**VPDES PERMIT FACT SHEET**

This document gives pertinent information concerning a proposed action on the Virginia Pollutant Discharge Elimination System (VPDES) permit listed below. The effluent limitations contained in this permit will maintain the Water Quality Standards (WQS) of 9VAC25-260.

1. Proposed Permit Action: Reissuance, including revisions to the permit, as needed, due to changes in applicable laws, regulations, guidance, and available technical information.

2. Permit Classification: Minor Industrial

3. Permit No. VA0001961; Expiration Date: January 31, 2020

4. Facility Name: Alma Plant
   Mailing Address: 1610 South Main Street, Harrisonburg, VA 22801
   Location: 3426 US Highway 340 Business West
   Contact Name: Joseph P. Salyards, II
   Title: Managing Member
   Telephone No: (540) 435-1859
   Email: jody@recyclemanagement.com

5. Owner Name: JP Salyards Transportation, LLC
   Mailing Address: 1610 South Main Street, Harrisonburg, VA 22801
   Contact Name: Joseph P. Salyards, II
   Title: Managing Member
   Telephone No: (540) 908-3902
   Email: jody@recyclemanagement.com

6. Description of Discharge: The discharge results from the treatment of stormwater generated from a scrap and waste materials recycling facility where automobile salvage activities also occur (SIC Codes 5093 and 5015). Also authorized by the permit is the discharge of poultry processing wastewater, sanitary wastewater, and stormwater from a poultry processing plant (SIC Code 2015).

7. Description of Wastewaters and Treatment Facilities

   The industrial WWTP was originally designed as a poultry processing treatment plant, treating poultry processing wastewater, sanitary wastewater, and stormwater. The facility is not currently in operation and most of the treatment units have been removed. Prior to reinstating poultry processing operations, a CER submittal and approval is required.

   The facility is currently being used as a scrap and waste materials recycling facility where automobile salvage activities also occur. Scrap metal and wood products are brought to the facility for processing and subsequently sold to various industries. Stormwater from a portion of the scrap and waste materials recycling facility material recovery yard flows into a detention pond followed by an oil/water separator. After the oil/water separator, that stormwater is commingled with the stormwater from the remainder of the facility in a concrete tank followed by two earthen lagoons in series. Current flow volumes are such that there has not been a discharge from the second earthen lagoon since poultry processing ceased.

   Average Discharge Flow: No discharge since poultry processing ceased
   Design Average Flow = 1.0 MGD
   Total Number of Outfalls = 1

8. Application Complete Date: November 7, 2019

   Permit Writer: Brandon Kiracofe Date: December 3, 2019
   Reviewed By: Keith Showman Date: December 5, 2019

9. Receiving Stream Name: South Fork Shenandoah River
   River Mile: 60.01
   Use Impairment: Yes (see items 14 and 15 below)
   Tidal Waters: No
   Watershed Name: PS39 - South Fork Shenandoah River-Stony Run
   Basin: Potomac; Subbasin: Shenandoah
   Section: 2; Class: IV
   Special Standards: pH

10. Operator License Requirements per 9VAC25-31-200.C: Class II (for wastewater treatment facility serving a poultry processing operation)

11. Reliability Class per 9VAC25-790: N/A

12. Permit Characterization:
    ☑ Private ☐ Federal ☐ State ☐ POTW ☐ PVOTW
    ☐ Possible Interstate Effect ☐ Interim Limits in Other Document (attach copy of CSO)

13. Discharge Location Description and Receiving Waters Information: Appendix B

14. Antidegradation (AD) Review & Comments per 9VAC25-260-30:
    Tier Designation: Tier 1

    The State Water Control Board's WQS include an AD policy. All state surface waters are provided one of three levels of AD protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 waters have water quality that is better than the WQS. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 waters are exceptional waters and are so designated by regulatory amendment. The AD policy prohibits new or expanded discharges into exceptional waters.

    The antidegradation review begins with a Tier determination. The South Fork Shenandoah River in the vicinity of the discharge is determined to be a Tier 1 water. This determination is based on the fact that this segment of the River is listed as impaired for not meeting the General Standard (Benthics) for aquatic life use. Antidegradation baselines are not calculated for Tier 1 waters.

15. Impaired Use Status Evaluation and Total Daily Maximum Load (TMDL) waste load allocations (WLAs) per 9VAC25-31-220.D: The stream segment receiving the effluent is listed as impaired for not meeting the General Standard (Benthics) for aquatic life use and for "Fish Consumption" due to PCB contamination and mercury contamination. The Bacteria TMDL Development and Benthic Stressor Analysis for South Fork Shenandoah River document was approved by EPA on December 3, 2009. The facility was included in the Bacteria TMDL and Benthic Stressor Analysis and was given a waste load allocation (WLA) of $1.74 \times 10^{12}$ cfu/year for E. coli. Based on the facility's design flow of 1.0 MGD, the E. coli WLA corresponds to a concentration limit of 126 cfu/100 mL. Sediment and phosphorous load reductions from upstream TMDL watersheds were determined to be sufficient to meet reductions needed in the South Fork Shenandoah River watershed; therefore, no sediment and phosphorous load reduction requirements were included in the South Fork Shenandoah River TMDL.

The South Fork Shenandoah River is also listed for a fish consumption advisory due to the documented presence of mercury in fish and PCB in fish tissue. The TMDL Development for Mercury in the South River, South Fork Shenandoah River, and Shenandoah River, Virginia was approved by EPA on June 3, 2010 and the Development of Shenandoah River PCB TMDL was approved by EPA on October 1, 2001. This facility was not assigned a mercury or PCB WLA in these TMDLs.

16. NPDES Permit Rating Worksheet: Appendix A
    The worksheet updated using current information regarding the facility.
    ☐ Major ☑ Minor Score = 55

17. Effluent Screening and Effluent Limitations: Appendix C

18. Effluent toxicity testing requirements included per 9VAC25-31-220.D: ☑ Yes ☐ No Appendix C

19. Management of Sludge: The scrap and waste materials recycling facility does not generate industrial process wastewater or sludge. The permit requires the permittee to submit an approvable Sludge Management Plan (SMP) to DEQ-Valley Regional Office prior to removal of sludge from the on-site lagoons.

20. Permit Changes and Bases for Special Conditions: Appendix D

21. Material Storage per 9VAC25-31-280.B.2: This permit requires that the facility's O&M Manual include information to address the management of wastes, fluids, and pollutants which may be present at the facility, to avoid unauthorized discharge of such materials.

22. Antibacksliding Review per 9VAC25-31-220.L: This permit complies with the antibacksliding provisions of the VPDES Permit Regulation.

23. Regulation of Users per 9VAC25-31-280.B.9: N/A – There are no industrial users associated with this facility other than the owner.

24. Stormwater Management per 9VAC25-31-120: Application Required? ☑ Yes ☐ No
    Applicable stormwater management requirements have been included in the permit. The requirements reflect the fact that all stormwater discharged must meet the effluent limits established at Outfall 001 for process wastewater.

25. Compliance Schedule per 9VAC25-31-250: None required by this permit.

26. Variances/Alternative Limits or Conditions per 9VAC25-31-280.B, 100.H, and 100.M: None

27. Financial Assurance Applicability per 9VAC25-650-10: N/A – This facility does not serve private residences.

28. Virginia Environmental Excellence Program (VEEP) Evaluation per § 10.1-1187.1-7: At the time of this reissuance, is this facility considered by DEQ to be a participant in the Virginia Environmental Excellence Program in good standing at either the Exemplary Environmental Enterprise (E3) level or the Extraordinary Environmental Enterprise (E4) level? ☐ Yes ☑ No

29. Nutrient Trading Regulation per 9VAC25-820: See Appendix B
    General Permit Required: ☑ Yes ☐ No
    This facility is required to maintain coverage under the General VPDES Watershed Permit Regulation for Total Nitrogen (TN) and Total Phosphorus (TP) Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia ("WGP"; 9VAC25-820) because it is listed with a WLA in the Registration List in 9VAC25-820-70.

30. Nutrient monitoring included per Guidance Memo No. 14-2011: ☐ Yes ☑ No
    This facility is a Significant Discharger as defined in the WGP and is actively monitoring and reporting under the WGP. Any discharges of stormwater from Outfall 001 are required to be monitored and reported under the requirements of the WGP.

31. Other Agency Comments:
    By memo dated November 8, 2019, the Virginia Department of Health, Office of Drinking Water – Lexington Field Office (VDH) noted that the nearest public raw water intake was found 40 miles downstream of the discharge point. The intake is for the Town of Front Royal. VDH did note that two public wells were found within a 1-mile radius of the discharge point.

    Threatened and Endangered (T&E) Species Screening per 9VAC25-260-20 B.8: Because this is not an issuance or reissuance that allows increased discharge flows, nor was T&E review requested by another agency, T&E screening is not required and was not performed.

32. Public Notice Information per 9VAC25-31-280.B: In accordance with Chapter 552 of the 2018 Acts of Assembly, the VPDES permit regulation 9VAC25-31-290 has been revised to allow, if the permittee so elects, an abbreviated public notice procedure for industrial minors in which an abbreviated notice is published in the newspaper with a link to the full notice on the department's website. With this reissuance, the permittee elected to use the abbreviated procedure. All pertinent information is on file, and may be inspected and copied by contacting Jason Dameron at: DEQ-Valley Regional Office, P.O. Box 3000, Harrisonburg, Virginia 22801, Telephone No. (540) 574-7824, jason.dameron@deq.virginia.gov.

    Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing if public response is significant. Requests for public hearings shall state the reason why a hearing is requested, the nature of the issues proposed to be raised in the public hearing and a brief explanation of how the requester's interests would be directly and adversely affected by the proposed permit action. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given.

    Public Comment Period: DATE to DATE

33. Historical Record:
    - Construction of the 1.0 MGD wastewater treatment facility was completed on December 1, 1991.
    - A Water Balance Plan was submitted on June 6, 1991, and June 18, 1991, to evaluate the integrity of the anaerobic pretreatment lagoon and the anaerobic flow equalization lagoon. The Plan was approved on August 6, 1991.
    - A Lagoon Integrity Study was performed in June 1995 by Geotechnical and Environmental Services, Inc., in order to demonstrate that the permeability of the Griffith lagoon at the facility was not greater than $1x10^{-6}$ cm/sec. The testing resulted in coefficients of permeability that ranged from $1x10^{-7}$ cm/sec to $4x10^{-7}$ cm/sec. The Lagoon Integrity Study was submitted as a Conceptual Engineering Report (CER), and the CER was approved on August 30, 1995.
    - On May 14, 2001, the permit was modified for a change of ownership from Wampler Foods, Inc. to Pilgrim's Pride Corporation of Virginia.
    - On October 17, 2001, the permit was modified for a change of ownership from Pilgrim's Pride Corporation of Virginia to Pilgrim's Pride Corporation.
    - The poultry processing facility was shutdown in December 2002.
    - On February 1, 2005, the VPDES permit was revoked and reissued due to changes in the applicable laws, guidance, and available technical information. During this process, the permittee requested that the option for land application of sludge from the storage lagoons be incorporated into the permit.
    - On January 20, 2006 the permit was modified for a change of ownership from Pilgrim's Pride to Debra Carpenter.
    - On October 16, 2006 the permit was modified for a change of ownership from Debra Carpenter to Alma Plant, LLC.
    - On October 17, 2008 the permit was modified for a change of ownership from Alma Plant, LLC to JP Salyards Transportation, LLC.

## APPENDIX A

**VPDES Permit Rating Work Sheet**

Facilities identified under SIC Codes 5093 and 2015 have the following characteristics as defined in Appendix A to the NPDES Permit Rating Work Sheet found in Guidance Memo No. 14-2003. SIC Code 5015 is not addressed in Appendix A.

| 1987 SIC Code | 1987 SIC Code Title | 40 CFR 439 Sub-Part | Sub-part Title | Human Health Toxicity Number | Total Toxicity Number | Industrial Sub-category Number |
|---|---|---|---|---|---|---|
| 5093 | Scrap & Waste Materials | | NR | 10 | 10 | 0 |
| 2015 | Meat & Poultry Products | K | Poultry First Processing | 1 | 1 | NA |

The ratings for the Factors listed below are all unchanged from the previous fact sheet unless otherwise noted.

**Factor 1 – Toxic Pollutant Potential**

5093 is the primary SIC Code for this facility; however, there only stormwater discharges associated with this industrial activity. Because of this, the toxic pollutant potential determination was performed using only the secondary SIC Code of 2015 which has process waste streams associated with it.

## NPDES PERMIT RATING WORK SHEET

☒ Regular Addition ☐ Discretionary Addition ☐ Score change, but no status change ☐ Deletion

NPDES NO.: **VA0001961**

Facility Name: **Alma Plant**

City: **Stanley**

Receiving Water: **South Fork Shenandoah River**

Reach Number: **NA**

*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) ☒ NO (continue)

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

☐ YES; score is 700 (stop here) ☒ NO (continue)

### FACTOR 1: Toxic Pollutant Potential

PCS SIC Code: Primary SIC Code: **5093** Other SIC Codes**: 2015**

Industrial Subcategory Code (Code 000 if no subcategory): **000**

*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 | ☐ 8. | 8 | 40 |
| ☐ 2. | 2 | 10 | ☐ 5. | 5 | 25 | ☐ 9. | 9 | 45 |
| | | | ☐ 6. | 6 | 30 | ☐ 10. | 10 | 50 |

Code Number Checked: 1

**Total Points Factor 1: 5**

### 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 % | ☒ | 51 | 0 |
| | 10 % to < 50 % | ☐ | 52 | 20 |
| | > 50 % | ☐ | 53 | 30 |

Code Number Checked: 51

**Total Points Factor 2: 0**

## FACTOR 3: Conventional Pollutants

*(only when limited by the permit)*

A. Oxygen Demanding Pollutant: (check one) ☒ BOD ☐ COD ☐ Other: _____

| | | | Code | Points |
|---|---|---|---|---|
| Permit Limits: (check one) | ☐ | < 100 lbs/day | 1 | 0 |
| | ☒ | 100 to 1000 lbs/day | 2 | 5 |
| | ☐ | > 1000 to 3000 lbs/day | 3 | 10 |
| | ☐ | > 3000 lbs/day | 4 | 20 |

Code Checked: 2

**Points Scored 5**

B. Total Suspended Solids (TSS)

| | | | Code | Points |
|---|---|---|---|---|
| Permit Limits: (check one) | ☐ | < 100 lbs/day | 1 | 0 |
| | ☒ | 100 to 1000 lbs/day | 2 | 5 |
| | ☐ | > 1000 to 5000 lbs/day | 3 | 15 |
| | ☐ | > 5000 lbs/day | 4 | 20 |

Code Checked: 2

**Points Scored 5**

C. Nitrogen Pollutant: (check one) ☐ Ammonia ☒ Other: Total Nitrogen

| | | | Code | Points |
|---|---|---|---|---|
| Permit Limits: (check one) | ☐ | < 300 lbs/day | 1 | 0 |
| | ☒ | 300 to 1000 lbs/day | 2 | 5 |
| | ☐ | > 1000 to 3000 lbs/day | 3 | 15 |
| | ☐ | > 3000 lbs/day | 4 | 20 |

Code Checked: 2

**Points Scored 5**

**Total Points Factor 3: 15**

## 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.*

☒ 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 | ☐ | 8. | 8 | 20 |
| ☐ | 2. | 2 | 0 | ☐ | 5. | 5 | 5 | ☐ | 9. | 9 | 25 |
| | | | | ☐ | 6. | 6 | 10 | ☐ | 10. | 10 | 30 |

Code Number Checked: 1

**Total Points Factor 4: 0**

## 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 |
|---|---|---|---|
| ☒ | 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 |
|---|---|---|---|
| ☐ | 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 effluent toxicity?*

| | | Code | Points |
|---|---|---|---|
| ☐ | Yes | 1 | 10 |
| ☒ | No | 2 | 0 |

Code Number Checked: A 1 B 2 C 2

**Total Points Factor 5:** A 10 + B 5 + C 0 = **15** **TOTAL**

## FACTOR 6: Proximity to Near Coastal Waters

*A. Base Score: Enter flow code here (from Factor 2):* 51 *Enter the multiplication factor that corresponds to the flow code:* 0.10

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 |

HPRI Code Checked: 4

| *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 |

Base Score: (HPRI Score) 0 X (Multiplication Factor) 0.10 = 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?*

| | | 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)?*

| | | Code | Points |
|---|---|---|---|
| ☐ | Yes | 1 | 10 |
| ☐ | No | 2 | 0 |

Code Number Checked: A 4 B N/A C N/A

**Total Points Factor 6:** A 0 + B N/A + C N/A = **0** **TOTAL**

**SCORE SUMMARY**

| Factor | Description | | Total Points |
|---|---|---|---|
| 1 | Toxic Pollutant Potential | | 5 |
| 2 | Flows/Streamflow Volume | | 0 |
| 3 | Conventional Pollutants | | 15 |
| 4 | Public Health Impacts | | 0 |
| 5 | Water Quality Factors | | 15 |
| 6 | Proximity to Near Coastal Waters | | 0 |
| | TOTAL (Factors 1 through 6) | = | 35 |

S1. Is the total score equal to or greater than 80?

☐ Yes (Facility is a major) ☒ No

S2. If the answer to the above questions 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:

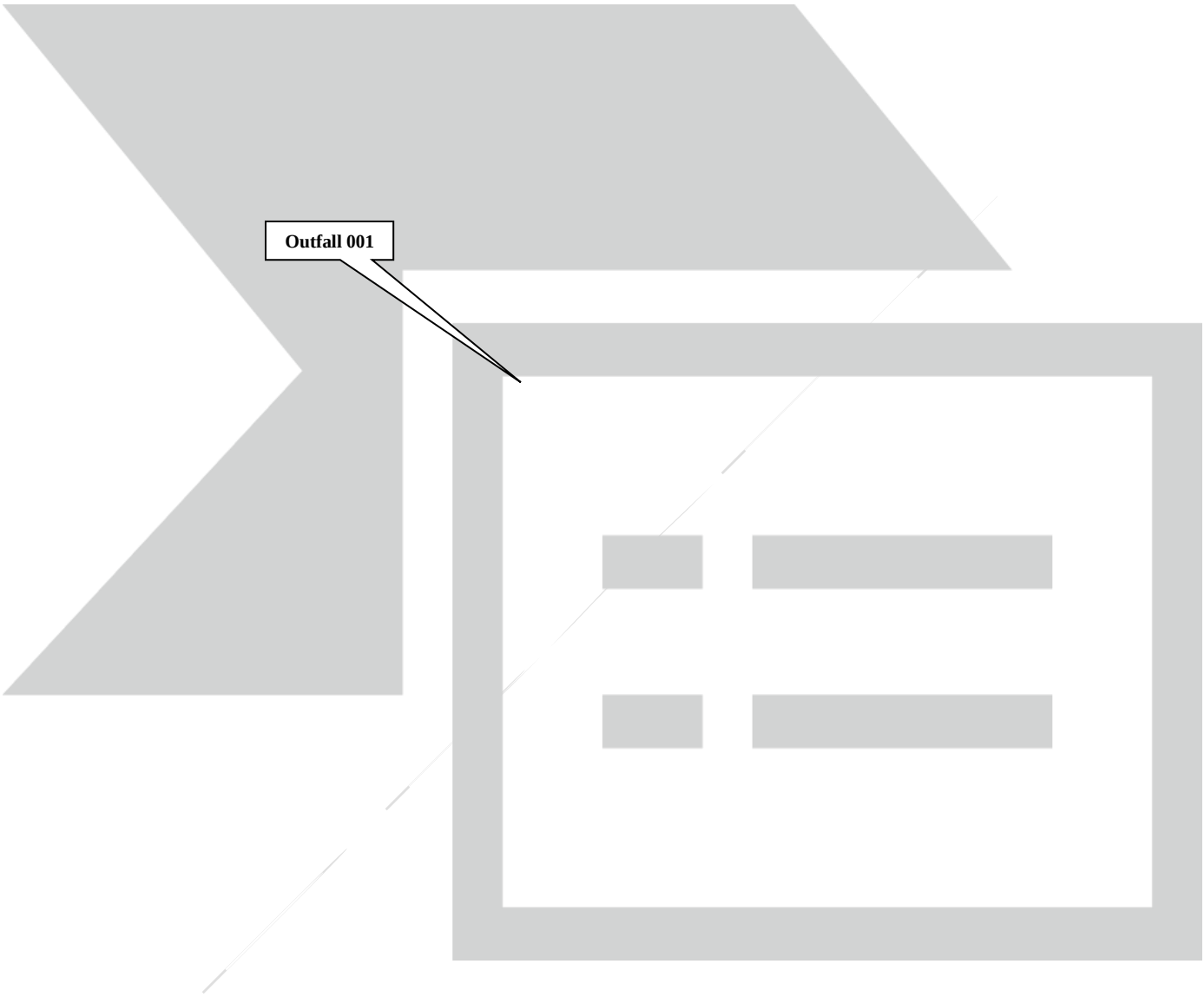
NEW SCORE: 35

OLD SCORE: 65

## APPENDIX B

## DISCHARGE LOCATION AND RECEIVING WATERS INFORMATION

The facility discharges to the South Fork Shenandoah River in Page County. The topographical map below shows the location of Outfall 001.



PLANNING INFORMATION

TMDL and Water Quality Assessment information within the watershed and in the vicinity of the discharge are shown on the table below.

**PLANNING & TMDL REVIEW**

**PERMITS**

| PERMIT | PERMIT ACTION | FACILITY | OUTFALL | RECEIVING STREAM | RIVER MILE | LAT | LONG |
|---|---|---|---|---|---|---|---|
| VA0001961 | Reissuance | Alma Plant | 001 | South Fork Shenandoah River | 60.01 | 38.589754 | -78.565536 |

**REVIEW BASED ON INTERGRATED REPORT YEAR**

2018

**MONITORING STATIONS**

| STREAM | NAME | RIVER MILE | RECORD | LAT | LONG |
|---|---|---|---|---|---|
| Honey Run | 1BHDY000.91 | 0.91 | 8/26/2004 | 383417 | -783315 |
| Line Run | 1BLIN001.60 | 1.6 | 8/26/2004 | 383335 | -783204 |
| S.F. Shenandoah River | 1BSSF060.49 | 60.49 | | 383523 | -783359 |
| S.F. Shenandoah River | 1BSSF060.57 | 60.57 | 7/1/2001 | 383520 | -783357 |

**WATER QUALITY MANAGEMENT PLANNING & NUTRIENT GENERAL PERMIT REGULATIONS**

**Non-TMDL Wasteload Allocation**

| PARAMETER | ALLOCATION (kg/d) |
|---|---|
| None | |

**Nutrient Wasteload Allocation**

| PARAMETER | ALLOCATION (lbs/yr) |
|---|---|
| Total Nitrogen | 18,273 |
| Total Phosphorus | 914 |

**RECEIVING STREAM INFORMATION**

| WATERSHED ID & NAME | BASIN NAME | SUBBASIN NAME | SPECIAL STANDARDS | SECTON | CLASS |
|---|---|---|---|---|---|
| PS39 South Fork Shenandoah-Stony Run | Potomac | Shenandoah | pH 6.5-9.5 | 2 | IV |

**IMPAIRED SEGMENTS**

| SEGMENT ID | STREAM | SEGMENT START | SEGMENT END | SEGMENT LENGTH | IMPAIRMENT |
|---|---|---|---|---|---|
| B32R-02-HG | n River/NF Shenandoah/SF Shenandoah R | 162.51 | 8.21 | 154.3 | Mercury in Fish Tissue |
| B37R-03-BAC | Honey Run | 5.11 | 0 | 5.11 | Bacteria |
| B37R-02-BAC | Line Run | 4.94 | 0 | 4.94 | Bacteria |
| B33R-01-BEN | South Fork Shenandoah River | 101.19 | 43.02 | 58.17 | Benthic |
| B37R-01-PCB | South Fork Shenandoah River | 78.23 | 59.46 | 18.77 | PCB in Fish Tissue |

**APPLICABLE TMDL**

| SOURCE TMDL ID | TMDL NAME | EPA APPROVAL | TMDL POLLUTANT(S) |
|---|---|---|---|
| 1 | Bacteria TMDL Development and Benthic Stressor Analysis for SF Shenandoah Rive | 12/3/2009 | E. coli |
| 2 | elopment for Mercury in the South River, South Fork Shenandoah River, and Shenan | 6/3/2010 | Mercury |
| 3 | Development of the Shenandoah River PCB TMDL | 10/1/2001 | PCB |

**FACILITY TMDL WLA**

| APPLICABLE TMDL | TMDL POLLUTANT | TMDL WLA | FLOW | CONCENTRATION |
|---|---|---|---|---|
| | E. coli | 1.74e+12 | 1 MGD | 126 cfu/100mL |
| | Mercury | none | | |
| | PCB | none | | |

FLOW FREQUENCY DETERMINATION

The VDEQ has operated a continuous record gage on the South Fork Shenandoah River near Luray, VA (#01629500) from 1925-1930, 1938-1951, and 1979-present. This gage is located at the US Route 211 bridge approximately 4 miles west of Luray, VA. It is approximately 6 miles downstream of the discharge point. Flow frequencies for the South Fork Shenandoah River were calculated using the DFLOW 4 statistical program in EPA's BASINS 4.1 software package. The Stanley STP discharges in close proximity to the subject facility and is also included in the gage statistics. In addition, Alma Plant (VA0001961) is located between the discharge point and the gage, but it was not considered in this analysis since there is not currently a discharge from the facility. The flow frequencies at the discharge point were determined by subtracting the average discharge flow (0.422 cfs) of the Stanley STP from the reference gage values and adjusting them by proportional drainage areas. The flow frequencies are presented below:

**South Fork Shenandoah River near Luray, VA (#01629500):**
Drainage Area = 1372 $mi^2$

| | | | |
|---|---|---|---|
| 1Q10 = | 200 cfs | High Flow 1Q10 = | 300 cfs |
| 7Q10 = | 230 cfs | High Flow 7Q10 = | 334 cfs |
| 30Q10 = | 273 cfs | High Flow 30Q10 = | 426 cfs |
| 30Q5 = | 290 cfs | Harmonic Mean = | 697 cfs |

**South Fork Shenandoah River at discharge point:**
Drainage Area = 1345 $mi^2$

| | | | | | |
|---|---|---|---|---|---|
| 1Q10 = | 196 cfs | (126 MGD) | High Flow 1Q10 = | 294 cfs | (190 MGD) |
| 7Q10 = | 225 cfs | (145 MGD) | High Flow 7Q10 = | 327 cfs | (211 MGD) |
| 30Q10 = | 267 cfs | (173 MGD) | High Flow 30Q10 = | 417 cfs | (270 MGD) |
| 30Q5 = | 284 cfs | (183 MGD) | Harmonic Mean = | 683 cfs | (441 MGD) |

This does not take into account any future increases in discharge flow from the Stanley STP or restart of a discharge from the Alma Plant, both of which will be reflected in future reference gage flow statistics. The analysis does not address any other withdrawals, discharges, or springs lying between the gage and the outfall.

The high flow months are January through May.

Reviewed: KAS 8/30/2019

EFFLUENT/STREAM MIXING EVALUATION

Mixing zone predictions were made with the Virginia DEQ Mixing Zone Analysis Version 2.1 program. The predictions are based on the discharge and receiving stream characteristics, and are presented below.

Effluent Flow = 1.0 MGD
Stream 7Q10 = 145 MGD
Stream 30Q10 = 173 MGD
Stream 1Q10 = 126 MGD
Stream slope = 0.001 ft/ft
Stream width = 300 ft
Bottom scale = 3
Channel scale = 1

---
Mixing Zone Predictions @ 7Q10

Depth = 1.4085 ft
Length = 64195.85 ft
Velocity = .5349 ft/sec
Residence Time = 1.3891 days

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

---
Mixing Zone Predictions @ 30Q10

Depth = 1.5655 ft
Length = 58744.29 ft
Velocity = .5735 ft/sec
Residence Time = 1.1855 days

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

---
Mixing Zone Predictions @ 1Q10

Depth = 1.295 ft
Length = 68882.87 ft
Velocity = .506 ft/sec
Residence Time = 37.8134 hours

Recommendation: A complete mix assumption is appropriate for this situation providing no more than 2.64% of the 1Q10 is used.

## APPENDIX C

## EFFLUENT SCREENING AND EFFLUENT LIMITATIONS

EFFLUENT LIMITATIONS

A comparison of technology-based limits for both industries and water quality-based limits was performed, and the most stringent limits were selected. The selected limits are summarized in the table below.

**Outfall 001** **Final Limits** **Design Flow: 1.0 MGD**

| PARAMETER | BASIS FOR LIMITS | EFFLUENT LIMITATIONS | | | | MONITORING REQUIREMENTS | |
|---|---|---|---|---|---|---|---|
| | | Monthly Average | | Maximum | | Frequency | Sample Type |
| Flow (MGD) | 1 | NL | | NL | | Continuous | TIRE |
| $BOD_5$ | 2,4,5 | 16 mg/L | 60 kg/d | 26 mg/L | 98 kg/d | 1/Week | 24 HC |
| TSS | 2 | 20 mg/L | 76 kg/d | 30 mg/L | 110 kg/d | 1/Month | 24 HC |
| Ammonia-N (mg/L) | 2,3 | 4.0 | | 8.0 | | 1/Week | 24 HC |
| Effluent Chlorine (TRC)(mg/L)* | 4 | 0.030 | | 0.061 | | 4/Day @ 4-hr intervals | Grab |
| Oil and Grease (as HEM) | 2 | 8.0 mg/L | 30 kg/d | 14 mg/L | 53 kg/d | 1/Month | Grab |
| E. coli (N/100 mL) (geometric mean) | 4,7 | 126 | | NA | | 4/Month in any month of each calendar quarter * or 5/Week** 10 am to 4 pm | Grab |
| Total Nitrogen (TN) | 3 | 103 mg/L | 390 kg/d | 147 mg/L | 560 kg/d | 1/Month | Calculated |
| --- | --- | Minimum | | Maximum | | --- | --- |
| pH (S.U.) | 2,4 | 6.5 | | 9.0 | | 1/Day | Grab |
| Fecal Coliform | 2 | NA | | 400 N/100 mL | | 1/Year | Grab |
| Contact Chlorine (TRC)(mg/L)* | 4,6 | 1.0 | | NA | | 4/Day @ 4-hr intervals | Grab |

*Refer to permit for definitions of monitoring frequencies and sample types*
** Applicable only when chlorination is used for disinfection*
*** Applicable if an alternative to chlorination is used for disinfection*

*BASIS DESCRIPTIONS*

1. *VPDES Permit Regulation (9VAC25-31)*
2. *Federal Effluent Requirements (Meat and Poultry Products – 40CFR432 – Subpart K - BPT)*
3. *Federal Effluent Requirements (Meat and Poultry Products – 40CFR432 – Subpart K - BAT)*
4. *Water Quality Standards (9VAC25-260)*
5. *Regional Stream Model simulation*
6. *Best Professional Judgment (BPJ)*
7. *TMDL for South Fork Shenandoah River*

LIMITING FACTORS – OVERVIEW:
The following potential limiting factors have been considered in developing this permit and fact sheet:

| | |
|---|---|
| Water Quality Management Plan (WQMP) Regulation (9VAC25-720) | |
| A. Local TMDL limits | E. coli |
| B. Non-TMDL WLAs | None |
| C. Chesapeake Bay TMDL WLAs | TN and TP via GP VAN010008 |
| Federal Effluent Guidelines | Ammonia-N, $BOD_5$, TSS, pH, Fecal Coliform, Oil & Grease, TN |
| PJ/Agency Guidance limits | TRC (contact) |
| Water Quality-based Limits - numeric | $BOD_5$, DO, TRC (effluent), E. coli, pH, Ammonia-N |
| Water Quality-based Limits - narrative | None |
| Technology-based Limits (9VAC25-40-70) | None |
| Whole Effluent Toxicity (WET) | See Appendix C |
| Stormwater Limits | None |

The outfalls for the Alma Plant and Stanley are located less than 800 feet apart and on the same side of the large receiving stream. Due to the relationship between the outfalls, the two discharges were analyzed as if they comprised a single discharge during previous permit reissuances for the Alma Plant and for Stanley STP. This approach has been utilized during this permit reissuance as well.

All monitoring frequencies are identical to those in the previous permit.

EVALUATION OF THE EFFLUENT – FEDERAL EFFLUENT GUIDELINES
Because the permittee has indicated that if poultry processing operations were to resume that the facility will slaughter more than 100 million pounds per year (in units of (Live Weight Killed)), the facility is subject to the Federal Effluent Guideline (FEG) for Meat and Poultry Products – 40CFR432 – Subpart K which became effective on October 8, 2004. The following table shows the effluent limitations attainable by the application of the best practical control technology available (BPT).

| Regulated parameter | Monthly Average[1] | Daily Maximum[1] |
|---|---|---|
| Ammonia (as N) | 4.0 | 8.0 |
| $BOD_5$ | 16 | 26 |
| Fecal Coliform | ([3]) | ([2]) |
| Oil & Grease | 8.0 | 14 |
| TSS | 20 | 30 |

[1] mg/L (ppm).
[2] Maximum of 400 MPN or CFU per 100 mL at any time.
[3] No maximum monthly average limitation.

The following table indicates the effluent limitations attainable by the application of the best available technology economically achievable (BAT).

| Regulated parameter | Monthly Average[1] | Daily Maximum[1] |
|---|---|---|
| Ammonia (as N) | 4.0 | 8.0 |
| Total Nitrogen | 103 | 147 |

[1] mg/L (ppm).

The effluent limitations attainable by the application of the best control technology for conventional pollutants (BCT) are the same as the BPT limitations for $BOD_5$, TSS, O&G (as HEM), and Fecal Coliform.

Because this facility is an existing direct discharger, it is subject to BPT, BAT, and BCT effluent limitations.

Any discharge subject to BPT, BCT, or NSPS limitations or standards in Part 432 must remain within the pH range of 6.0 to 9.0 SU.

EVALUATION OF THE EFFLUENT – CONVENTIONAL POLLUTANTS

The FEG specifies $BOD_5$ concentration limits. The combined discharge from the Alma Plant and Stanley STP was remodeled at this reissuance using the Regional Stream Model because of new stream flow and temperature information was available. The modeling information is available for review at the DEQ-Valley Regional Office or electronically upon request.

A mass balance calculation was performed to determine the effluent characteristics of the combined discharges as follows:

| Parameter | Alma Plant | Stanley STP | Combined Discharge | Combined Discharge | Combined Discharge |
|---|---|---|---|---|---|
| Flow (MGD) | 1 | 0.3; 0.4; 0.49 | 1.3 | 1.4 | 1.49 |
| $BOD_5$ (mg/L) | 16[a] | 30[b] | 19 | 20 | 21 |
| TKN (mg/L) | 20[c] | 20[d] | 20 | 20 | 20 |
| DO (mg/L) | 0 | 0; 5; 5 | 0 | 1.4 | 1.6 |

Bases for Modeled Values

a. Federal Effluent Requirements (Meat and Poultry Products – 40CFR432)
b. Federal Effluent Requirements (Secondary Treatment Regulation - 40CFR133)
c. Actual effluent TKN data from when the facility was operating as a poultry processing plant average 1.4 mg/L. A concentration of 20 mg/L was utilized as a worst case scenario that this facility is not expected to exceed.
d. Maximum TKN concentration expected from a sewage treatment plant.

The combined discharge was modeled using the mass balance calculated effluent characteristics for the discharge flow of 1.49 MGD. Based on the model, it was determined that the combined discharge characteristics were protective; therefore, it can be assumed that the combined discharge characteristics are also protective at the reduced flows of 0.3 MGD and 0.4 MGD for Stanley STP.

Because a modeled $CBOD_5$ combined discharge concentration of 21 mg/L was demonstrated to be protective, a $BOD_5$ combined discharge concentration of 21 mg/L and an Alma Plant effluent concentration of 16 mg/L are also protective. The $BOD_5$ limits are identical to those in the previous permit.

Based on the model, it was determined that no TKN limits were needed because Alma Plant is not expected to discharge effluent with TKN concentrations greater than 20 mg/L based on previous effluent data and the Ammonia-N limits that have been imposed.

Because a DO combined discharge concentration of 1.6 mg/L was demonstrated to be protective, a DO limit was determined not to be necessary for Alma Plant.

The WQS for pH in the receiving stream are 6.5 – 9.5 SU. The FEG specifies that the pH must be from 6.0 – 9.0 SU; therefore, a minimum pH limit of 6.5 SU and a maximum pH limit of 9.0 SU have been imposed. The pH limits are identical to those in the previous permit.

The Fecal Coliform, Oil & Grease (as HEM), TSS, and TN limits reflect the limits specified in the FEG. These limits are identical to those in the previous permit. The monitoring frequency for TN was revised from 2/Month to 1/Month based on the nature of the discharge.

EVALUATION OF THE EFFLUENT – DISINFECTION:

The TRC disinfection requirements are identical to those in the previous permit. In addition to the minimum TRC contact requirements, E. coli monitoring at a frequency of 4/Month in any month of each calendar quarter and an associated limit are included in the permit to ensure effective disinfection is achieved. If an alternative to chlorination is utilized, E. coli monitoring at a frequency of 5/Week and an associated limit are required. The E. coli limits are consistent with the Bacteria TMDL WLA of $1.74 \times 10^{12}$ cfu/yr, are protective of the current WQS for E. coli in the receiving stream, and are identical to the limits in the previous permit.

EVALUATION OF THE EFFLUENT – NUTRIENTS:

This Significant Discharger is covered under the WGP. The load limit for TN is 18,273 pounds per calendar year and TP is 914 pounds per calendar year.

EVALUATION OF THE EFFLUENT – TOXICS:

Stream: Water quality data for the receiving stream was obtained from Ambient Monitoring Station No. 1BSSF054.20 the South Fork Shenandoah River at the Rt. 211 bridge.

| Stream Information | | | |
|---|---|---|---|
| 90% Annual Temp (°C) = | 24.9 | 90% pH (SU) = | 8.8 |
| Mean Hardness (mg/L) = | 136.1 | 10% pH (SU) = | 7.6 |

All toxic pollutants, including Ammonia-N and TRC, are assumed absent in the receiving stream because there are no data for these parameters directly above the discharge.

Discharge: The pH value for Stanley STP was obtained from data reported on the Discharge Monitoring Reports (DMRs) submitted by the permittee. The temperature and hardness values for Stanley STP were carried forward from the previous fact sheet because no new data were available. All of the values for Alma Plant were carried forward from the 2004 permit reissuance process because no new data were available. Mass balance calculations were performed to determine the effluent characteristics of the combined discharges as follows:

| Effluent Parameter | Stanley STP | Alma Plant | Combined Discharge | Combined Discharge | Combined Discharge |
|---|---|---|---|---|---|
| Flow (MGD) = | 0.3; 0.4; 0.49 | 1.0 | 1.3 | 1.4 | 1.49 |
| 90% pH (SU) = | 7.5 | 7.3 | 7.3 | 7.3 | 7.4 |
| 10% pH (SU) = | 7.1 | 7.0 | 7.0 | 7.0 | 7.0 |
| 90% Annual Temp (°C) = | 22 | 29 | 27 | 27 | 27 |
| Mean Hardness (mg/L) = | 175 | 492 | 419 | 401 | 388 |

WQC and WLAs were calculated for the WQS parameters for which data are available. The resulting WQC and WLAs are presented in this appendix. Current agency guidelines recommend the evaluation of toxic pollutant limits for TRC be based on default effluent concentrations of 20 mg/L if it is potentially present. The effluent data were analyzed per the protocol for evaluation of effluent toxic pollutants included in this appendix with the following results:

- TRC: Less stringent limits were determined be necessary based on increased receiving stream flows. The less stringent limits comply with the antibacksliding provisions of the VPDES Permit Regulation because new stream flow information is available which would have justified the less stringent limits when the previous limits were established.

- Ammonia-N: Water quality-based Ammonia-N limits were determined not to be necessary. The previous permit included Ammonia-N (Apr-Sep) limits based on antibacksliding. The Ammonia-N (Apr-Sep) limits that were based on antibacksliding were removed at this reissuance. There is new information available, including increased receiving stream flows, decreased receiving stream temperature, and decreased receiving stream pH that affect the determination that no water quality-based Ammonia-N limit are necessary. An Ammonia-N monthly average limit of 4.0 mg/L and a daily maximum limit of 8.0 mg/L based on the FEGs were imposed year round.

- Since most of the treatment units have been removed, and it would require a completely different treatment facility than what was previously evaluated in order to reinstate operations, a complete WQS toxics scan has been required. This monitoring must be performed within 1 year of commencement of discharge

## FRESHWATER
## WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Alma Plant  Permit No.: VA0001961

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

| Stream Information | | | Stream Flows | | | Mixing Information | | | Effluent Information | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mean Hardness (as CaCO3) = | 136.1 | mg/L | 1Q10 (Annual) = | 126 | MGD | Annual - 1Q10 Mix = | 2.64 | % | Mean Hardness (as CaCO3) = | 388 | mg/L |
| 90% Temperature (Annual) = | 24.9 | deg C | 7Q10 (Annual) = | 145 | MGD | - 7Q10 Mix = | 100 | % | 90% Temp (Annual) = | 27 | deg C |
| 90% Temperature (Wet season) = | | deg C | 30Q10 (Annual) = | 173 | MGD | - 30Q10 Mix = | 100 | % | 90% Temp (Wet season) = | | deg C |
| 90% Maximum pH = | 8.8 | SU | 1Q10 (Wet season) = | | MGD | Wet Season - 1Q10 Mix = | | % | 90% Maximum pH = | 7.4 | SU |
| 10% Maximum pH = | 7.6 | SU | 30Q10 (Wet season) = | | MGD | - 30Q10 Mix = | | % | 10% Maximum pH = | 7 | SU |
| Tier Designation (1 or 2) = | 1 | | 30Q5 = | 183 | MGD | | | | Discharge Flow = | 1.49 | MGD |
| Public Water Supply (PWS) Y/N? = | n | | Harmonic Mean = | 441 | MGD | | | | | | |
| Trout Present Y/N? = | n | | | | | | | | | | |
| Early Life Stages Present Y/N? = | y | | | | | | | | | | |

| Parameter | Background | Water Quality Criteria | | | | Wasteload Allocations | | | | Antidegradation Baseline | | | | Antidegradation Allocations | | | | Most Limiting Allocations | | | | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (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 | Target Value |
| Acenapthene | 0 | – | – | na | 9.9E+02 | – | – | na | 1.2E+05 | – | – | – | – | – | – | – | – | -- | -- | na | 1.2E+05 | 1.2E+05 |
| Acrolein | 0 | 3.0E+00 | 3.0E+00 | na | 9.3E+00 | 9.7E+00 | 2.9E+02 | na | 2.8E+03 | – | – | – | – | – | – | – | – | 9.7E+00 | 2.9E+02 | na | 2.8E+03 | 3.9E+00 |
| Acrylonitrile [C] | 0 | – | – | na | 2.5E+00 | – | – | na | 7.4E+02 | – | – | – | – | – | – | – | – | -- | -- | na | 7.4E+02 | 7.4E+02 |
| Aldrin [C] | 0 | 3.0E+00 | – | na | 5.0E-04 | 9.7E+00 | – | na | 1.5E-01 | – | – | – | – | – | – | – | – | 9.7E+00 | -- | na | 1.5E-01 | 1.5E-01 |
| Ammonia-N (mg/l) (Yearly) | 0 | 1.07E+01 | 3.86E-01 | na | – | 3.44E+01 | 4.52E+01 | na | – | – | – | – | – | – | – | – | – | 3.44E+01 | 4.52E+01 | na | -- | 1.4E+01 |
| Anthracene | 0 | – | – | na | 4.0E+04 | – | – | na | 5.0E+06 | – | – | – | – | – | – | – | – | -- | -- | na | 5.0E+06 | 5.0E+06 |
| Antimony | 0 | – | – | na | 6.4E+02 | – | – | na | 7.9E+04 | – | – | – | – | – | – | – | – | -- | -- | na | 7.9E+04 | 7.9E+04 |
| Arsenic | 0 | 3.4E+02 | 1.5E+02 | na | – | 1.1E+03 | 1.5E+04 | na | – | – | – | – | – | – | – | – | – | 1.1E+03 | 1.5E+04 | na | -- | 4.4E+02 |
| Barium | 0 | – | – | na | – | – | – | na | – | – | – | – | – | – | – | – | – | -- | -- | na | -- | 0.0E+00 |
| Benzene [C] | 0 | – | – | na | 5.1E+02 | – | – | na | 1.5E+05 | – | – | – | – | – | – | – | – | -- | -- | na | 1.5E+05 | 1.5E+05 |
| Benzidine [C] | 0 | – | – | na | 2.0E-03 | – | – | na | 5.9E-01 | – | – | – | – | – | – | – | – | -- | -- | na | 5.9E-01 | 5.9E-01 |
| Benzo (a) anthracene [C] | 0 | – | – | na | 1.8E-01 | – | – | na | 5.3E+01 | – | – | – | – | – | – | – | – | -- | -- | na | 5.3E+01 | 5.3E+01 |
| Benzo (b) fluoranthene [C] | 0 | – | – | na | 1.8E-01 | – | – | na | 5.3E+01 | – | – | – | – | – | – | – | – | -- | -- | na | 5.3E+01 | 5.3E+01 |
| Benzo (k) fluoranthene [C] | 0 | – | – | na | 1.8E-01 | – | – | na | 5.3E+01 | – | – | – | – | – | – | – | – | -- | -- | na | 5.3E+01 | 5.3E+01 |
| Benzo (a) pyrene [C] | 0 | – | – | na | 1.8E-01 | – | – | na | 5.3E+01 | – | – | – | – | – | – | – | – | -- | -- | na | 5.3E+01 | 5.3E+01 |
| Bis2-Chloroethyl Ether [C] | 0 | – | – | na | 5.3E+00 | – | – | na | 1.6E+03 | – | – | – | – | – | – | – | – | -- | -- | na | 1.6E+03 | 1.6E+03 |
| Bis2-Chloroisopropyl Ether | 0 | – | – | na | 6.5E+04 | – | – | na | 8.0E+06 | – | – | – | – | – | – | – | – | -- | -- | na | 8.0E+06 | 8.0E+06 |
| Bis 2-Ethylhexyl Phthalate [C] | 0 | – | – | na | 2.2E+01 | – | – | na | 6.5E+03 | – | – | – | – | – | – | – | – | -- | -- | na | 6.5E+03 | 6.5E+03 |
| Bromoform [C] | 0 | – | – | na | 1.4E+03 | – | – | na | 4.2E+05 | – | – | – | – | – | – | – | – | -- | -- | na | 4.2E+05 | 4.2E+05 |
| Butylbenzylphthalate | 0 | – | – | na | 1.9E+03 | – | – | na | 2.4E+05 | – | – | – | – | – | – | – | – | -- | -- | na | 2.4E+05 | 2.4E+05 |
| Cadmium | 0 | 9.3E+00 | 1.5E+00 | na | – | 3.0E+01 | 1.4E+02 | na | – | – | – | – | – | – | – | – | – | 3.0E+01 | 1.4E+02 | na | -- | 1.2E+01 |
| Carbon Tetrachloride [C] | 0 | – | – | na | 1.6E+01 | – | – | na | 4.8E+03 | – | – | – | – | – | – | – | – | -- | -- | na | 4.8E+03 | 4.8E+03 |
| Carbaryl | 0 | 2.1E+00 | 2.1E+00 | na | – | 6.8E+00 | 2.1E+02 | na | – | – | – | – | – | – | – | – | – | 6.8E+00 | 2.1E+02 | na | -- | 2.7E+00 |
| Chlordane [C] | 0 | 2.4E+00 | 4.3E-03 | na | 8.1E-03 | 7.8E+00 | 4.2E-01 | na | 2.4E+00 | – | – | – | – | – | – | – | – | 7.8E+00 | 4.2E-01 | na | 2.4E+00 | 2.5E-01 |
| Chloride | 0 | 8.6E+05 | 2.3E+05 | na | – | 2.8E+06 | 2.3E+07 | na | – | – | – | – | – | – | – | – | – | 2.8E+06 | 2.3E+07 | na | -- | 1.1E+06 |
| TRC | 0 | 1.9E+01 | 1.1E+01 | na | – | 6.1E+01 | 1.1E+03 | na | – | – | – | – | – | – | – | – | – | 6.1E+01 | 1.1E+03 | na | -- | 2.5E+01 |
| Chlorobenzene | 0 | – | – | na | 1.6E+03 | – | – | na | 2.0E+05 | – | – | – | – | – | – | – | – | -- | -- | na | 2.0E+05 | 2.0E+05 |

| Parameter | Background | Water Quality Criteria | | | | Wasteload Allocations | | | | Antidegradation Baseline | | | | Antidegradation Allocations | | | | Most Limiting Allocations | | | | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (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 | Target Value |
| Chlorodibromomethane [C] | 0 | – | – | na | 1.3E+02 | – | – | na | 3.9E+04 | – | – | – | – | – | – | – | – | -- | -- | na | 3.9E+04 | 3.9E+04 |
| Chloroform | 0 | – | – | na | 1.1E+04 | – | – | na | 1.4E+06 | – | – | – | – | – | – | – | – | -- | -- | na | 1.4E+06 | 1.4E+06 |
| 2-Chloronaphthalene | 0 | – | – | na | 1.6E+03 | – | – | na | 2.0E+05 | – | – | – | – | – | – | – | – | -- | -- | na | 2.0E+05 | 2.0E+05 |
| 2-Chlorophenol | 0 | – | – | na | 1.5E+02 | – | – | na | 1.9E+04 | – | – | – | – | – | – | – | – | -- | -- | na | 1.9E+04 | 1.9E+04 |
| Chlorpyrifos | 0 | 8.3E-02 | 4.1E-02 | na | – | 2.7E-01 | 4.0E+00 | na | – | – | – | – | – | – | – | – | – | 2.7E-01 | 4.0E+00 | na | -- | 1.1E-01 |
| Chromium III | 0 | 1.1E+03 | 9.7E+01 | na | – | 3.4E+03 | 9.5E+03 | na | – | – | – | – | – | – | – | – | – | 3.4E+03 | 9.5E+03 | na | -- | 1.4E+03 |
| Chromium VI | 0 | 1.6E+01 | 1.1E+01 | na | – | 5.2E+01 | 1.1E+03 | na | – | – | – | – | – | – | – | – | – | 5.2E+01 | 1.1E+03 | na | -- | 2.1E+01 |
| Chromium, Total | 0 | – | – | 1.0E+02 | – | – | – | na | – | – | – | – | – | – | – | – | – | -- | -- | na | -- | 0.0E+00 |
| Chrysene [C] | 0 | – | – | 3.8E-02 | 1.8E-02 | – | – | na | 5.3E+00 | – | – | – | – | – | – | – | – | -- | -- | na | 5.3E+00 | 5.3E+00 |
| Copper | 0 | 2.8E+01 | 1.2E+01 | na | – | 8.9E+01 | 1.2E+03 | na | – | – | – | – | – | – | – | – | – | 8.9E+01 | 1.2E+03 | na | -- | 3.6E+01 |
| Cyanide, Free | 0 | 2.2E+01 | 5.2E+00 | na | 1.6E+04 | 7.1E+01 | 5.1E+02 | na | 2.0E+06 | – | – | – | – | – | – | – | – | 7.1E+01 | 5.1E+02 | na | 2.0E+06 | 2.8E+01 |
| DDD [C] | 0 | – | – | na | 3.1E-03 | – | – | na | 9.2E-01 | – | – | – | – | – | – | – | – | -- | -- | na | 9.2E-01 | 9.2E-01 |
| DDE [C] | 0 | – | – | na | 2.2E-03 | – | – | na | 6.5E-01 | – | – | – | – | – | – | – | – | -- | -- | na | 6.5E-01 | 6.5E-01 |
| DDT [C] | 0 | 1.1E+00 | 1.0E-03 | na | 2.2E-03 | 3.6E+00 | 9.8E-02 | na | 6.5E-01 | – | – | – | – | – | – | – | – | 3.6E+00 | 9.8E-02 | na | 6.5E-01 | 5.9E-02 |
| Demeton | 0 | – | 1.0E-01 | na | – | – | 9.8E+00 | na | – | – | – | – | – | – | – | – | – | -- | 9.8E+00 | na | -- | 9.8E+00 |
| Diazinon | 0 | 1.7E-01 | 1.7E-01 | na | – | 5.5E-01 | 1.7E+01 | na | – | – | – | – | – | – | – | – | – | 5.5E-01 | 1.7E+01 | na | -- | 2.2E-01 |
| Dibenz(a,h)anthracene [C] | 0 | – | – | na | 1.8E-01 | – | – | na | 5.3E+01 | – | – | – | – | – | – | – | – | -- | -- | na | 5.3E+01 | 5.3E+01 |
| 1,2-Dichlorobenzene | 0 | – | – | na | 1.3E+03 | – | – | na | 1.6E+05 | – | – | – | – | – | – | – | – | -- | -- | na | 1.6E+05 | 1.6E+05 |
| 1,3-Dichlorobenzene | 0 | – | – | na | 9.6E+02 | – | – | na | 1.2E+05 | – | – | – | – | – | – | – | – | -- | -- | na | 1.2E+05 | 1.2E+05 |
| 1,4-Dichlorobenzene | 0 | – | – | na | 1.9E+02 | – | – | na | 2.4E+04 | – | – | – | – | – | – | – | – | -- | -- | na | 2.4E+04 | 2.4E+04 |
| 3,3-Dichlorobenzidine [C] | 0 | – | – | na | 2.8E-01 | – | – | na | 8.3E+01 | – | – | – | – | – | – | – | – | -- | -- | na | 8.3E+01 | 8.3E+01 |
| Dichlorobromomethane [C] | 0 | – | – | na | 1.7E+02 | – | – | na | 5.0E+04 | – | – | – | – | – | – | – | – | -- | -- | na | 5.0E+04 | 5.0E+04 |
| 1,2-Dichloroethane [C] | 0 | – | – | na | 3.7E+02 | – | – | na | 1.1E+05 | – | – | – | – | – | – | – | – | -- | -- | na | 1.1E+05 | 1.1E+05 |
| 1,1-Dichloroethylene | 0 | – | – | na | 7.1E+03 | – | – | na | 8.8E+05 | – | – | – | – | – | – | – | – | -- | -- | na | 8.8E+05 | 8.8E+05 |
| 1,2-trans-dichloroethylene | 0 | – | – | na | 1.0E+04 | – | – | na | 1.2E+06 | – | – | – | – | – | – | – | – | -- | -- | na | 1.2E+06 | 1.2E+06 |
| 2,4-Dichlorophenol | 0 | – | – | na | 2.9E+02 | – | – | na | 3.6E+04 | – | – | – | – | – | – | – | – | -- | -- | na | 3.6E+04 | 3.6E+04 |
| 2,4-Dichlorophenoxy acetic acid (2,4-D) | 0 | – | – | na | – | – | – | na | – | – | – | – | – | – | – | – | – | -- | -- | na | -- | 0.0E+00 |
| 1,2-Dichloropropane [C] | 0 | – | – | na | 1.5E+02 | – | – | na | 4.5E+04 | – | – | – | – | – | – | – | – | -- | -- | na | 4.5E+04 | 4.5E+04 |
| 1,3-Dichloropropene [C] | 0 | – | – | na | 2.1E+02 | – | – | na | 6.2E+04 | – | – | – | – | – | – | – | – | -- | -- | na | 6.2E+04 | 6.2E+04 |
| Dieldrin [C] | 0 | 2.4E-01 | 5.6E-02 | na | 5.4E-04 | 7.8E-01 | 5.5E+00 | na | 1.6E-01 | – | – | – | – | – | – | – | – | 7.8E-01 | 5.5E+00 | na | 1.6E-01 | 1.6E-01 |
| Diethyl Phthalate | 0 | – | – | na | 4.4E+04 | – | – | na | 5.4E+06 | – | – | – | – | – | – | – | – | -- | -- | na | 5.4E+06 | 5.4E+06 |
| 2,4-Dimethylphenol | 0 | – | – | na | 8.5E+02 | – | – | na | 1.1E+05 | – | – | – | – | – | – | – | – | -- | -- | na | 1.1E+05 | 1.1E+05 |
| Dimethyl Phthalate | 0 | – | – | na | 1.1E+06 | – | – | na | 1.4E+08 | – | – | – | – | – | – | – | – | -- | -- | na | 1.4E+08 | 1.4E+08 |
| Di-n-Butyl Phthalate | 0 | – | – | na | 4.5E+03 | – | – | na | 5.6E+05 | – | – | – | – | – | – | – | – | -- | -- | na | 5.6E+05 | 5.6E+05 |
| 2,4 Dinitrophenol | 0 | – | – | na | 5.3E+03 | – | – | na | 6.6E+05 | – | – | – | – | – | – | – | – | -- | -- | na | 6.6E+05 | 6.6E+05 |
| 2-Methyl-4,6-Dinitrophenol | 0 | – | – | na | 2.8E+02 | – | – | na | 3.5E+04 | – | – | – | – | – | – | – | – | -- | -- | na | 3.5E+04 | 3.5E+04 |
| 2,4-Dinitrotoluene [C] | 0 | – | – | na | 3.4E+01 | – | – | na | 1.0E+04 | – | – | – | – | – | – | – | – | -- | -- | na | 1.0E+04 | 1.0E+04 |
| Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin | 0 | – | – | na | 5.1E-08 | – | – | na | 6.3E-06 | – | – | – | – | – | – | – | – | -- | -- | na | 6.3E-06 | 6.3E-06 |
| 1,2-Diphenylhydrazine [C] | 0 | – | – | na | 2.0E+00 | – | – | na | 5.9E+02 | – | – | – | – | – | – | – | – | -- | -- | na | 5.9E+02 | 5.9E+02 |
| Alpha-Endosulfan | 0 | 2.2E-01 | 5.6E-02 | na | 8.9E+01 | 7.1E-01 | 5.5E+00 | na | 1.1E+04 | – | – | – | – | – | – | – | – | 7.1E-01 | 5.5E+00 | na | 1.1E+04 | 2.8E-01 |
| Beta-Endosulfan | 0 | 2.2E-01 | 5.6E-02 | na | 8.9E+01 | 7.1E-01 | 5.5E+00 | na | 1.1E+04 | – | – | – | – | – | – | – | – | 7.1E-01 | 5.5E+00 | na | 1.1E+04 | 2.8E-01 |
| Alpha + Beta Endosulfan | 0 | 2.2E-01 | 5.6E-02 | – | – | 7.1E-01 | 5.5E+00 | – | – | – | – | – | – | – | – | – | – | 7.1E-01 | 5.5E+00 | -- | -- | 2.8E-01 |
| Endosulfan Sulfate | 0 | – | – | na | 8.9E+01 | – | – | na | 1.1E+04 | – | – | – | – | – | – | – | – | -- | -- | na | 1.1E+04 | 1.1E+04 |
| Endrin | 0 | 8.6E-02 | 3.6E-02 | na | 6.0E-02 | 2.8E-01 | 3.5E+00 | na | 7.4E+00 | – | – | – | – | – | – | – | – | 2.8E-01 | 3.5E+00 | na | 7.4E+00 | 1.1E-01 |
| Endrin Aldehyde | 0 | – | – | na | 3.0E-01 | – | – | na | 3.7E+01 | – | – | – | – | – | – | – | – | -- | -- | na | 3.7E+01 | 3.7E+01 |

| Parameter | Background | Water Quality Criteria | | | | Wasteload Allocations | | | | Antidegradation Baseline | | | | Antidegradation Allocations | | | | Most Limiting Allocations | | | | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (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 | Target Value |
| Ethylbenzene | 0 | – | – | na | 2.1E+03 | – | – | na | 2.6E+05 | – | – | – | – | – | – | – | – | -- | -- | na | 2.6E+05 | 2.6E+05 |
| Fluoranthene | 0 | – | – | na | 1.4E+02 | – | – | na | 1.7E+04 | – | – | – | – | – | – | – | – | -- | -- | na | 1.7E+04 | 1.7E+04 |
| Fluorene | 0 | – | – | na | 5.3E+03 | – | – | na | 6.6E+05 | – | – | – | – | – | – | – | – | -- | -- | na | 6.6E+05 | 6.6E+05 |
| Foaming Agents | 0 | – | – | na | – | – | – | na | – | – | – | – | – | – | – | – | – | -- | -- | na | -- | 0.0E+00 |
| Guthion | 0 | – | 1.0E-02 | na | – | – | 9.8E-01 | na | – | – | – | – | – | – | – | – | – | -- | 9.8E-01 | na | -- | 9.8E-01 |
| Heptachlor [c] | 0 | 5.2E-01 | 3.8E-03 | na | 7.9E-04 | 1.7E+00 | 3.7E-01 | na | 2.3E-01 | – | – | – | – | – | – | – | – | 1.7E+00 | 3.7E-01 | na | 2.3E-01 | 2.2E-01 |
| Heptachlor Epoxide [c] | 0 | 5.2E-01 | 3.8E-03 | na | 3.9E-04 | 1.7E+00 | 3.7E-01 | na | 1.2E-01 | – | – | – | – | – | – | – | – | 1.7E+00 | 3.7E-01 | na | 1.2E-01 | 1.2E-01 |
| Hexachlorobenzene [c] | 0 | – | – | na | 2.9E-03 | – | – | na | 8.6E-01 | – | – | – | – | – | – | – | – | -- | -- | na | 8.6E-01 | 8.6E-01 |
| Hexachlorobutadiene [c] | 0 | – | – | na | 1.8E+02 | – | – | na | 5.3E+04 | – | – | – | – | – | – | – | – | -- | -- | na | 5.3E+04 | 5.3E+04 |
| Hexachlorocyclohexane Alpha-BHC [c] | 0 | – | – | na | 4.9E-02 | – | – | na | 1.5E+01 | – | – | – | – | – | – | – | – | -- | -- | na | 1.5E+01 | 1.5E+01 |
| Hexachlorocyclohexane Beta-BHC [c] | 0 | – | – | na | 1.7E-01 | – | – | na | 5.0E+01 | – | – | – | – | – | – | – | – | -- | -- | na | 5.0E+01 | 5.0E+01 |
| Hexachlorocyclohexane Gamma-BHC [c] (Lindane) | 0 | 9.5E-01 | na | na | 1.8E+00 | 3.1E+00 | – | na | 5.3E+02 | – | – | – | – | – | – | – | – | 3.1E+00 | -- | na | 5.3E+02 | 1.2E+00 |
| Hexachlorocyclopentadiene | 0 | – | – | na | 1.1E+03 | – | – | na | 1.4E+05 | – | – | – | – | – | – | – | – | -- | -- | na | 1.4E+05 | 1.4E+05 |
| Hexachloroethane [c] | 0 | – | – | na | 3.3E+01 | – | – | na | 9.8E+03 | – | – | – | – | – | – | – | – | -- | -- | na | 9.8E+03 | 9.8E+03 |
| Hydrogen Sulfide | 0 | – | 2.0E+00 | na | – | – | 2.0E+02 | na | – | – | – | – | – | – | – | – | – | -- | 2.0E+02 | na | -- | 2.0E+02 |
| Indeno (1,2,3-cd) pyrene [c] | 0 | – | – | na | 1.8E-01 | – | – | na | 5.3E+01 | – | – | – | – | – | – | – | – | -- | -- | na | 5.3E+01 | 5.3E+01 |
| Iron | 0 | – | – | na | – | – | – | na | – | – | – | – | – | – | – | – | – | -- | -- | na | -- | 0.0E+00 |
| Isophorone [c] | 0 | – | – | na | 9.6E+03 | – | – | na | 2.9E+06 | – | – | – | – | – | – | – | – | -- | -- | na | 2.9E+06 | 2.9E+06 |
| Kepone | 0 | – | 0.0E+00 | na | – | – | 0.0E+00 | na | – | – | – | – | – | – | – | – | – | -- | 0.0E+00 | na | -- | 0.0E+00 |
| Lead | 0 | 2.1E+02 | 1.5E+01 | na | – | 6.9E+02 | 1.5E+03 | na | – | – | – | – | – | – | – | – | – | 6.9E+02 | 1.5E+03 | na | -- | 2.8E+02 |
| Malathion | 0 | – | 1.0E-01 | na | – | – | 9.8E+00 | na | – | – | – | – | – | – | – | – | – | -- | 9.8E+00 | na | -- | 9.8E+00 |
| Mercury | 0 | 1.4E+00 | 7.7E-01 | -- | -- | 4.5E+00 | 7.6E+01 | -- | -- | – | – | – | – | – | – | – | – | 4.5E+00 | 7.6E+01 | -- | -- | 1.8E+00 |
| Methyl Bromide | 0 | – | – | na | 1.5E+03 | – | – | na | 1.9E+05 | – | – | – | – | – | – | – | – | -- | -- | na | 1.9E+05 | 1.9E+05 |
| Methylene Chloride [c] | 0 | – | – | na | 5.9E+03 | – | – | na | 1.8E+06 | – | – | – | – | – | – | – | – | -- | -- | na | 1.8E+06 | 1.8E+06 |
| Methoxychlor | 0 | – | 3.0E-02 | na | – | – | 2.9E+00 | na | – | – | – | – | – | – | – | – | – | -- | 2.9E+00 | na | -- | 1.8E+00 |
| Mirex | 0 | – | 0.0E+00 | na | – | – | 0.0E+00 | na | – | – | – | – | – | – | – | – | – | -- | 0.0E+00 | na | -- | 0.0E+00 |
| Nickel | 0 | 3.5E+02 | 2.7E+01 | na | 4.6E+03 | 1.1E+03 | 2.6E+03 | na | 5.7E+05 | – | – | – | – | – | – | – | – | 1.1E+03 | 2.6E+03 | na | 5.7E+05 | 4.5E+02 |
| Nitrate (as N) | 0 | – | – | na | – | – | – | na | – | – | – | – | – | – | – | – | – | -- | -- | na | -- | 0.0E+00 |
| Nitrobenzene | 0 | – | – | na | 6.9E+02 | – | – | na | 8.5E+04 | – | – | – | – | – | – | – | – | -- | -- | na | 8.5E+04 | 8.5E+04 |
| N-Nitrosodimethylamine [c] | 0 | – | – | na | 3.0E+01 | – | – | na | 8.9E+03 | – | – | – | – | – | – | – | – | -- | -- | na | 8.9E+03 | 8.9E+03 |
| N-Nitrosodiphenylamine [c] | 0 | – | – | na | 6.0E+01 | – | – | na | 1.8E+04 | – | – | – | – | – | – | – | – | -- | -- | na | 1.8E+04 | 1.8E+04 |
| N-Nitrosodi-n-propylamine [c] | 0 | – | – | na | 5.1E+00 | – | – | na | 1.5E+03 | – | – | – | – | – | – | – | – | -- | -- | na | 1.5E+03 | 1.5E+03 |
| Nonylphenol | 0 | 2.8E+01 | 6.6E+00 | – | – | 9.1E+01 | 6.5E+02 | na | – | – | – | – | – | – | – | – | – | 9.1E+01 | 6.5E+02 | na | -- | 3.6E+01 |
| Parathion | 0 | 6.5E-02 | 1.3E-02 | na | – | 2.1E-01 | 1.3E+00 | na | – | – | – | – | – | – | – | – | – | 2.1E-01 | 1.3E+00 | na | -- | 8.4E-02 |
| PCB Total [c] | 0 | – | 1.4E-02 | na | 6.4E-04 | – | 1.4E+00 | na | 1.9E-01 | – | – | – | – | – | – | – | – | -- | 1.4E+00 | na | 1.9E-01 | 1.9E-01 |
| Pentachlorophenol [c] | 0 | 1.2E+01 | 1.2E+01 | na | 3.0E+01 | 3.9E+01 | 1.2E+03 | na | 8.9E+03 | – | – | – | – | – | – | – | – | 3.9E+01 | 1.2E+03 | na | 8.9E+03 | 1.5E+01 |
| Phenol | 0 | – | – | na | 8.6E+05 | – | – | na | 1.1E+08 | – | – | – | – | – | – | – | – | -- | -- | na | 1.1E+08 | 1.1E+08 |
| Pyrene | 0 | – | – | na | 4.0E+03 | – | – | na | 5.0E+05 | – | – | – | – | – | – | – | – | -- | -- | na | 5.0E+05 | 5.0E+05 |
| Radionuclides | 0 | – | – | na | – | – | – | na | – | – | – | – | – | – | – | – | – | -- | -- | na | -- | |
| Gross Alpha Activity (pCi/L) | 0 | – | – | na | – | – | – | na | – | – | – | – | – | – | – | – | – | -- | -- | na | -- | 0.0E+00 |
| Beta and Photon Activity (mrem/yr) | 0 | – | – | na | – | – | – | na | – | – | – | – | – | – | – | – | – | -- | -- | na | -- | 0.0E+00 |
| Radium 226 + 228 (pCi/L) | 0 | – | – | na | – | – | – | na | – | – | – | – | – | – | – | – | – | -- | -- | na | -- | 0.0E+00 |
| Uranium (ug/l) | 0 | – | – | na | – | – | – | na | – | – | – | – | – | – | – | – | – | -- | -- | na | -- | 0.0E+00 |

| Parameter | Background | Water Quality Criteria | | | | Wasteload Allocations | | | | Antidegradation Baseline | | | | Antidegradation Allocations | | | | Most Limiting Allocations | | | | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (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 | Target Value |
| Selenium, Total Recoverable | 0 | 2.0E+01 | 5.0E+00 | na | 4.2E+03 | 6.5E+01 | 4.9E+02 | na | 5.2E+05 | – | – | – | – | – | – | – | – | 6.5E+01 | 4.9E+02 | na | 5.2E+05 | 2.6E+01 |
| Silver | 0 | 1.3E+01 | – | na | – | 4.1E+01 | – | na | – | – | – | – | – | – | – | – | – | 4.1E+01 | -- | na | -- | 1.7E+01 |
| Sulfate | 0 | – | – | na | – | – | – | na | – | – | – | – | – | – | – | – | – | -- | -- | na | -- | 0.0E+00 |
| 1,1,2,2-Tetrachloroethane [C] | 0 | – | – | na | 4.0E+01 | – | – | na | 1.2E+04 | – | – | – | – | – | – | – | – | -- | -- | na | 1.2E+04 | 1.2E+04 |
| Tetrachloroethylene [C] | 0 | – | – | na | 3.3E+01 | – | – | na | 9.8E+03 | – | – | – | – | – | – | – | – | -- | -- | na | 9.8E+03 | 9.8E+03 |
| Thallium | 0 | – | – | na | 4.7E-01 | – | – | na | 5.8E+01 | – | – | – | – | – | – | – | – | -- | -- | na | 5.8E+01 | 5.8E+01 |
| Toluene | 0 | – | – | na | 6.0E+03 | – | – | na | 7.4E+05 | – | – | – | – | – | – | – | – | -- | -- | na | 7.4E+05 | 7.4E+05 |
| Total dissolved solids | 0 | – | – | na | – | – | – | na | – | – | – | – | – | – | – | – | – | -- | -- | na | -- | 0.0E+00 |
| Toxaphene [C] | 0 | 7.3E-01 | 2.0E-04 | na | 2.8E-03 | 2.4E+00 | 2.0E-02 | na | 8.3E-01 | – | – | – | – | – | – | – | – | 2.4E+00 | 2.0E-02 | na | 8.3E-01 | 1.2E-02 |
| Tributyltin | 0 | 4.6E-01 | 7.2E-02 | na | – | 1.5E+00 | 7.1E+00 | na | – | – | – | – | – | – | – | – | – | 1.5E+00 | 7.1E+00 | na | -- | 5.9E-01 |
| 1,2,4-Trichlorobenzene | 0 | – | – | na | 7.0E+01 | – | – | na | 8.7E+03 | – | – | – | – | – | – | – | – | -- | -- | na | 8.7E+03 | 8.7E+03 |
| 1,1,2-Trichloroethane [C] | 0 | – | – | na | 1.6E+02 | – | – | na | 4.8E+04 | – | – | – | – | – | – | – | – | -- | -- | na | 4.8E+04 | 4.8E+04 |
| Trichloroethylene [C] | 0 | – | – | na | 3.0E+02 | – | – | na | 8.9E+04 | – | – | – | – | – | – | – | – | -- | -- | na | 8.9E+04 | 8.9E+04 |
| 2,4,6-Trichlorophenol [C] | 0 | – | – | na | 2.4E+01 | – | – | na | 7.1E+03 | – | – | – | – | – | – | – | – | -- | -- | na | 7.1E+03 | 7.1E+03 |
| 2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex) | 0 | – | – | na | – | – | – | na | – | – | – | – | – | – | – | – | – | -- | -- | na | -- | 0.0E+00 |
| Vinyl Chloride [C] | 0 | – | – | na | 2.4E+01 | – | – | na | 7.1E+03 | – | – | – | – | – | – | – | – | -- | -- | na | 7.1E+03 | 7.1E+03 |
| Zinc | 0 | 2.2E+02 | 1.6E+02 | na | 2.6E+04 | 7.2E+02 | 1.5E+04 | na | 3.2E+06 | – | – | – | – | – | – | – | – | 7.2E+02 | 1.5E+04 | na | 3.2E+06 | 2.9E+02 |

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.

PROTOCOL FOR THE EVALUATION OF THE EFFLUENT – TOXIC POLLUTANTS

Toxic pollutants were evaluated in accordance with OWP Guidance Memo No. 00-2011. Acute and Chronic WLAs ($WLA_a$ and $WLA_c$) were analyzed according to the protocol below using a statistical approach (STAT.exe) to determine the necessity and magnitude of limits. Human Health WLAs ($WLA_{hh}$) were analyzed according to the same protocol through a simple comparison with the effluent data. If the $WLA_{hh}$ exceeded the effluent datum or data mean, no limits were required. If the effluent datum or data mean exceeded the $WLA_{hh}$, the $WLA_{hh}$ was imposed as the limit. Since there are no data available immediately upstream of this discharge, all other upstream (background) pollutant concentrations are assumed to be "0".

The steps used in evaluating the effluent data are as follows:

A. If all data are reported as "below detection" or < the Quantification Level (QL), and at least one detection level is ≤ the required QL, then the pollutant is considered to be not significantly present in the discharge and no further monitoring is required.

B. If all data are reported as "below detection", and all detection levels are > the required QL, then an evaluation is performed in which the pollutant is assumed present at the lowest reported detection level.

B.1. If the evaluation indicates that no limits are needed, then the existing data set is adequate and no further monitoring is required.
B.2. If the evaluation indicates that limits are needed, then the existing data set is inadequate to make a determination and additional monitoring is required.

C. If any data value is reported as detectable at or above the required QL, then the data are adequate to determine whether effluent limits are needed.

C.1. If the evaluation indicates that no limits are needed, then no further monitoring is required.
C.2. If the evaluation indicates that limits are needed, then the limits and associated requirements are specified in the draft permit.
C.3. If the evaluation indicates that limits are needed, but the metals data are reported as a form other than "Dissolved", then the existing data set is inadequate to make a determination and additional monitoring is required.

| Parameter | CASRN | QL (ug/L) | Data (ug/L unless noted otherwise) | Source of Data | Data Eval |
|---|---|---|---|---|---|
| MISCELLANEOUS | | | | | |
| Ammonia-N (mg/L) | 766-41-7 | 0.2 mg/L | **Default = 9 mg/L** | **a** | **C.1** |
| TRC (mg/L) | 7782-50-5 | 0.1 mg/L | **Default = 20 mg/L** | **b** | **C.2** |

**CASRN** = Chemical Abstract Service Registry Number for each parameter is referenced in the Water Quality Standards. A unique numeric identifier designating only one substance. The Chemical Abstract Service is a division of the American Chemical Society.

**"Source of Data" codes:**
a = Ammonia-N concentration not expected to be exceeded based on a FEG based daily maximum limit of 8.0 mg/L.
b = Effluent concentration utilized to force a limit

**"Data Evaluation" codes:**
See section titled PROTOCOL FOR THE EVALUATION OF EFFLUENT TOXIC POLLUTANTS for an explanation of the code used.

STAT.EXE RESULTS:

| **Ammonia-N** | **TRC** |
|---|---|
| Chronic averaging period = 30 | Chronic averaging period = 4 |
| WLAa = 34.4 | WLAa = 0.061 |
| WLAc = 45.2 | WLAc = 1.1 |
| Q.L. = 0.2 | Q.L. = 0.2 |
| # samples/mo. = 4 | # samples/mo. = 30 |
| # samples/wk. = 1 | # samples/wk. = 7 |
| | |
| Summary of Statistics | Summary of Statistics |
| | |
| # observations = 1 | # observations = 1 |
| Expected Value = 8.0000 | Expected Value = 20.0000 |
| Variance = 23.0400 | Variance = 144.0000 |
| C.V. = 0.6000 | C.V. = 0.6000 |
| 97th percentile daily values = 19.4673 | 97th percentile daily values = 48.6684 |
| 97th percentile 4 day average = 13.3103 | 97th percentile 4 day average = 33.2758 |
| 97th percentile 30 day average = 9.6484 | 97th percentile 30 day average = 24.1211 |
| # < Q.L. = 0 | # < Q.L. = 0 |
| Model used: BPJ Assumptions, Type 2 data | Model used: BPJ Assumptions, Type 2 data |
| | |
| Limit needed? : NO | Limit needed? : YES |
| Basis for limits: N/A | Basis for limits: Acute Toxicity |
| Maximum Daily Limit = N/A | Maximum Daily Limit = 0.0610 |
| Weekly Average Limit = N/A | Weekly Average Limit = 0.0373 |
| Monthly Average Limit = N/A | Monthly Average Limit = 0.0302 |
| | |
| The data are: 8 | The data are: 20 |

WHOLE EFFLUENT TOXICITY (WET) EVALUATION:

Applicability of WET Requirements:
The applicability criteria for a facility to perform toxicity testing is contained in the Departments Guidance Memo No. 00-2012, Toxics Management Program Implementation Guidance, 08/24/00, Part IV. This permit is being reissued based upon the possibility that poultry production, and the discharge of the treated wastewater from it, will restart within the permit term. The Standard Industrial Code (SIC) for the potential discharge is 2015, Poultry Processing which is included in Appendix A of the TMP Guidance; therefore, this discharge qualifies as being subject to WET requirements.

Summary of Toxicity Testing:
No recent toxicity data is available since the facility has not discharged since December 2002.

Rationale for Acute versus Chronic Toxicity Testing:
Since the chronic Instream Waste Concentration (IWCc) <1%, chronic toxicity testing is not required.

Sample Type:
A sample type of 24 hour composite is representative of the discharge.

Rationale for Monitoring Frequency:
Based upon the long period of disuse of the facility, quarterly monitoring for 4 quarters, followed by annual monitoring for the remainder of the permit term, has been imposed in accordance with guidance for new dischargers. The facility is required to perform quarterly monitoring starting in the first full calendar quarter after resumption of discharge from the facility. Per the TMP Guidance, both species (*Ceriodaphnia dubia* and *Pimephales promelas)* are required. The results from the quarterly testing will be evaluated to determine if there is a need for WET limits.

Evaluation of Acute Instream Waste Concentration (IWCa):
The Acute IWC is ≤ 33% (see Table 3). Therefore, the acute toxicity criteria is $LC_{50}$.

Calculation of WLAs: Acute and chronic WLAs were generated from the WETLimit10.xls spreadsheet by entering the design flow, stream flows, and stream mix percentages for the respective stream flows.

Dilution Series:
The recommended dilution series is the standard 0.5 dilution series.

Stat.exe Limit Evaluation:
No WET tests results are available so no statistical evaluation has been performed. Because the recommended dilution series is the standard 0.5 series, a midpoint check is not necessary.

*Date: 11.6.19*
*Reviewer: BWC*

## Table 1
## WETLim10.xls Spreadsheet

# Spreadsheet for determination of WET test endpoints or WET limits

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Excel 97** | | | **Acute Endpoint/Permit Limit** | | | **Use as $LC_{50}$ in Special Condition, as TUa on DMR** | | | | | | | |
| **Revision Date: 12/13/13** | | | | | | | | | | | | | |
| **File: WETLIM10.xls** | | | **ACUTE** | **1.29792003** | **TUa** | **$LC_{50}$ =** | **78** | % | Use as | **1.28** | **TUa** | | |
| **(MIX.EXE required also)** | | | | | | | | | | | | | |
| | | | **ACUTE WLAa** | | **1.29792** | Note: Inform the permittee that if the mean of the data exceeds | | | | | | | |
| | | | | | | this TUa: | **1.0** | | a limit may result using STATS.EXE | | | | |
| | | | **Chronic Endpoint/Permit Limit** | | | **Use as NOEC in Special Condition, as TUc on DMR** | | | | | | | |
| | | | **CHRONIC** | **12.9792003** | **$TU_c$** | **NOEC =** | **8** | % | Use as | **12.50** | **$TU_c$** | | |
| | | | **BOTH*** | **12.9792003** | **$TU_c$** | **NOEC =** | **8** | % | Use as | **12.50** | **$TU_c$** | | |
| **Enter data in the cells with blue type:** | | | **AML** | **12.9792003** | **$TU_c$** | **NOEC =** | **8** | % | Use as | **12.50** | **$TU_c$** | | |
| Entry Date: | 11/06/19 | | **ACUTE WLAa,c** | | **12.9792** | | Note: Inform the permittee that if the mean | | | | | | |
| Facility Name: | Alma Plant | | **CHRONIC WLAc** | | **146** | | of the data exceeds this TUc: | | | | **5.3337332** | | |
| VPDES Number: | **VA0001961** | | * Both means acute expressed as chronic | | | | a limit may result using STATS.EXE | | | | | | |
| Outfall Number: | **001** | | | | | | | | | | | | |
| | | | **% Flow to be used from MIX.EXE** | | | | **Diffuser /modeling study?** | | | | | | |
| Plant Flow: | **1** | MGD | | | | | Enter Y/N | **n** | | | | | |
| Acute 1Q10: | **126** | MGD | **2.64** | % | | | Acute | **1** | :1 | | | | |
| Chronic 7Q10: | **145** | MGD | **100** | % | | | Chronic | **1** | :1 | | | | |
| Are data available to calculate CV? (Y/N) | | | **N** | (Minimum of 10 data points, same species, needed) | | | | | | Go to Page 2 | | | |
| Are data available to calculate ACR? (Y/N) | | | **N** | (NOEC<LC50, do not use greater/less than data) | | | | | | Go to Page 3 | | | |
| $IWC_a$ | 23.11390533 | % | Plant flow/plant flow + 1Q10 | | | **NOTE: If the IWCa is >33%, specify the** | | | | | | | |
| $IWC_c$ | 0.684931507 | % | Plant flow/plant flow + 7Q10 | | | **NOAEC = 100% test/endpoint for use** | | | | | | | |
| Dilution, acute | 4.3264 | | 100/IWCa | | | | | | | | | | |
| Dilution, chronic | 146 | | 100/IWCc | | | | | | | | | | |
| $WLA_a$ | 1.29792 | Instream criterion (0.3 TUa) X's Dilution, acute | | | | | | | | | | | |
| $WLA_c$ | 146 | Instream criterion (1.0 TUc) X's Dilution, chronic | | | | | | | | | | | |
| $WLA_{a,c}$ | 12.9792 | ACR X's $WLA_a$ - converts acute WLA to chronic units | | | | | | | | | | | |
| ACR -acute/chronic ratio | 10 | LC50/NOEC (Default is 10 - if data are available, use tables Page 3) | | | | | | | | | | | |
| CV-Coefficient of variation | 0.6 | Default of 0.6 - if data are available, use tables Page 2) | | | | | | | | | | | |
| Constants eA | 0.4109447 | Default = 0.41 | | | | | | | | | | | |
| eB | 0.6010373 | Default = 0.60 | | | | | | | | | | | |
| eC | 2.4334175 | Default = 2.43 | | | | | | | | | | | |
| eD | 2.4334175 | Default = 2.43 (1 samp) | No. of sample | 1 | | ****The Maximum Daily Limit is calculated from the lowest LTA, X's eC. The LTAa,c and MDL using it are driven by the ACR.** | | | | | | | |
| $LTA_{a,c}$ | 5.33373345 | WLAa,c X's eA | | | | | | | | | | | |
| $LTA_c$ | 87.7514458 | WLAc X's eB | | | | | | | | Rounded NOEC's | | % | |
| MDL** with $LTA_{a,c}$ | 12.97920032 | $TU_c$ | NOEC = | 7.704635 | (Protects from acute/chronic toxicity) | | | | | NOEC = | 8 | % | |
| MDL** with $LTA_c$ | 213.5359039 | $TU_c$ | NOEC = | 0.468305 | (Protects from chronic toxicity) | | | | | NOEC = | 1 | % | |
| AML with lowest LTA | 12.97920032 | $TU_c$ | NOEC = | 7.704635 | Lowest LTA X's eD | | | | | NOEC = | 8 | | |
| IF ONLY ACUTE ENDPOINT/LIMIT IS NEEDED, CONVERT MDL FROM $TU_c$ to $TU_a$ | | | | | | | | | | | | | |
| | | | | | | | | | | Rounded LC50's | | % | |
| MDL with $LTA_{a,c}$ | 1.297920032 | $TU_a$ | LC50 = | 77.046349 | % | | | | | LC50 = | 78 | % | |
| MDL with $LTA_c$ | 21.35359039 | $TU_a$ | LC50 = | 4.683053 | % | | | | | LC50 = | 5 | | |

## APPENDIX D

## BASES FOR PERMIT SPECIAL CONDITIONS

Tabulated below are the sections of the permit with the basis for each of the permit special conditions.

| | |
|---|---|
| Cover Page | • Content and format as prescribed by the Guidance Memo No. 14-2003. |
| Part I.A.1 | **Effluent Limitations and Monitoring Requirements:** Bases for effluent limits and monitoring requirements provided in previous pages of fact sheet.<br>*Updates Part I.A.1 of the previous permit with the following:*<br>• Less stringent limits for TRC were included.<br>• The Ammonia-N (Apr-Sept) limits were removed and year round Ammonia-N limits based on the FEGs were imposed.<br>• The Total Nitrogen monitoring frequency was revised from 2/Month to 1/Month.<br>• The footnote regarding Total Nitrogen and Total Phosphorus load limits was revised. |
| Part I.B | **Additional TRC and E. coli Limitations and Monitoring Requirements:** Required by the Sewage Collection and Treatment (SCAT) Regulations (9VAC25-790) and Water Quality Standards (9VAC25-260-170). Also, 40 CFR 122.41(e) requires the permittee, at all times, to properly operate and maintain all facilities and systems of treatment in order to comply with the permit. This ensures proper operation of chlorination equipment to maintain adequate disinfection. |
| Part I.C | **Effluent Limitations and Monitoring Requirements – Additional Instructions:** Authorized by the VPDES Permit Regulation (9VAC25-31-190 J.4 and 220.I). This condition is necessary when pollutants are monitored by the permittee and a maximum level of quantification and/or a specific analytical method is required in order to assess compliance with a permit limit or to compare effluent quality with a numeric criterion. The condition also establishes protocols for calculation of reported values. |
| Part I.D | **Whole Effluent Toxicity (WET) Requirements:** The VPDES Permit Regulation (9VAC25-31-210 and 220.I), requires monitoring in the permit to assure compliance with all applicable requirements of the State Water Control Law and the Clean Water Act. Monitoring requirements are as prescribed by Guidance Memo No. 00-2012 |
| Part I.E.1 | **95% Capacity Reopener:** Required by the VPDES Permit Regulation (9VAC25-31-200.B.4) for certain permits. Included for this facility to ensure that adequate treatment capacity will continue to be provided as influent flows and/or loadings increase. |
| Part I.E.2 | **Materials Handling/Storage:** The VPDES Permit Regulation (9VAC25-31-50.A) prohibits the discharge of any waste into State waters unless authorized by permit. The State Water Control Law (§62.1-44.16 and §62.1-44.17) authorizes the Board to regulate the discharge of industrial waste or other waste. |
| Part I.E.3 | **O&M Manual Requirement:** Required by the State Water Control Law (§ 62.1-44.16), VPDES Permit Regulation (9VAC25-31-190.E), and 40 CFR 122.41(e). These require proper operation and maintenance of the permitted facility. Compliance with an O&M Manual ensures this. |

| | |
|---|---|
| Part I.E.4 | **Concept Engineering Report (CER) Requirement**: The State Water Control Law (§ 62.1-44.16) requires industrial facilities to obtain DEQ approval for proposed discharges of industrial wastewater. A CER means a document setting forth preliminary concepts or basic information for the design of industrial wastewater treatment facilities and the supporting calculations for sizing the treatment operations. |
| Part I.E.5 | **SMP Requirement:** The VPDES Permit Regulation (9VAC25-31-100.P, 220.B.2, and 420 through 720), and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on their sludge use and disposal practices and to meet specified standards for sludge use and disposal. Technical requirements are derived from the Virginia Pollution Abatement Permit Regulation (9VAC25-32) and are applied to this industrial permit per PJ. |
| Part I.E.6 | **Licensed Operator Requirement:** State Water Control Law (§54.1-2300 through 1-2302), VPDES Permit Regulation (9VAC25-31-200.C), and Board for Waterworks and Wastewater Works Operators and Onsite Sewage System Professionals Regulations (18VAC160-30) require licensure of operators. The licensed operator requirements apply to wastewater treatment works based on the maximum 30-day average flow and treatment type. A class II license is indicated for this facility. |
| Part I.E.7 | **Water Quality Criteria Monitoring:** The State Water Control Law (§ 62.1-44.21) authorizes the Board to request information needed to determine the discharge's impact on State waters. States are required to review data on discharges to identify actual or potential toxicity problems, or the attainment of water quality goals, according to 40 CFR Part 131, Water Quality Standards, Subpart 131.11. To ensure that water quality standards are maintained, the permittee is required to analyze the facility's effluent for the substances noted in Attachment A of this VPDES permit. |
| Part I.E.8 | **Treatment Works Closure Plan:** This condition establishes the requirement to submit a closure plan for the treatment works if the treatment facility is being replaced or is expected to close. This is necessary to ensure treatment works are properly closed so that the risk of untreated waste water discharge, spills, leaks and exposure to raw materials is eliminated and water quality maintained. The State Water Control Law (§62.1-44.21) requires every owner to furnish when requested plans, specification, and other pertinent information as may be necessary to determine the effect of the wastes from his discharge on the quality of state waters, or such other information as may be necessary to accomplish the purposes of the State Water Control Law. |
| Part I.E.9 | **Reopeners:**<br>a. Section 303(d) of the Clean Water Act requires that total maximum daily loads (TMDLs) be developed for streams listed as impaired. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL approved for the receiving stream. The reopener recognizes that, according to section 402(o)(1) of the Clean Water Act, limits and/or conditions may be either more or less stringent than those contained in this permit. Specifically, they can be relaxed if they are the result of a TMDL, basin plan, or other WLA prepared under section 303 of the Act.<br>b. The VPDES Permit Regulation (9VAC25-40-70.A) authorizes DEQ to include technology-based annual concentration limits in the permits of facilities that have installed nutrient control equipment, whether by new construction, expansion or upgrade.<br>c. The VPDES Permit Regulation (9VAC25-31-390.A) authorizes DEQ to modify VPDES permits to promulgate amended water quality standards. |
| Part I.E.10 | **Notification Levels:** Required by the VPDES Permit Regulation (9VAC25-31-200.A) for all manufacturing, commercial, mining, and silvicultural dischargers. |

| | |
|---|---|
| Part I.F | **Stormwater Management Conditions**: The VPDES Permit Regulation (9VAC25-31-10) defines discharges of stormwater from industrial activity. The VPDES Permit Regulation (9VAC25-31-120) requires a permit for these discharges. The VPDES Permit Regulation (9VAC25-31-220.K) requires use of best management practices where applicable to control or abate the discharge of pollutants when numeric effluent limits are infeasible or the practices are necessary to achieve effluent limit or to carry out the purpose and intent of the Clean Water Act and State Water Control Law. |
| Part II | **Conditions applicable to all VPDES Permits:** The VPDES Permit Regulation (9VAC25-31-190) requires all VPDES permits to contain or specifically cite the conditions listed. |
| Deletions: | **None** |