E-01	1.0E+00	--	--	9.9E-01	1.0E+00

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	5.3E+02	2.1E+03	--	--	1.8E+04	7.1E+04	--	--	5.3E+01	2.1E+02	--	--	1.8E+03	7.1E+03	--	--	1.8E+03	7.1E+03
Fluoranthene	0	--	--	1.3E+02	1.4E+02	--	--	4.4E+03	4.8E+03	--	--	1.3E+01	1.4E+01	--	--	4.4E+02	4.8E+02	--	--	4.4E+02	4.8E+02
Fluorene	0	--	--	1.1E+03	5.3E+03	--	--	3.7E+04	1.8E+05	--	--	1.1E+02	5.3E+02	--	--	3.7E+03	1.8E+04	--	--	3.7E+03	1.8E+04
Foaming Agents	0	--	--	5.0E+02	--	--	--	1.7E+04	--	--	--	5.0E+01	--	--	--	1.7E+03	--	--	--	1.7E+03	--
Guthion	0	--	1.0E-02	--	--	--	2.6E-01	--	--	--	2.5E-03	--	--	--	6.6E-02	--	--	--	6.6E-02	--	--
Heptachlor [c]	0	5.2E-01	3.8E-03	7.9E-04	7.9E-04	1.1E+01	1.0E-01	5.5E-02	5.5E-02	1.3E-01	9.5E-04	7.9E-05	7.9E-05	2.8E+00	2.5E-02	5.5E-03	5.5E-03	2.8E+00	2.5E-02	5.5E-03	5.5E-03
Heptachlor Epoxide[c]	0	5.2E-01	3.8E-03	3.9E-04	3.9E-04	1.1E+01	1.0E-01	2.7E-02	2.7E-02	1.3E-01	9.5E-04	3.9E-05	3.9E-05	2.8E+00	2.5E-02	2.7E-03	2.7E-03	2.8E+00	2.5E-02	2.7E-03	2.7E-03
Hexachlorobenzene[c]	0	--	--	2.8E-03	2.9E-03	--	--	2.0E-01	2.0E-01	--	--	2.8E-04	2.9E-04	--	--	2.0E-02	2.0E-02	--	--	2.0E-02	2.0E-02
Hexachlorobutadiene[c]	0	--	--	4.4E+00	1.8E+02	--	--	3.1E+02	1.3E+04	--	--	4.4E-01	1.8E+01	--	--	3.1E+01	1.3E+03	--	--	3.1E+01	1.3E+03
Hexachlorocyclohexane Alpha-BHC[c]	0	--	--	2.6E-02	4.9E-02	--	--	1.8E+00	3.4E+00	--	--	2.6E-03	4.9E-03	--	--	1.8E-01	3.4E-01	--	--	1.8E-01	3.4E-01
Hexachlorocyclohexane Beta BHC[c]	0	--	--	9.1E-02	1.7E-01	--	--	6.4E+00	1.2E+01	--	--	9.1E-03	1.7E-02	--	--	6.4E-01	1.2E+00	--	--	6.4E-01	1.2E+00
Hexachlorocyclohexane Gamma-BHC[c] (Lindane)	0	9.5E-01	--	9.8E-01	1.8E+00	2.0E+01	--	6.9E+01	1.3E+02	2.4E-01	--	9.8E-02	1.8E-01	5.1E+00	--	6.9E+00	1.3E+01	5.1E+00	--	6.9E+00	1.3E+01
Hexachlorocyclopentadiene	0	--	--	4.0E+01	1.1E+03	--	--	1.4E+03	3.7E+04	--	--	4.0E+00	1.1E+02	--	--	1.4E+02	3.7E+03	--	--	1.4E+02	3.7E+03
Hexachloroethane[c]	0	--	--	1.4E+01	3.3E+01	--	--	9.8E+02	2.3E+03	--	--	1.4E+00	3.3E+00	--	--	9.8E+01	2.3E+02	--	--	9.8E+01	2.3E+02
Hydrogen Sulfide	0	--	2.0E+00	--	--	--	5.3E+01	--	--	--	5.0E-01	--	--	--	1.3E+01	--	--	--	1.3E+01	--	--
Indeno (1,2,3-cd) pyrene [c]	0	--	--	3.8E-02	1.8E-01	--	--	2.7E+00	1.3E+01	--	--	3.8E-03	1.8E-02	--	--	2.7E-01	1.3E+00	--	--	2.7E-01	1.3E+00
Iron	0	--	--	3.0E+02	--	--	--	1.0E+04	--	--	--	3.0E+01	--	--	--	1.0E+03	--	--	--	1.0E+03	--
Isophorone[c]	0	--	--	3.5E+02	9.6E+03	--	--	2.5E+04	6.7E+05	--	--	3.5E+01	9.6E+02	--	--	2.5E+03	6.7E+04	--	--	2.5E+03	6.7E+04
Kepone	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--
Lead	0	8.7E+01	9.8E+00	1.5E+01	--	1.9E+03	2.6E+02	5.1E+02	--	2.2E+01	2.5E+00	1.5E+00	--	4.6E+02	6.5E+01	5.1E+01	--	4.6E+02	6.5E+01	5.1E+01	--
Malathion	0	--	1.0E-01	--	--	--	2.6E+00	--	--	--	2.5E-02	--	--	--	6.6E-01	--	--	--	6.6E-01	--	--
Manganese	14.32	--	--	5.0E+01	--	--	--	1.2E+03	--	--	--	1.8E+01	--	--	--	1.4E+02	--	--	--	1.4E+02	--
Mercury	0	1.4E+00	7.7E-01	- -	- -	3.0E+01	2.0E+01	- -	- -	3.5E-01	1.9E-01	- -	--	7.5E+00	5.1E+00	- -	--	7.5E+00	5.1E+00	- -	- -
Methyl Bromide	0	--	--	4.7E+01	1.5E+03	--	--	1.6E+03	5.1E+04	--	--	4.7E+00	1.5E+02	--	--	1.6E+02	5.1E+03	--	--	1.6E+02	5.1E+03
Methylene Chloride [c]	0	--	--	4.6E+01	5.9E+03	--	--	3.2E+03	4.1E+05	--	--	4.6E+00	5.9E+02	--	--	3.2E+02	4.1E+04	--	--	3.2E+02	4.1E+04
Methoxychlor	0	--	3.0E-02	1.0E+02	--	--	7.9E-01	3.4E+03	--	--	7.5E-03	1.0E+01	--	--	2.0E-01	3.4E+02	--	--	2.0E-01	3.4E+02	--
Mirex	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--
Nickel	0.39	1.5E+02	1.6E+01	6.1E+02	4.6E+03	3.2E+03	4.2E+02	2.1E+04	1.6E+05	3.7E+01	4.4E+00	6.1E+01	4.6E+02	7.9E+02	1.1E+02	2.1E+03	1.6E+04	7.9E+02	1.1E+02	2.1E+03	1.6E+04
Nitrate (as N)	890	--	--	1.0E+04	--	--	--	3.1E+05	--	--	--	1.8E+03	--	--	--	3.2E+04	--	--	--	3.2E+04	--
Nitrobenzene	0	--	--	1.7E+01	6.9E+02	--	--	5.8E+02	2.3E+04	--	--	1.7E+00	6.9E+01	--	--	5.8E+01	2.3E+03	--	--	5.8E+01	2.3E+03
N-Nitrosodimethylamine[c]	0	--	--	6.9E-03	3.0E+01	--	--	4.8E-01	2.1E+03	--	--	6.9E-04	3.0E+00	--	--	4.8E-02	2.1E+02	--	--	4.8E-02	2.1E+02
N-Nitrosodiphenylamine[c]	0	--	--	3.3E+01	6.0E+01	--	--	2.3E+03	4.2E+03	--	--	3.3E+00	6.0E+00	--	--	2.3E+02	4.2E+02	--	--	2.3E+02	4.2E+02
N-Nitrosodi-n-propylamine[c]	0	--	--	5.0E-02	5.1E+00	--	--	3.5E+00	3.6E+02	--	--	5.0E-03	5.1E-01	--	--	3.5E-01	3.6E+01	--	--	3.5E-01	3.6E+01
Nonylphenol	0	2.8E+01	6.6E+00	--	--	6.0E+02	1.7E+02	--	--	7.0E+00	1.7E+00	--	--	1.5E+02	4.4E+01	--	--	1.5E+02	4.4E+01	--	--
Parathion	0	6.5E-02	1.3E-02	--	--	1.4E+00	3.4E-01	--	--	1.6E-02	3.3E-03	--	--	3.5E-01	8.6E-02	--	--	3.5E-01	8.6E-02	--	--
PCB Total[c]	0	--	1.4E-02	6.4E-04	6.4E-04	--	3.7E-01	4.5E-02	4.5E-02	--	3.5E-03	6.4E-05	6.4E-05	--	9.2E-02	4.5E-03	4.5E-03	--	9.2E-02	4.5E-03	4.5E-03
Pentachlorophenol [c]	0	1.2E+01	9.2E+00	2.7E+00	3.0E+01	2.6E+02	2.4E+02	1.9E+02	2.1E+03	3.0E+00	2.3E+00	2.7E-01	3.0E+00	6.4E+01	6.1E+01	1.9E+01	2.1E+02	6.4E+01	6.1E+01	1.9E+01	2.1E+02
Phenol	0	--	--	1.0E+04	8.6E+05	--	--	3.4E+05	2.9E+07	--	--	1.0E+03	8.6E+04	--	--	3.4E+04	2.9E+06	--	--	3.4E+04	2.9E+06
Pyrene	0	--	--	8.3E+02	4.0E+03	--	--	2.8E+04	1.4E+05	--	--	8.3E+01	4.0E+02	--	--	2.8E+03	1.4E+04	--	--	2.8E+03	1.4E+04
Radionuclides	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gross Alpha Activity (pCi/L)	0	--	--	1.5E+01	--	--	--	5.1E+02	--	--	--	1.5E+00	--	--	--	5.1E+01	--	--	--	5.1E+01	--
Beta and Photon Activity (mrem/yr)	0	--	--	4.0E+00	4.0E+00	--	--	1.4E+02	1.4E+02	--	--	4.0E-01	4.0E-01	--	--	1.4E+01	1.4E+01	--	--	1.4E+01	1.4E+01
Radium 226 + 228 (pCi/L)	0	--	--	5.0E+00	--	--	--	1.7E+02	--	--	--	5.0E-01	--	--	--	1.7E+01	--	--	--	1.7E+01	--
Uranium (ug/l)	0	--	--	3.0E+01	--	--	--	1.0E+03	--	--	--	3.0E+00	--	--	--	1.0E+02	--	--	--	1.0E+02	--

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	1.7E+02	4.2E+03	4.3E+02	1.3E+02	5.8E+03	1.4E+05	5.0E+00	1.3E+00	1.7E+01	4.2E+02	1.1E+02	3.3E+01	5.8E+02	1.4E+04	**1.1E+02**	**3.3E+01**	**5.8E+02**	**1.4E+04**
Silver	0	2.3E+00	--	--	--	4.8E+01	--	--	--	5.6E-01	--	--	--	1.2E+01	--	--	--	**1.2E+01**	**--**	**--**	**--**
Sulfate	7870	--	--	2.5E+05	--	--	--	8.2E+06	--	--	--	3.2E+04	--	--	--	8.3E+05	--	**--**	**--**	**8.3E+05**	**--**
1,1,2,2-Tetrachloroethane[c]	0	--	--	1.7E+00	4.0E+01	--	--	1.2E+02	2.8E+03	--	--	1.7E-01	4.0E+00	--	--	1.2E+01	2.8E+02	**--**	**--**	**1.2E+01**	**2.8E+02**
Tetrachloroethylene[c]	0	--	--	6.9E+00	3.3E+01	--	--	4.8E+02	2.3E+03	--	--	6.9E-01	3.3E+00	--	--	4.8E+01	2.3E+02	**--**	**--**	**4.8E+01**	**2.3E+02**
Thallium	0	--	--	2.4E-01	4.7E-01	--	--	8.2E+00	1.6E+01	--	--	2.4E-02	4.7E-02	--	--	8.2E-01	1.6E+00	**--**	**--**	**8.2E-01**	**1.6E+00**
Toluene	0	--	--	5.1E+02	6.0E+03	--	--	1.7E+04	2.0E+05	--	--	5.1E+01	6.0E+02	--	--	1.7E+03	2.0E+04	**--**	**--**	**1.7E+03**	**2.0E+04**
Total dissolved solids	0	--	--	5.0E+05	--	--	--	1.7E+07	--	--	--	5.0E+04	--	--	--	1.7E+06	--	**--**	**--**	**1.7E+06**	**--**
Toxaphene [c]	0	7.3E-01	2.0E-04	2.8E-03	2.8E-03	1.6E+01	5.3E-03	2.0E-01	2.0E-01	1.8E-01	5.0E-05	2.8E-04	2.8E-04	3.9E+00	1.3E-03	2.0E-02	2.0E-02	**3.9E+00**	**1.3E-03**	**2.0E-02**	**2.0E-02**
Tributyltin	0	4.6E-01	7.2E-02	--	--	9.8E+00	1.9E+00	--	--	1.2E-01	1.8E-02	--	--	2.5E+00	4.8E-01	--	--	**2.5E+00**	**4.8E-01**	**--**	**--**
1,2,4-Trichlorobenzene	0	--	--	3.5E+01	7.0E+01	--	--	1.2E+03	2.4E+03	--	--	3.5E+00	7.0E+00	--	--	1.2E+02	2.4E+02	**--**	**--**	**1.2E+02**	**2.4E+02**
1,1,2-Trichloroethane[c]	0	--	--	5.9E+00	1.6E+02	--	--	4.1E+02	1.1E+04	--	--	5.9E-01	1.6E+01	--	--	4.1E+01	1.1E+03	**--**	**--**	**4.1E+01**	**1.1E+03**
Trichloroethylene [c]	0	--	--	2.5E+01	3.0E+02	--	--	1.8E+03	2.1E+04	--	--	2.5E+00	3.0E+01	--	--	1.8E+02	2.1E+03	**--**	**--**	**1.8E+02**	**2.1E+03**
2,4,6-Trichlorophenol [c]	0	--	--	1.4E+01	2.4E+01	--	--	9.8E+02	1.7E+03	--	--	1.4E+00	2.4E+00	--	--	9.8E+01	1.7E+02	**--**	**--**	**9.8E+01**	**1.7E+02**
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	5.0E+01	--	--	--	1.7E+03	--	--	--	5.0E+00	--	--	--	1.7E+02	--	**--**	**--**	**1.7E+02**	**--**
Vinyl Chloride[c]	0	--	--	2.5E-01	2.4E+01	--	--	1.8E+01	1.7E+03	--	--	2.5E-02	2.4E+00	--	--	1.8E+00	1.7E+02	**--**	**--**	**1.8E+00**	**1.7E+02**
Zinc	3.68	9.5E+01	9.6E+01	7.4E+03	2.6E+04	2.0E+03	2.4E+03	2.5E+05	8.8E+05	2.6E+01	2.7E+01	7.4E+02	2.6E+03	4.9E+02	6.1E+02	2.5E+04	8.8E+04	**4.9E+02**	**6.1E+02**	**2.5E+04**	**8.8E+04**

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information. Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	1.9E+01
Arsenic	3.3E+01
Barium	6.8E+03
Cadmium	3.7E+00
Chromium III	2.4E+02
Chromium VI	3.4E+01
Copper	2.2E+01
Iron	1.0E+03
Lead	3.9E+01
Manganese	1.4E+02
Mercury	3.0E+00
Nickel	6.4E+01
Selenium	2.0E+01
Silver	4.8E+00
Zinc	2.0E+02

Note: do not use QL's lower than the minimum QL's provided in agency guidance

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"Model Run For I:\kaharlow\Raap - VA0000248\VA0000248_10_Reissuance\Technical\DO Models\Complete1.mod On
4/16/2010 2:08:48 PM"

"Model is for NEW RIVER."
"Model starts at the OUTFALL 029 discharge."

"Background Data"
"7Q10",  "cBOD5",  "TKN",    "DO",     "Temp"
"(mgd)", "(mg/l)", "(mg/l)", "(mg/l)", "deg C"
559,     2,        0,        8.801,    13.5

"Discharge/Tributary Input Data for Segment 1"
"Flow",  "cBOD5",  "TKN",    "DO",     "Temp"
"(mgd)", "(mg/l)", "(mg/l)", "(mg/l)", "deg C"
1.57,    60,       0,        ,7,       20

"Hydraulic Information for Segment 1"
"Length","Width",  "Depth",  "Velocity"
"(mi)",  "(ft)",   "(ft)",   "(ft/sec)"
.1,      500,      1.472,    1.179

"Initial Mix Values for Segment 1"
"Flow",  "DO",     "cBOD",   "nBOD",   "DOSat",  "Temp"
"(mgd)", "(mg/l)", "(mg/l)", "(mg/l)", "(mg/l)", "deg C"
560.57,  8.796,    5.406,    0,        9.775,    13.5182

"Rate Constants for Segment 1. - (All units Per Day)"
"k1",  "k1@T", "k2",   "k2@T", "kn",   "kn@T", "BD",   "BD@T"
1,     .743,   3,      2.573,  .35,    .213,   0,      0

"Output for Segment 1"
"Segment starts at OUTFALL 029"
"Total", "Segm."
"Dist.", "Dist.",  "DO",     "cBOD",   "nBOD"
"(mi)",  "(mi)",   "(mg/l)", "(mg/l)", "(mg/l)"
0,       0,        8.796,    5.406,    0
.1,      .1,       8.788,    5.385,    0



"Discharge/Tributary Input Data for Segment 2"
"Flow",  "cBOD5",  "TKN",    "DO",     "Temp"
"(mgd)", "(mg/l)", "(mg/l)", "(mg/l)", "deg C"
1,       30,       13.6,     ,5,       20

"Incremental Flow Input Data for Segment 2"
"Flow",  "cBOD5",  "TKN",    "DO",     "Temp"
"(mgd)", "(mg/l)", "(mg/l)", "(mg/l)", "deg C"
0,       2,        0,        ,8.795,   13.5

"Hydraulic Information for Segment 2"
"Length","Width",  "Depth",  "Velocity"
"(mi)",  "(ft)",   "(ft)",   "(ft/sec)"
.02,     600.001,  1.016,    .922

"Initial Mix Values for Segment 2"
"Flow",  "DO",     "cBOD",   "nBOD",   "DOSat",  "Temp"
"(mgd)", "(mg/l)", "(mg/l)", "(mg/l)", "(mg/l)", "deg C"
561.57,  8.781,    5.509,    .082,     9.772,    13.52975

"Rate Constants for Segment 2. - (All units Per Day)"
"k1",  "k1@T", "k2",   "k2@T", "kn",   "kn@T", "BD",   "BD@T"
.5,    .371,   2.999,  2.573,  .15,    .091,   0,      0

"Output for Segment 2"
"Segment starts at OUTFALL 026"
"Total", "Segm."
"Dist.", "Dist.",  "DO",     "cBOD",   "nBOD"
"(mi)",  "(mi)",   "(mg/l)", "(mg/l)", "(mg/l)"
.1,      0,        8.781,    5.509,    .082
.12,     .02,      8.782,    5.506,    .082



"Discharge/Tributary Input Data for Segment 3"
"Flow",  "cBOD5",  "TKN",    "DO",     "Temp"
"(mgd)", "(mg/l)", "(mg/l)", "(mg/l)", "deg C"
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5.55,     24,        0,         ,7,        20

"Incremental Flow Input Data for Segment 3"
"Flow",   "cBOD5",   "TKN",     "DO",      "Temp"
"(mgd)", "(mg/l)", "(mg/l)", "(mg/l)", "deg C"
0,        2,         0,         ,8.787,    13.5

"Hydraulic Information for Segment 3"
"Length","Width",   "Depth",   "Velocity"
"(mi)",  "(ft)",    "(ft)",    "(ft/sec)"
4.88,     599.999,  1.025,     .927

"Initial Mix Values for Segment 3"
"Flow",   "DO",      "cBOD",    "nBOD",    "DOSat",   "Temp"
"(mgd)", "(mg/l)", "(mg/l)", "(mg/l)", "(mg/l)", "deg C"
567.12,  8.765,     6.039,     .081,      9.763,     13.59307

"Rate Constants for Segment 3. - (All units Per Day)"
"k1",   "k1@T", "k2",    "k2@T", "kn",    "kn@T", "BD",    "BD@T"
.5,     .373,   3,       2.577,  .15,     .092,   0,       0

"Output for Segment 3"
"Segment starts at OUTFALL 007"
"Total", "Segm."
"Dist.", "Dist.",   "DO",      "cBOD",    "nBOD"
"(mi)",  "(mi)",    "(mg/l)", "(mg/l)", "(mg/l)"
.12,      0,         8.765,     6.039,     .081
.22,      .1,        8.767,     6.024,     .081
.32,      .2,        8.769,     6.009,     .081
.42,      .3,        8.771,     5.994,     .081
.52,      .4,        8.773,     5.979,     .081
.62,      .5,        8.775,     5.964,     .081
.72,      .6,        8.777,     5.949,     .081
.82,      .7,        8.779,     5.934,     .081
.92,      .8,        8.781,     5.919,     .081
1.02,     .9,        8.783,     5.904,     .081
1.12,     1,         8.785,     5.89,      .081
1.22,     1.1,       8.787,     5.876,     .081
1.32,     1.2,       8.787,     5.862,     .081
1.42,     1.3,       8.787,     5.848,     .081
1.52,     1.4,       8.787,     5.834,     .081
1.62,     1.5,       8.787,     5.82,      .081
1.72,     1.6,       8.787,     5.806,     .081
1.82,     1.7,       8.787,     5.792,     .081
1.92,     1.8,       8.787,     5.778,     .081
2.02,     1.9,       8.787,     5.764,     .081
2.12,     2,         8.787,     5.75,      .081
2.22,     2.1,       8.787,     5.736,     .081
2.32,     2.2,       8.787,     5.722,     .081
2.42,     2.3,       8.787,     5.708,     .081
2.52,     2.4,       8.787,     5.694,     .081
2.62,     2.5,       8.787,     5.68,      .081
2.72,     2.6,       8.787,     5.666,     .081
2.82,     2.7,       8.787,     5.652,     .081
2.92,     2.8,       8.787,     5.638,     .081
3.02,     2.9,       8.787,     5.624,     .081
3.12,     3,         8.787,     5.61,      .081
3.22,     3.1,       8.787,     5.596,     .081
3.32,     3.2,       8.787,     5.582,     .081
3.42,     3.3,       8.787,     5.568,     .081
3.52,     3.4,       8.787,     5.554,     .081
3.62,     3.5,       8.787,     5.54,      .081
3.72,     3.6,       8.787,     5.526,     .081
3.82,     3.7,       8.787,     5.512,     .081
3.92,     3.8,       8.787,     5.498,     .081
4.02,     3.9,       8.787,     5.485,     .081
4.12,     4,         8.787,     5.472,     .081
4.22,     4.1,       8.787,     5.459,     .081
4.32,     4.2,       8.787,     5.446,     .081
4.42,     4.3,       8.787,     5.433,     .081
4.52,     4.4,       8.787,     5.42,      .081
4.62,     4.5,       8.787,     5.407,     .081
4.72,     4.6,       8.787,     5.394,     .081
4.82,     4.7,       8.787,     5.381,     .081
4.92,     4.8,       8.787,     5.368,     .081
5,        4.88,      8.787,     5.357,     .081
```

```
"Discharge/Tributary Input Data for Segment 4"
"Flow",  "cBOD5",  "TKN",    "DO",     "Temp"
"(mgd)", "(mg/l)", "(mg/l)", "(mg/l)", "deg C"
.07,     30,       9,        ,5,       20

"Incremental Flow Input Data for Segment 4"
"Flow",  "cBOD5",  "TKN",    "DO",     "Temp"
"(mgd)", "(mg/l)", "(mg/l)", "(mg/l)", "deg C"
0,       2,        0,        ,8.793,   13.5

"Hydraulic Information for Segment 4"
"Length","Width",  "Depth",  "Velocity"
"(mi)",  "(ft)",   "(ft)",   "(ft/sec)"
3,       760.001,  .886,     .842

"Initial Mix Values for Segment 4"
"Flow",  "DO",     "cBOD",   "nBOD",   "DOSat",  "Temp"
"(mgd)", "(mg/l)", "(mg/l)", "(mg/l)", "(mg/l)", "deg C"
567.19,  8.787,    5.366,    .084,     9.77,     13.59386

"Rate Constants for Segment 4. - (All units Per Day)"
"k1",  "k1@T", "k2",   "k2@T", "kn",   "kn@T", "BD",   "BD@T"
.5,    .373,   3,      2.577,  .15,    .092,   0,      0

"Output for Segment 4"
"Segment starts at OUTFALL 028"
"Total", "Segm."
"Dist.", "Dist.",  "DO",     "cBOD",   "nBOD"
"(mi)",  "(mi)",   "(mg/l)", "(mg/l)", "(mg/l)"
5,       0,        8.787,    5.366,    .084
5.1,     .1,       8.791,    5.352,    .084
5.2,     .2,       8.793,    5.338,    .084
5.3,     .3,       8.793,    5.324,    .084
5.4,     .4,       8.793,    5.31,     .084
5.5,     .5,       8.793,    5.296,    .084
5.6,     .6,       8.793,    5.282,    .084
5.7,     .7,       8.793,    5.268,    .084
5.8,     .8,       8.793,    5.254,    .084
5.9,     .9,       8.793,    5.24,     .084
6,       1,        8.793,    5.226,    .084
6.1,     1.1,      8.793,    5.212,    .084
6.2,     1.2,      8.793,    5.198,    .084
6.3,     1.3,      8.793,    5.184,    .084
6.4,     1.4,      8.793,    5.17,     .084
6.5,     1.5,      8.793,    5.156,    .084
6.6,     1.6,      8.793,    5.142,    .084
6.7,     1.7,      8.793,    5.128,    .084
6.8,     1.8,      8.793,    5.114,    .084
6.9,     1.9,      8.793,    5.1,      .084
7,       2,        8.793,    5.086,    .084
7.1,     2.1,      8.793,    5.072,    .084
7.2,     2.2,      8.793,    5.058,    .084
7.3,     2.3,      8.793,    5.044,    .084
7.4,     2.4,      8.793,    5.03,     .084
7.5,     2.5,      8.793,    5.016,    .084
7.6,     2.6,      8.793,    5.002,    .084
7.7,     2.7,      8.793,    5,        .084
7.8,     2.8,      8.793,    5,        .084
7.9,     2.9,      8.793,    5,        .084
8,       3,        8.793,    5,        .084


"END OF FILE"
```

REGIONAL MODELING SYSTEM VERSION 4.0

Model Input File for the Discharge to NEW RIVER.

File Information

File Name:	I:\kaharlow\Raap - VA0000248\VA0000248_10_Reissuance\Technical\D
Date Modified:	April 16, 2010

Water Quality Standards Information

Stream Name:	NEW RIVER
River Basin:	New River Basin
Section:	2a
Class:	IV - Mountainous Zones Waters
Special Standards:	v,PWS

Background Flow Information

Gauge Used:	Outfall 004
Gauge Drainage Area:	2791 Sq.Mi.
Gauge 7Q10 Flow:	559 MGD
Headwater Drainage Area:	2791 Sq.Mi.
Headwater 7Q10 Flow:	559 MGD (Net; includes Withdrawals/Discharges)
Withdrawal/Discharges:	0 MGD
Incremental Flow in Segments:	0.2002866 MGD/Sq.Mi.

Background Water Quality

Background Temperature:	13.5 Degrees C
Background cBOD5:	2 mg/l
Background TKN:	0 mg/l
Background D.O.:	8.800588 mg/l

Model Segmentation

Number of Segments:	4
Model Start Elevation:	1700 ft above MSL
Model End Elevation:	1660 ft above MSL

REGIONAL MODELING SYSTEM VERSION 4.0

Model Input File for the Discharge to NEW RIVER.

Segment Information for Segment 1

Definition Information

Segment Definition:	A discharge enters.
Discharge Name:	OUTFALL 029
VPDES Permit No.:	0000248

Discharger Flow Information

Flow:	1.57 MGD
cBOD5:	60 mg/l
TKN:	0 mg/l
D.O.:	7 mg/l
Temperature:	20 Degrees C

Geographic Information

Segment Length:	0.1 miles
Upstream Drainage Area:	2791 Sq.Mi.
Downstream Drainage Area:	2791 Sq.Mi.
Upstream Elevation:	1700 Ft.
Downstream Elevation:	1699.5 Ft.

Hydraulic Information

Segment Width:	500 Ft.
Segment Depth:	1.472 Ft.
Segment Velocity:	1.179 Ft./Sec.
Segment Flow:	560.57 MGD
Incremental Flow:	0 MGD (Applied at end of segment.)

Channel Information

Cross Section:	Rectangular
Character:	Mostly Straight
Pool and Riffle:	No
Bottom Type:	Sand
Sludge:	None
Plants:	None
Algae:	None

REGIONAL MODELING SYSTEM VERSION 4.0

Model Input File for the Discharge to NEW RIVER.

Segment Information for Segment 2

Definition Information

Segment Definition:	A discharge enters.
Discharge Name:	OUTFALL 026
VPDES Permit No.:	0000248

Discharger Flow Information

Flow:	1 MGD
cBOD5:	30 mg/l
TKN:	13.6 mg/l
D.O.:	5 mg/l
Temperature:	20 Degrees C

Geographic Information

Segment Length:	0.02 miles
Upstream Drainage Area:	2791 Sq.Mi.
Downstream Drainage Area:	2791 Sq.Mi.
Upstream Elevation:	1699.5 Ft.
Downstream Elevation:	1699.4 Ft.

Hydraulic Information

Segment Width:	600.001 Ft.
Segment Depth:	1.016 Ft.
Segment Velocity:	0.922 Ft./Sec.
Segment Flow:	561.57 MGD
Incremental Flow:	0 MGD (Applied at end of segment.)

Channel Information

Cross Section:	Rectangular
Character:	Mostly Straight
Pool and Riffle:	No
Bottom Type:	Sand
Sludge:	None
Plants:	None
Algae:	None

REGIONAL MODELING SYSTEM VERSION 4.0

Model Input File for the Discharge to NEW RIVER.

Segment Information for Segment 3

Definition Information

Segment Definition:	A discharge enters.
Discharge Name:	OUTFALL 007
VPDES Permit No.:	0000248

Discharger Flow Information

Flow:	5.55 MGD
cBOD5:	24 mg/l
TKN:	0 mg/l
D.O.:	7 mg/l
Temperature:	20 Degrees C

Geographic Information

Segment Length:	4.88 miles
Upstream Drainage Area:	2791 Sq.Mi.
Downstream Drainage Area:	2791 Sq.Mi.
Upstream Elevation:	1699.4 Ft.
Downstream Elevation:	1675 Ft.

Hydraulic Information

Segment Width:	599.999 Ft.
Segment Depth:	1.025 Ft.
Segment Velocity:	0.927 Ft./Sec.
Segment Flow:	567.12 MGD
Incremental Flow:	0 MGD (Applied at end of segment.)

Channel Information

Cross Section:	Rectangular
Character:	Mostly Straight
Pool and Riffle:	No
Bottom Type:	Sand
Sludge:	None
Plants:	None
Algae:	None

REGIONAL MODELING SYSTEM VERSION 4.0

Model Input File for the Discharge to NEW RIVER.

Segment Information for Segment 4

Definition Information	
Segment Definition:	A discharge enters.
Discharge Name:	OUTFALL 028
VPDES Permit No.:	0000248
Discharger Flow Information	
Flow:	0.07 MGD
cBOD5:	30 mg/l
TKN:	9 mg/l
D.O.:	5 mg/l
Temperature:	20 Degrees C
Geographic Information	
Segment Length:	3 miles
Upstream Drainage Area:	2791 Sq.Mi.
Downstream Drainage Area:	2791 Sq.Mi.
Upstream Elevation:	1675 Ft.
Downstream Elevation:	1660 Ft.
Hydraulic Information	
Segment Width:	760.001 Ft.
Segment Depth:	0.886 Ft.
Segment Velocity:	0.842 Ft./Sec.
Segment Flow:	567.19 MGD
Incremental Flow:	0 MGD (Applied at end of segment.)
Channel Information	
Cross Section:	Rectangular
Character:	Mostly Straight
Pool and Riffle:	No
Bottom Type:	Sand
Sludge:	None
Plants:	None
Algae:	None

Attachment F

Historical Limit Development

Excerpt from 1979 Fact Sheet

TABLE I. EFFLUENT LIMITATIONS

012

( ) Final Limitation

( ) Interim Limitation

Effective Dates: From _____

To _____

TNT WASTE TREATMENT PLANT

Parameter	BASIS					BASED ON			MONITORING	
	Effluent Guidelines			Best Engr. Judgment	Water * Quality Stds.	Multiplier	Production	Permit Limit	Sample Type	Frequency
	BPT (Prop) (Final)	BAT (Prop) (Final)	NSPS (Prop) (Final)							
Oxidized Nitrogen	—	—	—	*	—	—	—	50/148 kg/d 29/29 mg/l	24hr comp	1/month
Sulfate	—	—	—	*	—	—	—	2442/2495 kg/d 1400/1430 mg/l	24hr comp	1/month
~~TNT + Nitrobodies~~	—	—	—	~~*~~	—	—	—	~~[illegible]~~ kg/d ~~[illegible]~~ mg/l		
TNT + Nitrobodies	—	—	—	*	—	—	—	0.87/1.37 kg/d 0.5/0.75 mg/l	24hr comp	2/month
COD	—	—	—	*	—	—	—	91/406 kg/d 52/233 mg/l	24hr comp	1/month
Temperature	—	—	—	*	~~[illegible]~~			32°C summer 12°C winter	Recorded	cont
pH	—	—	—	—	5	—	—	6.0 – 9.0	Recorded	cont

*see Attachment #1

*1. Per 208 Plan and date _____
2. Per 303(C) Plan and date _____
3. Per EPA and date _____
4. Per 401 Certification and date _____
5. Other 3 Tream Standard

ATTACHMENT 1

1. Outfall 004 - This is an open ditch which prior to the finish of Project MCA33.10A received several small contaminated process and drainage streams. The parameters listed are those for which testing was done prior to the removal of these streams. As the only water to be contained in this ditch is to be storm and spring flows, a one-year testing program is included to provide assurance that all contaminated water is removed.

2. Outfall 401 - This is the Oleum manufacture waste acid treatment plant. Processes employed are equalization, neutralization, pH adjustment and clarification with vacuum filtration for sludge dewatering. TSS limits are based on limits normally to be expected in a solids containing system with simple settling. Sulfate limits are based on the solubility limit of calcium sulfate as this is the form in which almost all of the SO_4 in the system is expected to be. It is the judgment of the staff that as no provision is made for the removal of soluble sulfate the minimum amount which can be listed as a permit limit is the solubility of the compound. As calcium sulfate normally exists in one of three forms with varing solubilities, it was necessary to choose one form as the one on which to base the limit. Of the three forms (anhydrous, 2 H_2O and, 1/2 H_2O). It is obvious that the anhydrous was least likely to be predominant. Of the remaining, the two water hydrate was the lesser soluble and was chosen as the more conservative guess. The limits are thus based on the solubility of $CaSO_4.2H_2O$ in water at 20°C. The solubility of this species is 2410 mg/l. Of this approximately 57% or 1370 mg/l is contributed by the sulfate radical. All sulfate results are to be reported as SO_4. As the solids in this system are almost exclusively calcium sulfate, it was felt that some provision must be made to account for the calcium sulfate existing as suspended matter. It was decided that for the sake of simplicity all TSS would be assumed to be SO_4 and thus the TSS limit was added to the sulfate limit. This was in all cases a negligible addition. All quantity limits were based on the concentration limits listed and a flow figure of 0.25 mg/d which was supplied by Arsenal personnel as the design flow for this facility.

3. Outfall 005 (Cooling Water) - This outfall previously carried the effluent from the C-line waste acid treatment plant. Upon completion of Project MCA 972.550, the C-line waste acid treatment plant will be abandoned and all waste diverted to the main waste acid treatment plant associated with Discharge 007. To insure that all contaminated streams have been removed from this discharge, the parameters: oxidized nitrogen, sulfate, BOD and COD, are to be monitored for a period of one year. No limits are included on the permit as the tests are to be conducted only for the purpose of verification. Temperature limits are based on a best estimation of the temperature of flows currently being discharged. Special Condition 1 attached to the permit requires that these temperature limits be investigated and modified if necessary.

4. Outfall 006 (Main Plant General Purpose Sewer) - This outfall previously contained a number of contaminated streams of varing orgins. With the completion of several projects throughout the plant, all contaminated waste streams will be eliminated leaving only non-contact cooling water from power house and water treatment plant raw water overflow-OS streams associated with plant processes. The raw water overflow contains only untreated unchanged river water with no additatives whatsoever. In addition to these process streams there is also storm runoff and spring water. BOD, COD, and oxidized nitrogen testing is included on the requirements for this discharge to provide assurance that all contaminated streams have been removed. Temperature limitations are based ont the best available data existing at the time of the permit drafting. Special Condition No. 1 requires that a study be done on this discharge to determine if these limits should be changed.

5. Outfall 007 (Main Plant Acid Treatment Plant) - BOD and COD carrying streams will be removed from this outfall by MCA 33.10A. Testing requirement is to give assurances that no such stream still exists. TSS limits are based on 30 and 45 mg/l and a flow rate of 7.0 MGD which is the best estimate by Arsenal personnel for the future flow rates. Sulfate quantities limits are based on 1400 and 1415 mg/l as discussed under Outfall 401. Oxidized nitrogen quantities are based on a 85% reduction of the NO_3 quantities determined to be in the raw stream at mobilization production rates. It was previously determined that the segment of the New River into which this discharge flows is not water quality limiting with respect to nitrate and thus effluent limitations apply. As no guidelines for nitrate removal exist, Radford Arsenal with the concurrence of EPA and the Virginia Water Control Board decided that an 85% removal rate should be the target, pending a BPT definition. Tith this in mind, RAAP personnel designed a system to produce this level of effluent nitrate. Pertinent data has been reviewed by the staff. The RAAP staff is satisfied that these levels will be met. No nitrate removal facilities as such are involved as the reduction in effluent in the quantity is accomplished by recycle in the production process. No NO_3 concentration limit is given as most NO3 exists in this system as calcium nitrate which is soluble in water in the range of 1800 g/l. Due to the uncertainty with the permit limits as stated in this permit, Special Condition No. 2 is added to this discharge which will allow for an evaluation of the efficiency of this system during a certain period after which the permit limits may be modified. Proper temperature limits are also somewhat in question and for this reason Special Condition No. 1 applies which will require RAAP to perform a temperature survey after which temperature limits may also be modified.

6. Outfall 012 (TNT Waste Treatment Plant) - Oxidized nitrogen, TNT, and COD limits are based on the best estimates for the capability of the proposed treatment plant. The final limits were derived from the estimated full mobilization loadings with 85% removal. Sulfate limits were determined as discussed under Outfall 401. Special Condition No. 2 is applicable to this discharge and thus an efficiency study will be undertaken during the first year of actual operation to determine if these limits are correct.

The temperature survey in accordance with Special Condition No. 1 will also be conducted. COD Quantity limits are based on a concentration in the effluent of 52 mg/l average and 233 mg/l maximum and a flow rate of 0.46 MGD. The flow figure was arrived at by back calculating from oxidized nitrogen and TNT quantities.

7. Outfall 013 - This discharge is associated with a drainage ditch in the TNT manufacturing area which was found some years ago to be carrying a measured pollutant load. However, no pollutant quantities have been detected in recent years. It is proposed to sample this discharge with a higher than previously required frequency and if no unusual levels of pollutants are found during a 6-month period the discharge will be removed from the permit.

8. Outfall 014 (Inert Gas Plant Cooling Water) - The temperature limits on this discharge are based on best estimate by Arsenal personnel of actual temperatures. Special Condition No. 1 applies in this case which will require a study to be performed to determine if these limits are applicable.

9. Outfall 015 (Non-Contact Cooling Water) - Temperature limits for this discharge are based on past records and best estimate of temperature by Arsenal personnel. As the limit is not greater than stream standards, no Special Condition No. 1 type of survey is necessary.

10. Outfall 017 (Runoff from the Open Burning Area) - This outfall is included on the permit as there is a potential for contaminated discharge from this area. To date no discharge has ever been reported from this area. Testing requirement is included; therefore, for information proposes only should discharge occur.

11. Outfall 023 (Compressor House Cooling Water) - The temperature limit of 36°C is based on a best estimate by Arsenal personnel. Special Condition No. 1 applies in this case.

12. Outfall 026 (Main Plant Sewage Treatment Plant) - BOD and TSS values are based on standard secondary treatment definition for sewage treatment plants. Quantity limits are calculated with a flow of 1.0 MGD. Chlorine residual limits are based on practices currently in use in the State of Virginia.

13. Outfall 028 (horseshoe Area Waste Treatment Plant - All limits determined the same as in Outfall 026. Flow limits of 0.075 MGD was used for calculation of quantity limits.

14. Outfall 029 (Main Plant Biological Waste Treatment Plant) - BOD and COD limits are based on 85% removal of the estimated laoding on the plant. Oxidized ntirogen loadings are unsure at this time and so are not limited. Special Condition No. 2 calling for an efficiency survey to establish limits applies to this discharge. TSS limits are based on 85% removal of TSS loading as shown in Table II of the April 25, 1978, design capacity submittal from Col. Watts. This, as are all limits on this discharge is a tentative figure pending resilution of Special Condition No. 2.

Attachment G

TMP Justification Memorandum

MEMORANDUM

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

WEST CENTRAL REGIONAL OFFICE

3019 Peters Creek Road Roanoke, VA 24019

SUBJECT: RFAAP **VA0000248** - TMP Justification

TO: Deborah DeBiasi - OPS

FROM: Kevin Harlow

DATE: April 8, 2010

Revised facility information along with included table showing historic TMP results are attached.

Outfall 005: The current mode of operation is to discharge only cooling water, cooling tower blowdown and storm water, and potentially wastewater from the oleum plant. The oleum plant is in standby mode and will take considerable effort to make it active. Occasionally, spills from tank dikes have found their way into this outfall. Discharges from this outfall meet the applicability criteria in the guidance to flows in excess of 50,000 gpd. No toxicity was observed during the current permit. Annual acute biological testing should be continued in the permit. The species used should be alternated between C. dubia and P. promelas. If the oleum plant becomes active, quarterly testing with both species should resume.

Outfall 006: No major changes in the sources of effluent at this outfall. Discharges from this outfall meet the applicability criteria in the guidance due to flows in excess to 50,000 gpd. An acute toxicity limit of 1.0 TUa was placed into the permit during the 2005 permit reissuance. The facility did not have any trouble meeting achieving compliance with this limit. Chronic toxicity data using P. promelas showed some toxicity but the WETLIM10 and STATS.EXE output showed that the 1.0 TUa was the most restrictive limit and that a chronic toxicity limit is not needed. Annual chronic tests using Pimephales promelas will also continue.

Outfall 007: No major changes in the sources of wastewater at this outfall. All waste acid is directed to the A-B line treatment system and this outfall. This outfall has had an effective acute WET limit since 1994. The 8.0 TUa limit was corrected in the 2005 permit reissuance to a 6.6 TUa limit. The facility did not have any trouble meeting this new limit during the compliance schedule. Chronic toxicity data using C. dubia showed some toxicity but the WETLIM10 and STATS.EXE output showed that the 6.6 TUa was the most restrictive limit and that a chronic toxicity limit is not needed. Continued chronic testing is also required since the IWC at 7Q10 exceeds 1%.

Outfall 014: Since cooling water was removed from this outfall in 1992, shortly after the permit was last reissued, this discharge has been comprised of storm water and spring water. A contaminated spring is downgradient of a major fuel oil spill that occurred in the early 1970s. A petroleum odor was still be detected in this area during a 2000 site visit. The contaminated spring was determined to be infiltrating a collapsed pipeline in 2000. The pipeline was subsequently repaired excluding the contaminated spring. Toxicity testing during the 2005 permit did not exhibit toxicity. However, given the IWC=100%, continue acute toxicity testing alternating between P. promelas and C. dubia is

to continue.

Outfall 024: There has been virtually no flow from this outfall for the past five years. If discharge does commence, the IWC is estimated to be about 0.05%. Since there is little chance that toxics from manufacturing operations would be discharged to this outfall, there is no TMP requirement.

Outfall 026 & 028: Toxicity from chlorine was evident at these outfalls before final chlorine limits were placed in the permit. In addition, there is a chance that toxics from manufacturing or laboratory operations could be routed to these STPs. Since dechlorination has been added to reduce chlorine toxicity, annual compliance monitoring is required.

Outfall 029: There are no major changes in the sources of effluent at this outfall. A WET limit became effective in 1994. No tests have failed since a seven million gallon equalization basin has been in use. Ceriodaphnia dubia was chosen as the most sensitive species in 1994. Small changes in the manufacturing formulations have been made and will probably continue in the future. WET testing will continue with the most sensitive species C. dubia. Once each year both species should be tested to verify that manufacturing changes have not resulted in vertebrate toxicity.

SUMMARY OF TMP REQUIREMENTS:

005: Annual acute tests on 24 hour composite samples during dry weather. Alternate between Pimephales promelas and Ceriodaphnia dubia. If the oleum plant becomes active, quarterly acute and chronic testing with both species should be initiated.

006: Quarterly acute tests on 24 hour composite samples using Pimephales promelas. Both species should be used once each year to verify the most sensitive species. Annual chronic tests on 24 hour composite samples using P. Promelas.

007: Quarterly acute tests on 24 hour composite samples with a WET limit using Ceriodaphnia dubia. Both species should be used once each year to verify the most sensitive species. Annual chronic testing using Ceriodaphnia dubia.

014: Annual acute on 24 hour composite samples alternating between Pimephales promelas and Ceriodaphnia dubia.

024: Quarterly acute tests on 24 hour composite samples with both C. dubia and P. promelas upon commencement of discharge.

026: Annual acute on 24 hour composite samples alternating between Pimephales promelas and Ceriodaphnia dubia.

028: Annual acute tests on 24 hour composite samples alternating between Pimephales promelas and Ceriodaphnia dubia.

029: Quarterly acute tests on 24 hour composite samples with a WET limit using Ceriodaphnia dubia. Both Species should be used once each year to verify the most sensitive species.

VA0000248 - RAAP
Acute Toxicity Test Results page 1 of 2

OUT FALL	EVENT	DATE BEGIN	DATE END	VERT.	INVERT.	LC50 (%)	TUa	NOAEC (%)	SURV. IN 100%
7	ST ANNUAI	7/20/2005	7/22/2005	P. promelas		>100	<1		95
7	2nd Annual	7/19/2006	7/21/2006	P. promelas		>100	<1		100
7	3rd Annual	7/11/2007	7/13/2007	P. promelas		>100	<1		100
7	4th Annual	7/9/2008	7/11/2008	P. promelas		>100	<1		90
7	5th Annual	7/8/2009	7/8/2009	P. promelas		>100	<1		100
7	ST QUARTE	7/20/2005	7/22/2005		C. dubia	40.55	2.47		0
7	2nd Quarter	10/5/2005	10/7/2005		C. dubia	51.27	1.95		25
7	3rd Quarter	1/11/2006	1/13/2006		C. dubia	32.8	3.05		15
7	4th Quarter	4/12/2006	4/14/2006		C. dubia	76.01	1.32		20
7	5th Quarter	7/19/2006	7/21/2006		C. dubia	90.87	1.1		40
7	6th Quarter	10/11/2006	10/13/2006		C. dubia	48.28	2.07		10
7	7th Quarter	1/10/2007	1/12/2007		C. dubia	41.2	2.43		0
7	8th Quarter	4/11/2007	4/13/2007		C. dubia	>100	<1		45
7	9th Quarter	7/11/2007	7/13/2007		C. dubia	62.11	1.61		25
7	10th Quarter	10/3/2007	10/5/2007		C. dubia	>100	<1		80
7	11th Quarter	1/9/2008	1/11/2008		C. dubia	65.91	1.52		15
7	12th Quarter	4/9/2008	4/11/2008		C. dubia	69.44	1.44		35
7	13th Quarter	7/9/2008	7/11/2008		C. dubia	>100	<1		95
7	14th Quarter	10/8/2008	10/10/2008		C. dubia	99.9	1		50
7	15th Quarter	1/14/2009	1/16/2009		C. dubia	46.93	2.13		0
7	16th Quarter	4/8/2009	4/10/2009		C. dubia	75.77	1.32		30
7	17th Quarter	7/8/2009	7/10/2009		C. dubia	84.68	1.18		?
7	18th Quarter	10/7/2009	10/9/2009		C. dubia	47.73	2.1		0
7	19th Quarter	1/13/2010	1/15/2010		C. dubia	42.04	2.38		0
29	ST ANNUAI	7/20/2005	7/22/2005	P. promelas		>100	<1		100
29	2nd Annual	7/19/2006	7/21/2006	P. promelas		>100	<1		95
29	3rd Annual	7/11/2007	7/13/2007	P. promelas		>100	<1		100
29	4th Annual	7/9/2008	7/11/2008	P. promelas		>100	<1		100
29	5th Annual	7/8/2009	7/10/2009	P. promelas		>100	<1		90
29	ST QUARTE	7/20/2005	7/22/2005		C. dubia	>100	<1		100
29	2nd Quarter	10/5/2005	10/7/2005		C. dubia	>100	<1		95
29	3rd Quarter	1/11/2006	1/13/2006		C. dubia	>100	<1		95
29	4th Quarter	4/12/2006	4/14/2006		C. dubia	>100	<1		100
29	5th Quarter	7/19/2006	7/21/2006		C. dubia	>100	<1		100
29	6th Quarter	10/11/2006	10/13/2006		C. dubia	>100	<1		95
29	7th Quarter	1/10/2007	1/12/2007		C. dubia	>100	<1		75
29	8th Quarter	4/11/2007	4/13/2007		C. dubia	>100	<1		100
29	9th Quarter	7/11/2007	7/13/2007		C. dubia	>100	<1		95
29	10th Quarter	10/3/2007	10/5/2007		C. dubia	>100	<1		95
29	11th Quarter	1/9/2008	1/11/2008		C. dubia	>100	<1		90
29	12th Quarter	4/9/2008	4/11/2008		C. dubia	>100	<1		100
29	13th Quarter	7/9/2008	7/11/2008		C. dubia	>100	<1		100
29	14th Quarter	10/8/2008	10/10/2008		C. dubia	>100	<1		100
29	15th Quarter	1/14/2009	1/16/2009		C. dubia	>100	<1		100
29	16th Quarter	4/15/2009	4/17/2009		C. dubia	>100	<1		100
29	17th Quarter	7/8/2009	7/8/2009		C. dubia	>100	<1		100
29	18th Quarter	10/7/2009	10/9/2009		C. dubia	>100	<1		100
29	19th Quarter	1/20/2010	1/22/2010		C. dubia	>100	<1		95

VA0000248 - RAAP
Acute Toxicity Test Results page 2 of 2

OUT FALL	EVENT	DATE BEGIN	DATE END	VERT.	INVERT.	LC50 (%)	TUa	NOAEC	SURV. IN 100%
5	1ST ANNUAL	7/20/2005	7/22/2005	P. promelas		>100	<1		100
5	3rd Annual	7/11/2007	7/13/2007	P. promelas		>100	<1		95
5	5th Annual	7/8/2009	7/10/2009	P. promelas		>100	<1		100
5	1ST ANNUAL	7/20/2005	7/22/2005		C. dubia	>100	<1		100
5	2nd Annual	7/19/2006	7/21/2006		C. dubia	>100	<1		100
5	4th Annual	7/9/2008	7/11/2008		C. dubia	>100	<1		100
6	1ST QUARTER	7/20/2005	7/22/2005	P. promelas		>100	<1	100	95
6	2nd Quarter	10/5/2005	10/7/2005	P. promelas		>100	<1	100	100
6	3rd Quarter	1/11/2006	1/13/2006	P. promelas		>100	<1	100	100
6	4th Quarter	4/13/2006	4/15/2006	P. promelas		>100	<1	100	100
6	5th Quarter	7/19/2006	7/21/2006	P. promelas		>100	<1	100	100
6	6th Quarter	10/11/2006	10/13/2006	P. promelas		>100	<1	100	100
6	7th Quarter	1/10/2007	1/12/2007	P. promelas		>100	<1	100	100
6	8th Quarter	4/11/2007	4/13/2007	P. promelas		>100	<1	100	100
6	9th Quarter	7/11/2007	7/13/2007	P. promelas		>100	<1	100	100
6	10th Quarter	10/3/2007	10/5/2007	P. promelas		>100	<1	100	100
6	11th Quarter	1/9/2008	1/11/2008	P. promelas		>100	<1	100	100
6	12th Quarter	4/9/2008	4/11/2008	P. promelas		>100	<1	100	100
6	13th Quarter	7/9/2008	7/11/2008	P. promelas		>100	<1	100	100
6	14th Quarter	10/8/2008	10/10/2008	P. promelas		>100	<1	100	100
6	15th Quarter	1/7/2009	1/9/2009	P. promelas		>100	<1	100	100
6	16th Quarter	4/8/2009	4/10/2009	P. promelas		>100	<1	100	100
6	17th Quarter	7/8/2009	7/10/2009	P. promelas		>100	<1	100	100
6	18th Quarter	10/7/2009	10/9/2009	P. promelas		>100	<1	100	95
6	19th Quarter	1/13/2010	1/15/2010	P. promelas		>100	<1	100	95
14	1ST ANNUAL	7/20/2005	7/22/2005	P. promelas		>100	<1		100
14	3rd Annual	7/18/2007	7/20/2007	P. promelas		>100	<1		100
14	5th Annual	7/8/2009	7/10/2009	P. promelas		>100	<1		95
14	2nd Annual	7/21/2006	7/23/2006		C. dubia	>100	<1		100
14	4th Annual	7/11/2008	7/13/2008		C. dubia	>100	<1		95
26	1ST ANNUAL	7/20/2005	7/22/2005	P. promelas		>100	<1		100
26	3rd Annual	7/11/2007	7/13/2007	P. promelas		>100	<1		95
26	5th Annual	7/8/2009	7/10/2009	P. promelas		>100	<1		100
26	2nd Annual	7/21/2006	7/23/2006		C. dubia	>100	<1		100
26	4th Annual	7/18/2008	7/20/2008		C. dubia	>100	<1		100

VA0000248 - RAAP
Chronic Toxicity Test Results

OUT FALL	EVENT	DATE BEGIN	DATE END	VERT.	INVERT.	NOEC-Growth	LOEC-Growth	IC25-Growth	TUc-Growth	PMSD	LC50-Survival	NOEC-Survival	LOEC-Survival	TUc-Survival
6	1st Annual	7/18/2005	7/25/2005	P. promelas		16	100	>100	6.25	10.41	>100	100	>100	1
6	2nd Annual	7/17/2006	7/24/2006	P. promelas		100	>100	>100	1	15.11	>100	100	100	1
6	3rd Annual	7/9/2007	7/16/2007	P. promelas		16	100	82.93	6.25	16.31	>100	100	>100	1
6	4th Annual	7/7/2008	7/14/2008	P. promelas		16	100	>100	6.25	11.75	>100	100	>100	1
6	5th Annual	7/6/2009	7/13/2009	P. promelas		100	>100	>100	1	13.82	>100	100	>100	1
7	1st Annual	7/18/2005	7/25/2005		C. dubia	10	100	22.08	10	28.69	68.13	10	100	10
7	2nd Annual	7/17/2006	7/24/2006		C. dubia	10	100	31.26	10	24.16	100	10	100	10
7	3rd Annual	7/9/2007	7/16/2007		C. dubia	10	100	25.67	10	20.15	>100	10	100	10
7	4th Annual	7/7/2008	7/14/2008		C. dubia	10	100	32.16	10	27.63	>100	10	100	10
7	5th Annual	7/6/2009	7/13/2009		C. dubia	10	100	29.59	10	21.37	>100	10	100	10

Attachment H

NPDES Permit Rating Worksheet

NPDES Permit Rating Work Sheet

___ Regular Addition
___ Discretionary Addition
___ Score change, but no status change
___ Deletion

NPDES NO: VA0000248

Facility Name:

Radford Army Ammunition Plant

City: Radford

Receiving Water: New River

Reach Number: VAW-N22R

Is this facility a steam electric power plant (SIC=4911) with one or more of the following characteristics?

1. Power output 500 MW or greater (not using a cooling pond/lake)
2. A nuclear power plant
3. Cooling water discharge greater than 25% of the receiving stream's 7Q10 flow rate

___ YES: score is 600 (stop here) _x_ NO (continue)

Is this permit for a municipal separate storm sewer serving a population greater than 100,000?

___ YES; score is 700 (stop here)
_x_ NO (continue)

FACTOR 1: Toxic Pollutant Potential

PCS SIC Code: |___|___|___|___| Primary SIC Code: 2892

Other SIC Codes: 2819 2823 2873 4911

Industrial Subcategory Code: |_0_|_0_|_2_| (Code 000 if no subcategory)

Determine the Toxicity potential from Appendix A. Be sure to use the TOTAL toxicity potential column and check one

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
__ No process waste streams	0	0	___ 3.	3	15	___ 7.	7	35
___ 1.	1	5	___ 4.	4	20	_x_ 8.	8	40
___ 2.	2	10	___ 5.	5	25	___ 9.	9	45
			___ 6.	6	30	___ 10.	10	50

Code Number Checked: |_0_|_8_|

Total Points Factor 1: |_4_|_0_|

FACTOR 2: Flow/Stream Flow Volume *(Complete Either Section A or Section B; check only one)*

Section A--Wastewater Flow Only Considered

Wastewater Type (See Instructions)			Code	Points
Type I:	Flow < 5 MGD	___	11	0
	Flow 5 to 10 MGD	___	12	10
	Flow > 10 to 50 MGD	___	13	20
	Flow > 50 MGD	___	14	30
Type II:	Flow < 1 MGD	___	21	10
	Flow 1 to 5 MGD	___	22	20
	Flow > 5 to 10 MGD	___	23	30
	Flow > 10 MGD	___	24	50
Type III:	Flow < 1 MGD	___	31	0
	Flow 1 to 5 MGD	___	32	10
	Flow > 5 to 10 MGD	___	33	20
	Flow > 10 MGD	___	34	30

Section B--Wastewater and Stream Flow Considered

Wastewater Type (See Instructions)	Percent of Instream Wastewater Concentration at Receiving Stream Low Flow		Code	Points
Type I/III:	< 10%	___	41	0
	≥ 10% to < 50%	___	42	10
	≥ 50%	___	43	20
Type II:	<10%	_X_	51	0
	≥ 10% to < 50%	___	52	20
	≥ 50%	___	53	30

Code Checked from Section A or B: |_5_|_1_|

Total Points Factor 2: |_0_|_0_|

NPDES Permit Rating Work Sheet

FACTOR 3: Conventional Pollutants
(only when limited by the permit)

A. Oxygen Demanding Pollutant: (check one) ___ BOD _X__ COD ___ Other:

Permit Limits: (check one)			Code	Points
	__	< 100 lbs/day	1	0
	___	100 to 1000 lbs/day	2	5
	___	>1000 to 3000 lbs/day	3	15
	__X_	>3000 lbs/day	4	20

Code Checked: |_4_|

Points Scored: |_2_|_0_|

B. Total Suspended Solids (TSS)

Permit Limits: (check one)			Code	Points
	__	< 100 lbs/day	1	0
	___	100 to 1000 lbs/day	2	5
	___	>1000 to 5000 lbs/day	3	15
	_X__	>5000 lbs/day	4	20

Code Checked: |_4_|

Points Scored: |_2_|_0_|

C. Nitrogen Pollutant: (check one) ___ Ammonia _X__ Other: _____Oxidized Nitrogen_____

Permit Limits: (check one)			Code	Points
	__	< 300 lbs/day	1	0
	___	300 to 1000 lbs/day	2	5
	___	>1000 to 3000 lbs/day	3	15
	_X__	>3000 lbs/day	4	20

Code Checked: |_4_|

Points Scored: |_2_|_0_|

Total Points Factor 3: |_6_|_0_|

FACTOR 4: Public Health Impact
Is there a public drinking water supply located within 50 miles downstream of the effluent discharge (this includes any body of water to which the receiving water is a tributary)? A public drinking water supply may include infiltration galleries, or other methods of conveyance that ultimately get water from the above referenced supply.

_X_ YES (if yes, check toxicity potential number below) ___ NO (if no, go to Factor 5)

Determine the human health toxicity potential from Appendix A. Use the same SIC code and subcategory reference as in Factor 1. (Be sure to use the human health toxicity group column -- check one below)

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
___ No process waste streams	0	0	___ 3.	3	0	___ 7.	7	15
___ 1.	1	0	___ 4.	4	0	_x_ 8.	8	20
___ 2.	2	0	___ 5.	5	5	___ 9.	9	25
			___ 6.	6	10	___ 10.	10	30

Code Number Checked: |_0_|_8_|

Total Points Factor 4: |_2_|_0_|

NPDES Permit Rating Work Sheet

NPDES No.: VA0000248

FACTOR 5: Water Quality Factors

A. Is (or will) one or more of the effluent discharge limits based on water quality factors of the receiving stream (rather than technology-based federal effluent guidelines, or technology-based state effluent guidelines), or has a wasteload allocation been assigned to the discharge?

		Code	Points
_X__	Yes	1	10
___	No	2	0

B. Is the receiving water in compliance with applicable water quality standards for pollutants that are water quality limited in the permit?

		Code	Points
_x_	Yes	1	0
___	No	2	5

C. Does the effluent discharged from this facility exhibit the reasonable potential to violate water quality standards due to whole effl toxicity?

		Code	Points
_X__	Yes	1	10
__	No	2	0

Code Number Checked:A |_1_| B |_1_| C |_1_|

Points Factor 5:A |_1_|_0_| + B |_0_| + C |_10_| = |_2_|_0_| TOTAL

FACTOR 6: Proximity to Near Coastal Waters N/A

A. Base Score: Enter flow code here (from Factor 2): |___|___|

Enter the multiplication factor that corresponds to the flow code: |___|___|

Check appropriate facility HPRI Code (from PCS):

	HPRI #	*Code*	*HPRI Score*
___	1	1	20
___	2	2	0
___	3	3	30
___	4	4	0
___	5	5	20

Flow Code	Multiplication Factor
11, 31, or 41	0.00
12, 32, or 42	0.05
13, 33, or 43	0.10
14 or 34	0.15
21 or 51	0.10
22 or 52	0.30
23 or 53	0.60
24	1.00

HPRI code checked: |___|

Base Score: (HPRI Score) _____ x (Multiplication Factor) _____ = _____0____ (TOTAL POINTS)

B. Additional Points--NEP Program
For a facility that has an HPRI code of 3, does the facility discharge to one of the estuaries enrolled in the National Estuary Protection (NEP) program (see instructions) or the Chesapeake Bay?
N/A

		Code	Points
___	Yes	1	10
___	No	2	0

C. Additional Points--Great Lakes Area of Concern
For a facility that has an HPRI code of 5, does the facility discharge any of the pollutants of concern into one of the Great Lakes' 31 areas of concern (see instructions)

N/A

		Code	Points
___	Yes	1	10
___	No	2	0

Code Number Checked:A |_N/A_| B |_N/A_| C |_N/A_|

Points Factor 5: A |___|___| + B |___|___| + C |___|___| = |_____0_____| TOTAL

NPDES Permit Rating Work Sheet

NPDES NO: VA0000248

SCORE SUMMARY

Factor	Description	Total Points
1	Toxic Pollutant Potential	40
2	Flow/Stream Flow Volume	00
3	Conventional Pollutants	60
4	Public Health Impacts	20
5	Water Quality Factors	20
6	Proximity to Near Coastal Waters	00
	TOTAL (Factors 1-6)	**140**

S1. Is the total score equal to or greater than 80? __X_ Yes (Facility is a major) __ No

S2. If the answer to the above question is no, would you like this facility to be discretionary major?

__ No

___ Yes (add 500 points to the above score and provide reason below:

Reason: _____

_____

_____

_____

_____

NEW SCORE: ____140_____

OLD SCORE: ____140_____

_____Kevin Harlow_____

Permit Reviewer's Name

(__540_____)___562____-___6788_____

Phone Number

____March 4, 2010_____

Date

npdesrs.dak (2/21/95)