

**AUTHORIZATION TO DISCHARGE WASTEWATER UNDER
THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM AND
THE ARKANSAS WATER AND AIR POLLUTION CONTROL ACT**

In accordance with the provisions of the Arkansas Water and Air Pollution Control Act (Ark. Code Ann. § 8-4-101 et seq.), and the Clean Water Act (33 U.S.C. § 1251 et seq.),

Reynolds Metals Company, LLC
Bauxite Operation

is authorized to discharge acid mine drainage and stormwater runoff from inactive mines and leased mining sites, and seepage from bauxite residue disposal area sites from a facility located as follows: 1401 Bauxite Cut-off Road, Bauxite, AR, 72011, in Saline County.

Facility Coordinates: Latitude: 34° 32' 52.0" N; Longitude: 92° 30' 19.1" W

Discharge is to receiving waters named:

Outfall 008 - unnamed tributary of Hurricane Creek, thence to Hurricane Creek, thence to the Saline River, thence to the Ouachita River in Segment 2C of the Ouachita River Basin

Outfall 009 - Holly Creek, thence to the Saline River, thence to the Ouachita River in Segment 2C of the Ouachita River Basin

Outfall 028 - Hurricane Creek, thence to the Saline River, thence to the Ouachita River in Segment 2C of the Ouachita River Basin

The outfalls are located at the following coordinates:

Outfall 008: Latitude: 34° 33' 1.4" N; Longitude: 92° 28' 8.6" W

Outfall 009: Latitude: 34° 32' 6.0" N; Longitude: 92° 32' 3.3" W

Outfall 028: Latitude: 34° 34' 3.4" N; Longitude: 92° 28' 44.9" W

Discharge shall be in accordance with effluent limitations, monitoring requirements, and other conditions set forth in this permit. Per Part III.D.10, the permittee must re-apply 180 days prior to the expiration date below for permit coverage to continue beyond the expiration date.

Effective Date:

Expiration Date:

Stacie R. Wassell
Deputy Director, Office of Water Quality
Arkansas Department of Energy and Environment
Division of Environmental Quality

Issue Date

PART I PERMIT REQUIREMENTS

SECTION A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS: OUTFALL 008 - Acid mine drainage and stormwater runoff from inactive mines and leased mining sites, and seepage from bauxite residue disposal area sites.

During the period beginning on the effective date and lasting until the date of expiration, the permittee is authorized to discharge from Outfall 008. Such discharges shall be limited and monitored by the permittee as specified below as well as Parts II and III. See Part IV for all definitions.

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max.	Monthly Avg.	Daily Max.		
Effluent Flow	N/A	N/A	Report, MGD	Report, MGD	continuous	record
Total Suspended Solids (TSS)	N/A	N/A	20.0	30.0	once/week	grab
Total Recoverable Aluminum ³	N/A	N/A	1.0	2.0	once/week	grab
Total Recoverable Iron ³	N/A	N/A	0.5	1.0	once/week	grab
Total Recoverable Selenium ³	N/A	N/A	Report, µg/l	Report, µg/l	once/week	grab
Chlorides	N/A	N/A	Report	Report	once/week	grab
Sulfates	N/A	N/A	Report	Report	once/week	grab
Total Dissolved Solids	N/A	N/A	Report	Report	once/week	grab
pH	N/A	N/A	<u>Minimum</u> 6.0 s.u.	<u>Maximum</u> 9.0 s.u.	continuous	record
Chronic WET Testing ¹						
<u>Pimephales promelas (Chronic)</u>¹ Pass/Fail Lethality (7-day NOEC) TLP6C Pass/Fail Growth (7-day NOEC) TGP6C Survival (7-day NOEC) TOP6C Coefficient of Variation (Growth) TQP6C Growth (7-day NOEC) TPP6C Pass/Fail Retest 1 (7-day NOEC) 22418 Pass/Fail Retest 2 (7-day NOEC) 22419 Pass/Fail Retest 3 (7-day NOEC) 51444	N/A		<u>7-Day Minimum</u> Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report % Report % Report % Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report (Pass=0/Fail=1)		once/quarter once/quarter once/quarter once/quarter once/quarter once/month ² once/month ² once/month ²	composite composite composite composite composite composite composite composite
<u>Ceriodaphnia dubia (Chronic)</u>¹ Pass/Fail Lethality (7-day NOEC) TLP3B Pass/Fail Reproduction (7-day NOEC) TGP3B Survival (7-day NOEC) TOP3B Coefficient of Variation (Reproduction) TQP3B Reproduction (7-day NOEC) TPP3B Pass/Fail Retest 1 (7-day NOEC) 22415 Pass/Fail Retest 2 (7-day NOEC) 22416 Pass/Fail Retest 3 (7-day NOEC) 51443			<u>7-Day Minimum</u> Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report % Report % Report % Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report (Pass=0/Fail=1)		once/quarter once/quarter once/quarter once/quarter once/quarter once/month ² once/month ² once/month ²	composite composite composite composite composite composite composite composite

¹. See Part II.9 (WET Testing Requirements).

². CONDITIONAL REPORTING: Use only if conducting retests due to a test failure (demonstration of significant toxic effects at or below the critical dilution). If testing on a quarterly basis, the permittee may substitute one of the retests in lieu of one routine toxicity test. If retests are not required, Report NODI=9 (Conditional Monitoring - Not Required This Period) under retest parameters (reported on a quarterly DMR). This condition applies to *P. promelas* and *C. dubia*.

³. See Part II.5 (MQL Requirements).

Oil, grease, or petrochemical substances shall not be present in receiving waters to the extent that they produce globules or other residue or any visible, colored film on the surface or coat the banks and/or bottoms of the waterbody or adversely affect any of the associated biota. There shall be no visible sheen as defined in Part IV of this permit.

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge during the entire monitoring period. Samples shall be taken after the final treatment unit, prior to the receiving stream.

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PART I PERMIT REQUIREMENTS

SECTION B. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS: OUTFALL 009 - Acid mine drainage and stormwater runoff from inactive mines and leased mining sites, and seepage from bauxite residue disposal area sites.

During the period beginning on the effective date and lasting until the date of expiration, the permittee is authorized to discharge from Outfall 009. Such discharges shall be limited and monitored by the permittee as specified below as well as Parts II and III. See Part IV for all definitions.

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max.	Monthly Avg.	Daily Max.		
Effluent Flow ⁶	N/A	N/A	Report, MGD	Report, MGD	five/week ⁶	instantaneous
Saline River Flow ⁶	N/A	N/A	N/A	Report cfs	five/week ⁶	record ⁶
Total Suspended Solids (TSS)	N/A	N/A	20.0	30.0	once/week	grab
Total Recoverable Aluminum ¹	N/A	N/A	1.0	2.0	once/week	grab
Total Recoverable Iron ¹	N/A	N/A	0.5	1.0	once/week	grab
Total Recoverable Selenium ¹						
INTERIM ²	N/A	N/A	17.7 µg/l	35.5 µg/l	once/week	grab
FINAL ³	N/A	N/A	5.6 µg/l	11.2 µg/l	once/week	grab
Arsenic, Total Recoverable ^{1,8}	N/A	N/A	Report µg/l	Report µg/l	once/quarter	grab
Manganese, Total Recoverable ^{1,8}	N/A	N/A	Report µg/l	Report µg/l	once/quarter	grab
Chlorides	N/A	N/A	Report	Report	once/week	grab
Sulfates	N/A	N/A	Report	Report	once/week	grab
Total Dissolved Solids	Report	171.5 lb/day per cfs ⁷	Report	Report	once/week	grab
pH	N/A	N/A	<u>Minimum</u> 6.0 s.u.	<u>Maximum</u> 9.0 s.u.	once/week	grab
Whole Effluent Toxicity						
<i>Pimephales promelas</i> Limit 51714			<u>7-Day Minimum</u> Not < 100 %		once/quarter	composite
<i>Ceriodaphnia dubia</i> Limit 51710			<u>7-Day Minimum</u> Not < 100 %		once/quarter	composite
<i>Pimephales promelas</i> (Chronic) ^{4,5} Pass/Fail Lethality (7-day NOEC) TLP6C Pass/Fail Growth (7-day NOEC) TGP6C Survival (7-day NOEC) TOP6C Coefficient of Variation (Growth) TQP6C Growth (7-day NOEC) TPP6C	N/A		<u>7-Day Minimum</u> Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report % Report % Report %		once/quarter once/quarter once/quarter once/quarter once/quarter	composite composite composite composite composite
<i>Ceriodaphnia dubia</i> (Chronic) ^{4,5} Pass/Fail Lethality (7-day NOEC) TLP3B Pass/Fail Reproduction (7-day NOEC) TGP3B Survival (7-day NOEC) TOP3B Coefficient of Variation (Reproduction) TQP3B Reproduction (7-day NOEC) TPP3B			<u>7-Day Minimum</u> Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report % Report % Report %		once/quarter once/quarter once/quarter once/quarter once/quarter	composite composite composite composite composite

¹. See Part II.5 (MQL Requirements).

². Interim limit for Selenium begins on effective date and lasts until November 24, 2029.

³. Final limit for Selenium begins on November 25, 2029. See Part IB (Schedule of Compliance).

⁴. See Part II.10 (WET Limit Requirements).

5. As per Part II.10, the permittee shall submit the results of the valid monthly increased frequency toxicity tests on the Unscheduled DMRs (51714, TLP6C, TOP6C, TPP6C, TGP6C, TQP6C, 51710, TLP3B, TOP3B, TPP3B, TGP3B, TQP3B).
6. The effluent flow and Saline River flow shall be determined and recorded on a daily basis, when discharging, during a normal five day working week, excluding state and federal holidays. Saline River flow shall be reported from USGS Station 07363000 (Saline River at Benton), USGS Station 07363054 (Saline River at Shaw Bridge), or other Saline River USGS Station approved in writing by DEQ. See Part II.8 for calculation procedures for the HCR operating conditions.
7. The permittee shall calculate the TDS lb/day per cfs value on a daily basis when discharging using procedures specified in Part II.8.
8. Arsenic and Manganese monitoring/reporting is only required for one year after effective date.

Oil, grease, or petrochemical substances shall not be present in receiving waters to the extent that they produce globules or other residue or any visible, colored film on the surface or coat the banks and/or bottoms of the waterbody or adversely affect any of the associated biota. There shall be no visible sheen as defined in Part IV of this permit.

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge during the entire monitoring period. Samples shall be taken after the final treatment unit, prior to the receiving stream.

PART I PERMIT REQUIREMENTS

SECTION C. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS: OUTFALL 028 - Acid mine drainage and stormwater runoff from inactive mines and leased mining sites, and seepage from bauxite residue disposal area sites.

During the period beginning on the effective date and lasting until the date of expiration, the permittee is authorized to discharge from Outfall 028. Such discharges shall be limited and monitored by the permittee as specified below as well as Parts II and III. See Part IV for all definitions.

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max.	Monthly Avg.	Daily Max.		
Total Suspended Solids (TSS)	N/A	N/A	20.0	30.0	once/week	grab
Aluminum, Total Recoverable ⁵	N/A	N/A	1.0	2.0	once/week	grab
Iron, Total Recoverable ⁵	N/A	N/A	0.5	1.0	once/week	grab
Arsenic, Total Recoverable ^{5,6}	N/A	N/A	Report µg/l	Report µg/l	once/quarter	grab
Chlorides	N/A	N/A	Report	Report	once/week	grab
Sulfates	N/A	N/A	Report	Report	once/week	grab
Total Dissolved Solids	N/A	N/A	1,738	Report	once/week	grab
pH	N/A	N/A	<u>Minimum</u> 6.0 s.u.	<u>Maximum</u> 9.0 s.u.	once/week	grab
Whole Effluent Toxicity						
<i>Ceriodaphnia dubia</i> Limit 51710			<u>7-Day Minimum</u> Not < 83 %		once/quarter	composite
<i>Pimephales promelas</i> (Chronic)^{1,2} Pass/Fail Lethality (7-day NOEC) TLP6C Pass/Fail Growth (7-day NOEC) TGP6C Survival (7-day NOEC) TOP6C Coefficient of Variation (Growth) TQP6C Growth (7-day NOEC) TPP6C Pass/Fail Retest 1 (7-day NOEC) 22418 Pass/Fail Retest 2 (7-day NOEC) 22419 Pass/Fail Retest 3 (7-day NOEC) 51444	N/A		<u>7-Day Minimum</u> Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report % Report % Report % Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report (Pass=0/Fail=1)		once/quarter once/quarter once/quarter once/quarter once/quarter once/month ² once/month ² once/month ²	composite composite composite composite composite composite composite composite
<i>Ceriodaphnia dubia</i> (Chronic)^{3,4} Pass/Fail Lethality (7-day NOEC) TLP3B Pass/Fail Reproduction (7-day NOEC) TGP3B Survival (7-day NOEC) TOP3B Coefficient of Variation (Reproduction) TQP3B Reproduction (7-day NOEC) TPP3B			<u>7-Day Minimum</u> Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report % Report % Report %		once/quarter once/quarter once/quarter once/quarter	composite composite composite composite

¹. See Part II.9 (WET Testing Requirements for *P. promelas*).

². CONDITIONAL REPORTING: Use only if conducting retests due to a test failure (demonstration of significant toxic effects at or below the critical dilution). If testing on a quarterly basis, the permittee may substitute one of the retests in lieu of one routine toxicity test. If retests are not required, Report NODI=9 (Conditional Monitoring - Not Required This Period) under retest parameters (reported on a quarterly DMR). This condition applies to *P. promelas*.

³. See Part II.10 (WET Limit Condition for *C. dubia*).

⁴. As per Part II.10 (WET Limit Condition for *C. dubia*), the permittee shall submit the results of the valid monthly increased frequency toxicity tests on the Unscheduled DMRs (51710, TLP3B, TOP3B, TPP3B, TGP3B, TQP3B). This condition applies to *C. dubia*.

⁵. See Part II.5 (MQL Requirements).

⁶. Arsenic monitoring/reporting is only required for one year after effective date.

Outfall 028: Selenium Tier 1

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max.	Monthly Avg.	Daily Max.		
FOR SELENIUM CONCENTRATIONS (Ce) OF $C_e \leq 6 \mu\text{g/l}$						
Effluent Flow ⁷	N/A	N/A	Report MGD ⁷	Report MGD ⁷	five/week ¹⁰	instantaneous
Upstream Flow ⁷	N/A	N/A	Report MGD ⁷	Report MGD ⁷	five/week ¹⁰	instantaneous ⁷
Effluent Flow as a percentage of upstream flow ⁹	N/A	N/A	N/A	335%	five/week ¹⁰	calculate
Selenium, Total Recoverable ⁸	N/A	N/A	N/A	6.0 $\mu\text{g/l}$	once/week	grab

Outfall 028: Selenium Tier 2

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max.	Monthly Avg.	Daily Max.		
FOR SELENIUM CONCENTRATIONS (Ce) OF $6 < Ce \leq 8 \mu\text{g/l}$						
Effluent Flow ⁷	N/A	N/A	Report MGD ⁷	Report MGD ⁷	five/week ¹⁰	instantaneous
Upstream Flow ⁷	N/A	N/A	Report MGD ⁷	Report MGD ⁷	five/week ¹⁰	instantaneous ⁷
Effluent Flow as a percentage of upstream flow ⁹	N/A	N/A	N/A	111%	five/week ¹⁰	calculate
Selenium, Total Recoverable ⁸	N/A	N/A	N/A	8.0 $\mu\text{g/l}$	once/week	grab

Outfall 028: Selenium Tier 3

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max.	Monthly Avg.	Daily Max.		
FOR SELENIUM CONCENTRATIONS (Ce) OF $8 < Ce \leq 10 \mu\text{g/l}$						
Effluent Flow ⁷	N/A	N/A	Report MGD ⁷	Report MGD ⁷	five/week ¹⁰	instantaneous
Upstream Flow ⁷	N/A	N/A	Report MGD ⁷	Report MGD ⁷	five/week ¹⁰	instantaneous ⁷
Effluent Flow as a percentage of upstream flow ⁹	N/A	N/A	N/A	67%	five/week ¹⁰	calculate
Selenium, Total Recoverable ⁸	N/A	N/A	N/A	10.0 $\mu\text{g/l}$	once/week	grab

Outfall 028: Selenium Tier 4

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max.	Monthly Avg.	Daily Max.		
FOR SELENIUM CONCENTRATIONS (Ce) OF $10 < Ce \leq 14 \mu\text{g/l}$						
Effluent Flow ⁷	N/A	N/A	Report MGD ⁷	Report MGD ⁷	five/week ¹⁰	instantaneous
Upstream Flow ⁷	N/A	N/A	Report MGD ⁷	Report MGD ⁷	five/week ¹⁰	instantaneous ⁷
Effluent Flow as a percentage of upstream flow ⁹	N/A	N/A	N/A	37%	five/week ¹⁰	calculate
Selenium, Total Recoverable ⁸	N/A	N/A	N/A	14.0 $\mu\text{g/l}$	once/week	grab

⁷. Report monthly average and daily maximum as MGD. Stream flow shall be measured at the broad crested rectangular weir just downstream of the outfall when discharging.

⁸. See Part II.5 (MQL Requirements).

⁹. See Part II.7 (HCR Requirements).

¹⁰. The effluent flow, upstream flow, and effluent flow as a percentage of upstream flow, shall be determined and recorded on a daily basis, when discharging, during a normal five day working week excluding state and federal holidays.

Oil, grease, or petrochemical substances shall not be present in receiving waters to the extent that they produce globules or other residue or any visible, colored film on the surface or coat the banks and/or bottoms of the waterbody or adversely affect any of the associated biota. There shall be no visible sheen as defined in Part IV of this permit.

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge during the entire monitoring period. Samples shall be taken after the final treatment unit, prior to the receiving stream.

SECTION B. PERMIT COMPLIANCE SCHEDULE

Compliance with the Final Effluent Limitations for Selenium at Outfall 009 is required beginning on November 25, 2029. The permittee shall continue to submit the Environmental Improvement Project (EIP) annual progress reports containing the status of treatment technology advancements, status of treatability efforts in field trials, status of Selenium source mitigation efforts, and plans for the subsequent year, according to the following schedule:

ACTIVITY**DUE DATE**

EIP Annual Progress Report

November 24, 2026

EIP Annual Progress Report

November 24, 2027

EIP Annual Progress Report

November 24, 2028

Achieve Compliance with Final Limit

November 25, 2029

All EIP annual progress reports must be submitted electronically via email at EE.Water.Enforcement.Report@arkansas.gov

PART II OTHER CONDITIONS

1. The operator of this wastewater treatment facility shall hold an Advanced Industrial license from the State of Arkansas in accordance with PC&EC Rule 3.
2. In accordance with 40 C.F.R. §§ 122.62(a)(2) and 124.5, this permit may be reopened for modification or revocation and/or reissuance to require additional monitoring and/or effluent limitations when new information is received that actual or potential exceedance of State water quality criteria and/or narrative criteria are determined to be the result of the permittee's discharge(s) to a relevant water body or a Total Maximum Daily Load (TMDL) is established or revised for the water body that was not available at the time of the permit issuance that would have justified the application of different permit conditions at the time of permit issuance.

3. Other Specified Monitoring Requirements

The permittee may use alternative appropriate monitoring methods and analytical instruments other than as specified in Part I Section A of the permit without a major permit modification under the following conditions:

- The monitoring and analytical instruments are consistent with accepted scientific practices.
- The requests shall be submitted in writing to the Permits Branch of the Office of Water Quality of the DEQ for use of the alternate method or instrument.
- The method and/or instrument is in compliance with 40 C.F.R. Part 136 or approved in accordance with 40 C.F.R. § 136.5.
- All associated devices are installed, calibrated, and maintained to ensure the accuracy of the measurements and are consistent with the accepted capability of that type of device. The calibration and maintenance shall be performed as part of the permittee's laboratory Quality Assurance/Quality Control (QA/QC) program.

Upon written approval of the alternative monitoring method and/or analytical instruments, these methods or instruments must be consistently utilized throughout the monitoring period. DEQ must be notified in writing and the permittee must receive written approval from DEQ if the permittee decides to return to the original permit monitoring requirements.

4. Best Management Practices (BMPs), as defined in Part IV.7, must be implemented for the facility to prevent or reduce the pollution of waters of the state from stormwater runoff, spills or leaks, and/or waste disposal. The permittee must amend the BMPs whenever there is a change in the facility or a change in the operation of the facility.

5. The permittee may use any EPA approved method based on 40 C.F.R. Part 136 provided the minimum quantification level (MQL) for the chosen method is equal to or less than what has been specified in chart below:

Pollutant	MQL (µg/l)
Total Recoverable Aluminum	66 ¹
Total Recoverable Iron	99 ¹
Total Recoverable Manganese	3.3 ¹
Total Recoverable Selenium	5.0 ²
Total Recoverable Arsenic	0.5 ²

- 1 MQL was calculated from the equation listed below in this condition and the MDLs listed in Table 4 of Appendix C to Part 136, page 29826 of Federal Register Volume 77, May 18, 2012 (Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act; Analysis and Sampling Procedures).
- 2 MQL is from Table 4 of a letter dated February 8, 2008, from EPA Region 6 containing MQL guidance.

The permittee may develop a matrix specific method detection limit (MDL) in accordance with Appendix B of 40 C.F.R. Part 136. For any pollutant for which the permittee determines a site specific MDL, the permittee shall send to DEQ, NPDES Permits Branch, a report containing QA/QC documentation, analytical results, and calculations necessary to demonstrate that a site specific MDL was correctly calculated. A site specific MQL shall be determined in accordance with the following calculation:

$$\text{MQL} = 3.3 \times \text{MDL}$$

Upon written approval by the Permits Branch, the site specific MQL may be utilized by the permittee for all future Discharge Monitoring Report (DMR) calculations and reporting requirements.

6. The permittee shall conduct a Priority Pollutant Scan (PPS) and submit the results within 30 days of the first discharge from Outfall 008. The permit may be reopened in accordance with Part II.2 to include additional limits based upon the analysis of the PPS.
7. Hydrograph Controlled Release (HCR) Operating Conditions for Outfall 028

The upstream flow in Hurricane Creek shall be calculated by subtracting the effluent flow from the flow measurements taken at the rectangular weir in Hurricane Creek located just downstream of Outfall 028. The Outfall 028 HCR discharge shall be adjusted daily during normal five (5) day working week, excluding state and federal holidays.

The Outfall 028 HCR flow, based on Selenium effluent concentrations, shall be adjusted at the next routine adjustment time (but no later than the next business day) after the facility has received the Selenium laboratory results from the latest sampling event.

Example: The facility receives their most recent laboratory result at 2:00 pm. If the routine HCR adjustment time is 4:00 pm, the facility shall adjust their flow accordingly the same day. If the routine adjustment time is 8:00 am, the facility shall adjust their flow accordingly the following business day.

8. Hydrograph Controlled Release (HCR) Operating Conditions for Outfall 009.

The Outfall 009 HCR discharge flow shall be adjusted daily during a normal five (5) day working week, excluding state and federal holidays, based on the weekly TDS effluent concentration and the instantaneous flow each day in the Saline River determined using USGS provisional data at station number 07363000 in Benton, station number 07363054 at Shaw Bridge, or other Saline River USGS Station approved in writing by DEQ. If using the Shaw Bridge flow gage or other downstream Saline River USGS station, the facility shall subtract the effluent flow rate of outfall 009 from the gage flow to calculate the upstream Saline River flow since this station is located downstream of Holly Creek confluence with Saline River. If flow data for the USGS stations are not available online, Reynolds Metals Company shall manually read the gage each morning of a discharge. The Outfall 009 HCR flow, based on TDS effluent concentration and Saline River flow, shall be adjusted at the next routine adjustment time (but not later than the next business day) after the facility has received the TDS laboratory results from the latest effluent sampling event. The facility shall perform the TDS effluent sampling at least once per week and have the sample analyzed by a contract laboratory accredited in accordance with Ark. Code Ann. § 8-2-201 *et seq.* Once Reynolds Metals Company receives the TDS effluent concentration value from the laboratory, this TDS value shall be used to adjust the discharge flow from Outfall 009 as necessary to comply with the daily maximum discharge limit of 171.5 lb/day per cfs of Saline River flow specified in Part IA of this permit. The facility shall use the latest available TDS concentration value reported from the laboratory in the calculations of all daily maximum TDS discharges. The monthly average TDS load discharged from Outfall 009 shall be reported on the DMR and calculated using the definition of monthly average in Part IV of the permit. The equations presented below illustrate how to calculate the daily maximum mass.

If using the USGS station at Benton, the following equation shall be used on a daily basis to calculate the mass of TDS discharged per unit flow of the Saline River in order to comply with the daily maximum limit of 171.5 lb/day per cfs of Saline River flow at Outfall 009:

$$\frac{\text{lb}}{\text{day}} \text{ per cfs} = \frac{\text{Outfall 009 Flow (MGD)} \times \text{Effluent TDS} \left(\frac{\text{mg}}{\text{L}} \right) \times 8.345}{\text{Saline River Flow (cfs) @USGS Station 07363000}}$$

If using the USGS station at Shaw Bridge or other downstream Saline River USGS station, the following equation shall be used on a daily basis to calculate the mass of TDS discharged per unit flow of the Saline River in order to comply with the daily maximum limit of 171.5 lb/day per cfs of Saline River flow at Outfall 009:

$$\frac{\text{lb}}{\text{day}} \text{ per cfs} = \frac{\text{Outfall 009 Flow (MGD)} \times \text{Effluent TDS} \left(\frac{\text{mg}}{\text{L}} \right) \times 8.345}{\text{Saline River Flow (cfs) @USGS Station 07363054} - \text{Outfall 009 flow (cfs)}}$$

9. WHOLE EFFLUENT TOXICITY TESTING (7 DAY CHRONIC NOEC)

Note: This condition applies to WET reporting for *P. promelas* and *C. dubia* at Outfall 008.

Note: This condition applies to WET reporting for *P. promelas* at Outfall 028.

It is unlawful and a violation of this permit for a permittee or their designated agent to manipulate test samples in any manner, to delay sample shipment, or to terminate or to cause to terminate a toxicity test. Once initiated, all toxicity tests must be completed unless specific authority has been granted by EPA Region 6 or the State NPDES permitting authority (DEQ).

A. SCOPE AND METHODOLOGY

- i. The permittee shall test the effluent for toxicity in accordance with the provisions in this section.

Applicable To Final Outfall(S)	008 and 028
Reported On DMR As Final Outfall	008 and 028
Critical Dilution (%)	100% (Outfall 008) 83% (Outfall 028)
Effluent Dilution Series (%)	32%, 42%, 56%, 75%, 100% (Outfall 008) 26%, 35%, 47%, 62%, 83% (Outfall 028)
Testing Frequency:	Once/Quarter
Sample Type	Composite Sample (defined in Paragraph B.iii)
Test Species/Methods:	40 C.F.R. Part 136

Ceriodaphnia dubia chronic static renewal survival and reproduction test, Method 1002.0, EPA-821-R-02-013, or the most recent update thereof.

Pimephales promelas (Fathead minnow) chronic static renewal 7-day larval survival and growth test, Method 1000.0, EPA-821-R-02-013, or the most recent update thereof.

- ii. The NOEC (No Observed Effect Concentration) is herein defined as the greatest effluent dilution at and below which toxicity that is statistically different from the control (0% effluent) at the 95% confidence level does not occur. Chronic lethal test failure is defined as a demonstration of a statistically significant lethal effect at test completion to a test species at or below the critical dilution. Chronic sub-lethal test failure is defined as a demonstration of a statistically significant sub-lethal effect (i.e., growth or reproduction) at test completion to a test species at or below the critical dilution.
- iii. This permit may be reopened to require WET limits, chemical specific effluent limits, additional testing, and/or other appropriate actions to address toxicity.

B. REQUIRED TEST ACCEPTABILITY CRITERIA AND TEST CONDITIONS

The permittee shall repeat a test, including the control and all effluent dilutions, if the procedures and quality assurance requirements defined in the test methods or in this permit are not satisfied, including the following additional criteria:

Condition/Criteria	<i>Ceriodaphnia dubia</i>	<i>Pimephales promelas</i>
Test Duration	Until 60% or more of surviving control females have 3 broods (max 8 days)	7 days
# of replicates per concentration	10	5
# of organisms per replicate	1	8
# of organisms per concentration	10	40 (minimum)
# of test concentrations per effluent	5 and a control	5 and a control
Sample Holding Time *	36 hours for first use	36 hours for first use
Sampling Requirement *	Minimum of 3 samples	Minimum of 3 samples
Test Acceptability Criteria	≥80% survival of all control organisms.	≥80% survival of all control organisms.
	Mean of 15 or more neonates per surviving control female.	Mean dry weight per surviving organism in control must be ≥0.25mg.
	60% of surviving control females must produce 3 broods.	
Coefficient of Variation **	40% or less, unless significant effects are exhibited.	40% or less, unless significant effects are exhibited.
Percent Minimum Significant Difference (PMSD range) for Sub-lethal Endpoint **	13 – 47	12 – 30

- * If the flow from the outfall(s) being tested ceases during the collection of effluent samples, the requirements for the minimum number of effluent samples and the minimum number of effluent portions are waived during that sampling period. However, the permittee must collect an effluent composite sample volume during the period of discharge that is sufficient to complete the required toxicity tests with daily renewal of effluent, and must meet the holding time between collection and first use of the sample. When possible, the effluent samples used for the toxicity tests shall be collected on separate days. The effluent composite sample collection duration and

the static renewal protocol associated with the abbreviated sample collection must be documented in the full report required in Item C of this section.

** Test failure may not be construed or reported as invalid due to a coefficient of variation value of greater than 40%, or a PMSD value greater than the higher value on the range provided.

i. Statistical Interpretation

The statistical analyses used to determine if there is a significant difference between the control and the critical dilution shall be in accordance with the methods for determining the No Observed Effect Concentration (NOEC) as described in the appropriate method manual listed in Part II or the most recent update thereof.

ii. Dilution Water

a. Dilution water used in the toxicity tests will be receiving water collected as close to the point of discharge as possible but unaffected by the discharge. The permittee shall substitute synthetic dilution water of similar pH, hardness, and alkalinity to the closest downstream perennial water for:

(1) toxicity tests conducted on effluent discharges to receiving water classified as intermittent streams; and

(2) toxicity tests conducted on effluent discharges where no receiving water is available due to zero flow conditions.

b. If the receiving water is unsatisfactory as a result of instream toxicity (fails to fulfill the test acceptance criteria), the permittee may substitute synthetic dilution water for the receiving water in all subsequent tests provided the unacceptable receiving water test met the following stipulations:

(1) a synthetic dilution water control which fulfills the test acceptance requirements was run concurrently with the receiving water control;

(2) the test indicating receiving water toxicity has been carried out to completion;

(3) the permittee includes all test results indicating receiving water toxicity with the full report and information required; and

(4) the synthetic dilution water shall have a pH, hardness, and alkalinity similar to that of the receiving water or closest downstream perennial water not adversely affected by the discharge, provided the magnitude of these parameters will not cause toxicity in the synthetic dilution water.

iii. Samples and Composites

a. The permittee shall collect a minimum of three samples (flow-weighted composite if possible) from the outfall(s).

- b. The permittee shall collect a second and third sample (composite samples if possible) for use during the 24-hour renewal of each dilution concentration for each test. The permittee must collect the composite samples so that the maximum holding time for any effluent sample shall not exceed 36 hours for first use of the sample. The permittee must have initiated the toxicity test within 36 hours after the collection of the last portion of the first composite sample. Samples shall be chilled to 0-6 degrees Centigrade during collection, shipping, and storage. A holding time up to 72 hours is allowed upon notification to DEQ of the need for additional holding time.
- c. The permittee must collect the composite samples such that the effluent samples are representative of the discharge duration, and of any periodic episode of chlorination, biocide usage, or other potentially toxic substance discharged on an intermittent basis.

C. REPORTING

- i. The permittee shall prepare a full report of the results of all tests conducted pursuant to this part in accordance with the Report Preparation Section of the most current publication of the method manual, for every valid or invalid toxicity test initiated, whether carried to completion or not. The permittee shall retain each full report and submit them to the Division via NetDMR. For any test which fails, is considered invalid, or which is terminated early for any reason, the full report must be submitted for Division review.
- ii. A valid test for each species must be reported during each reporting period specified in PART I of this permit unless the permittee is performing a TRE which may increase the frequency of testing and reporting. One set of biomonitoring data for each species is to be recorded on the DMR for each reporting period. Additional results are reported under the retest codes below.
- iii. The permittee shall submit the results of each valid toxicity test on the subsequent DMR for that reporting period as follows below. Submit retest information clearly marked as such with the subsequent DMR. Only results of valid tests are to be reported on the DMR.

Reporting Requirement	Parameter STORET CODE	
	<i>Ceriodaphnia dubia</i>	<i>Pimephales promelas</i>
Enter a "1" if the No Observed Effect Concentration (NOEC) for survival is less than the critical dilution, otherwise enter a "0"	TLP3B	TLP6C
Report the NOEC value for survival	TOP3B	TOP6C

Reporting Requirement	Parameter STORET CODE	
	<i>Ceriodaphnia dubia</i>	<i>Pimephales promelas</i>
Enter a "1" if the NOEC for growth or reproduction is less than the critical dilution, otherwise enter a "0"	TGP3B	TGP6C
Report the NOEC value for growth or reproduction	TPP3B	TPP6C
Report the highest (critical dilution or control) Coefficient of Variation	TQP3B	TQP6C
(If required) Retest 1 – Enter a "1" if the NOEC for survival, growth or reproduction is less than the critical dilution, otherwise enter "0" (reported on quarterly DMR)*	22415	22418
(If required) Retest 2- Enter a "1" if the NOEC for survival, growth or reproduction is less than the critical dilution, otherwise enter "0" (reported on quarterly DMR)*	22416	22419
(If required) Retest 3- Enter a "1" if the NOEC for survival, growth or reproduction is less than the critical dilution, otherwise enter "0" (reported on quarterly DMR)*	51443	51444

* If retests are not required, Report NODI=9 (Conditional Monitoring - Not Required This Period).

iv. DMR parameters

Report the following parameters on the DMR for Outfall 008:

Scheduled DMR: TLP6C, TOP6C, TPP6C, TGP6C, TQP6C, 22418, 22419, 51444, TLP3B, TOP3B, TPP3B, TGP3B, TQP3B, 22415, 22416, and 51443.

Report the following parameters on the DMR for Outfall 028:

Scheduled DMR: TLP6C, TOP6C, TPP6C, TGP6C, TQP6C, 22418, 22419, 51444.

D. MONITORING FREQUENCY REDUCTION

- i. The permittee may apply for a testing frequency reduction upon the successful completion of the first four consecutive quarters of testing for a test species, with no lethal or sub-lethal effects demonstrated at or below the critical dilution. If granted, the monitoring frequency for that test species may be reduced to not less than once per six months.
- ii. Certification - The permittee must certify in writing that no test failures have occurred and

- that all tests meet all test acceptability criteria above. In addition, the permittee must provide a list with each test performed including test initiation date, species, and NOECs. Upon review and acceptance of this information, the Division will issue a letter of confirmation of the monitoring frequency reduction. A copy of the letter will be forwarded to the Division's compliance section to update the permit reporting requirements.
- iii. Failures - If any test demonstrates lethal or sub-lethal effects at or below the critical dilution at any time during the life of this permit, three monthly retests are required. If a frequency reduction had been granted, the monitoring frequency for the affected test species reverts to once per quarter until the permit is re-issued.
 - iv. This monitoring frequency reduction applies only until the expiration date of this permit, at which time the monitoring frequency for both test species reverts to once per quarter until the permit is re-issued.
 - v. For administratively continued facilities where permit renewal was held up by no fault of the permittee, the following language regarding WET testing frequency reduction applies after permit renewal:

The permittee may apply for a testing frequency reduction upon the successful completion of the first four consecutive quarters of testing after the expiration date of the previous permit, for one or both test species, provided that all of the following conditions are met:

- a. The permittee tested quarterly upon the expiration date of that permit, and
- b. The issuance of the renewed permit was not delayed by any fault of the permittee, and
- c. No lethal or sub-lethal effects are demonstrated at or below the critical dilution for the first four consecutive quarters of testing after the expiration date of the previous permit.

E. PERSISTENT TOXICITY

The requirements of this subsection apply only when a toxicity test demonstrates significant lethal and/or sub-lethal effects at or below the critical dilution. Significant toxic effects are herein defined as a statistically significant difference at the 95% confidence level between the survival, growth, or reproduction of the appropriate test organism in a specified effluent dilution and the control (0% effluent). If the initial WET test conducted fails, the permittee will conduct three consecutively monthly retests. The purpose of retests is to determine the duration of a toxic event. A test that meets all test acceptability criteria and demonstrates significant toxic effects does not need additional confirmation. Such testing cannot confirm or disprove a previous test result.

i. Retest

The permittee shall conduct a total of three (3) additional tests for any species that

demonstrates significant effects at or below the critical dilution. The three additional tests shall be conducted monthly (one test per month) during the next three consecutive months. If testing on a quarterly basis, the permittee may substitute one of the additional tests in lieu of one routine toxicity test. A full report shall be prepared for each test required by this section in accordance with the reporting requirements previously outlined and submitted to the Division.

ii. Requirement to Initiate a Toxicity Reduction Evaluation

If persistent lethality is demonstrated by failure of one or more retests, the permittee shall initiate Toxicity Reduction Evaluation (TRE) requirements as specified in Part F of this section. If persistent sub-lethality is demonstrated by failure of two or more retests, the permittee shall initiate Toxicity Reduction Evaluation (TRE) requirements. The permittee shall notify DEQ in writing within 5 days of notification of the failure of any retest, and the TRE initiation date will be the test completion date of the first failed retest for lethal TREs or second failed retest for sub-lethal TREs. A TRE may also be required due to a demonstration of intermittent effects at or below the critical dilution, or for failure to perform the required retests.

F. TOXICITY REDUCTION EVALUATION (TRE)

EPA Region 6 is currently addressing TREs as follows: A TRE is triggered following three sub-lethal test failures (a failure followed by two retest failures) or two test failures with lethal effects (a failure followed by one retest failure).

- i. Within ninety (90) days of confirming lethality and/or sub-lethality in the retests, the permittee shall submit a Toxicity Reduction Evaluation (TRE) Action Plan and Schedule for conducting a TRE to DEQ. The TRE Action Plan shall specify the approach and methodology to be used in performing the TRE. A TRE is an investigation intended to determine those actions necessary to achieve compliance with water quality based effluent limits by reducing an effluent's toxicity to an acceptable level. A TRE is defined as a step wise process which combines toxicity testing and analyses of the physical and chemical characteristics of a toxic effluent to identify the constituents causing effluent toxicity and/or treatment methods which will reduce the effluent toxicity. The TRE Action Plan shall lead to the successful elimination of effluent toxicity at the critical dilution and include the following:
 - a. Specific Activities. The plan shall detail the specific approach the permittee intends to utilize in conducting the TRE. The approach may include toxicity characterizations, a Toxicity Identification Evaluation (TIE) and confirmation activities, source evaluation, treatability studies, or alternative approaches. When the permittee conducts Toxicity Identification Evaluations to characterize the nature of the constituents causing toxicity, the permittee shall perform multiple characterizations and follow the procedures specified in the documents "Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures" (EPA 600/6-91/003) or alternate procedures. When the permittee conducts Toxicity Identification Evaluations and Confirmations, the permittee shall

perform multiple identifications and follow the methods specified in the documents “Methods for Aquatic Toxicity Identification Evaluations, Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity” (EPA/600/R-92/080) and “Methods for Aquatic Toxicity Identification Evaluations, Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity” (EPA/600/R-92/081), as appropriate;

- b. Sampling Plan (e.g., locations, methods, holding times, chain of custody, preservation, etc.). The effluent sample volume collected for all tests shall be adequate to perform the toxicity test, toxicity characterization, identification and confirmation procedures, and conduct chemical specific analyses when a probable toxicant has been identified; Where the permittee has identified or suspects specific pollutant(s) and/or source(s) of effluent toxicity, the permittee shall conduct, concurrent with toxicity testing, chemical specific analyses for the identified and/or suspected pollutant(s) and/or source(s) of effluent toxicity. Where toxicity was demonstrated within 24 hours of test initiation, each composite sample shall be analyzed independently. Otherwise the permittee may substitute a composite sample, comprised of equal portions of the individual composite samples, for the chemical specific analysis;
- c. Quality Assurance Plan (e.g., QA/QC implementation, corrective actions, etc.); and
- d. Project Organization (e.g., project staff, project manager, consulting services, etc.).
- ii. The permittee shall initiate the TRE Action Plan within thirty (30) days of plan and schedule submittal.
- iii. The permittee shall submit a quarterly TRE Activities Report to DEQ in the months of January, April, July, and October, containing information on toxicity reduction evaluation activities including:
 - a. Any data and/or substantiating documentation which identifies the pollutant(s) and/or source(s) of effluent toxicity;
 - b. Any studies/evaluations and results on the treatability of the facility’s effluent toxicity;
 - c. Any data which identifies effluent toxicity control mechanisms that will reduce effluent toxicity to the level necessary to meet no significant toxicity at the critical dilution;
 - d. Any results and interpretation of any chemical specific analysis, and for any characterization, identification, and confirmation tests performed during the quarter; and
 - e. Any changes to the initial TRE plan and schedule that are believed necessary.
- iv. Finalizing a TRE

The permittee shall submit (to DEQ) a final report on TRE activities no later than twenty-eight (28) months from confirming toxicity in the retests, which provides information pertaining to the specific control mechanism selected that will, when implemented, result in reduction of effluent toxicity to no significant toxicity at the critical dilution. The report will also provide a specific corrective action schedule for implementing the selected control mechanism.

A TRE may be stopped if there is no toxicity at the critical dilution for a period of 12 consecutive months (with at least monthly testing) following confirmation of toxicity in the retests. The permittee would submit a final report to DEQ at that time.

- v. Quarterly testing during the TRE is a minimum monitoring requirement. EPA recommends that permittees required to perform a TRE not rely on quarterly testing alone to ensure success in the TRE, and that additional screening tests be performed to capture toxic samples for identification of toxicants. Failure to identify the specific chemical compound causing toxicity test failure will normally result in a permit limit for whole effluent toxicity limits per federal regulations at 40 C.F.R. § 122.44(d)(1)(v).

10. WHOLE EFFLUENT TOXICITY LIMITS (7 DAY CHRONIC NOEC)

Note: This condition applies to *C. dubia* WET limits at Outfall 028.

Note: This condition applies to *C. dubia* and *P. promelas* WET limits at Outfall 009.

It is unlawful and a violation of this permit for a permittee or their designated agent to manipulate test samples in any manner, to delay sample shipment, or to terminate or to cause to terminate a toxicity test. Once initiated, all toxicity tests must be completed unless specific authority has been granted by EPA Region 6 or the State NPDES permitting authority (DEQ).

A. SCOPE AND METHODOLOGY

- i. The permittee shall test the effluent for toxicity in accordance with the provisions in this section.

Applicable To Final Outfall(S)	Outfalls 009 and 028
Reported On DMR As Final Outfall	Outfalls 009 and 028
Critical Dilution (%)	100% (Outfall 009) 83% (Outfall 028)
Effluent Dilution Series (%)	32%, 42%, 56%, 75%, 100% (Outfall 009) 26%, 35%, 47%, 62%, 83% (Outfall 028)
Chronic Limit (Lethal and Sublethal)	not < 100% (Outfall 009, <i>C. dubia</i> and <i>P. promelas</i>) not < 83% (Outfall 028, <i>C. dubia</i>)
Schedule Of Compliance	No
Testing Frequency:	Once/Quarter
Sample Type	Composite Sample (defined in Paragraph B.iii)
Test Species/Methods:	40 C.F.R. Part 136

Ceriodaphnia dubia chronic static renewal survival and reproduction test, Method 1002.0, EPA-821-R-02-013, or the most recent update thereof.

Pimephales promelas (Fathead minnow) chronic static renewal 7-day larval survival and growth test, Method 1000.0, EPA-821-R-02-013, or the most recent update thereof.

- ii. The NOEC (No Observed Effect Concentration) is herein defined as the greatest effluent dilution at and below which toxicity that is statistically different from the control (0% effluent) at the 95% confidence level does not occur. Chronic lethal test failure is defined as a demonstration of a statistically significant lethal effect at test completion to a test species at or below the critical dilution. Chronic sub-lethal test failure is defined as a demonstration of a statistically significant sub-lethal effect (i.e., growth or reproduction) at test completion to a test species at or below the critical dilution.

- iii. This permit may be reopened to require chemical specific effluent limits, additional testing, a Toxicity Reduction Evaluation, and/or other appropriate actions to address toxicity.
- iv. The conditions of this item are effective beginning with the effective date of the WET limit. When the effluent fails the lethal or sub-lethal endpoint at or below the critical dilution, the permittee shall be considered in violation of this permit limit and the frequency for the affected species will increase to monthly until compliance with the No Observed Effect Concentration (NOEC) effluent limitation is demonstrated for a period of three consecutive months, at which time the permittee may return to the testing frequency stated in PART I of this permit. The purpose of the increased frequency for WET testing after a violation is to determine the duration of a toxic event. A test that meets all test acceptability criteria and demonstrates significant toxic effects does not need additional confirmation. Such testing cannot confirm or disprove a previous test result.

B. REQUIRED TEST CONDITIONS AND TEST ACCEPTABILITY CRITERIA

The permittee shall repeat a test, including the control and all effluent dilutions, if the procedures and quality assurance requirements defined in the test methods or in this permit are not satisfied, including the following additional criteria:

Condition/Criteria	<i>Ceriodaphnia dubia</i>	<i>Pimephales promelas</i>
Test Duration	Until 60% or more of surviving control females have 3 broods (max 8 days)	7 days
# of replicates per concentration	10	5
# of organisms per replicate	1	8
# of organisms per concentration	10	40 (minimum)
# of test concentrations per effluent	5 and a control	5 and a control
Sample Holding Time *	36 hours for first use	36 hours for first use
Sampling Requirement *	Minimum of 3 samples	Minimum of 3 samples
Test Acceptability Criteria	≥80% survival of all control organisms.	≥80% survival of all control organisms.
	Mean of 15 or more neonates per surviving control female.	Mean dry weight per surviving organism in control must be ≥0.25mg.

Condition/Criteria	<i>Ceriodaphnia dubia</i>	<i>Pimephales promelas</i>
	60% of surviving control females must produce 3 broods.	
Coefficient of Variation **	40% or less, unless significant effects are exhibited.	40% or less, unless significant effects are exhibited.
Percent Minimum Significant Difference (PMSD range) for Sub-lethal Endpoint **	13 – 47	12 – 30

* If the flow from the outfall(s) being tested ceases during the collection of effluent samples, the requirements for the minimum number of effluent samples and the minimum number of effluent portions are waived during that sampling period. However, the permittee must collect an effluent composite sample volume during the period of discharge that is sufficient to complete the required toxicity tests with daily renewal of effluent, and must meet the holding time between collection and first use of the sample. When possible, the effluent samples used for the toxicity tests shall be collected on separate days. The effluent composite sample collection duration and the static renewal protocol associated with the abbreviated sample collection must be documented in the full report required in Item C of this section.

** Test failure may not be construed or reported as invalid due to a coefficient of variation value of greater than 40%, or a PMSD value greater than the higher value on the range provided.

i. Statistical Interpretation

The statistical analyses used to determine if there is a significant difference between the control and the critical dilution shall be in accordance with the methods for determining the No Observed Effect Concentration (NOEC) as described in the appropriate method manual listed in Part II or the most recent update thereof.

ii. Dilution Water

a. Dilution water used in the toxicity tests will be receiving water collected as close to the point of discharge as possible but unaffected by the discharge. The permittee shall substitute synthetic dilution water of similar pH, hardness, and alkalinity to the closest downstream perennial water for:

(1) toxicity tests conducted on effluent discharges to receiving water classified as intermittent streams; and

(2) toxicity tests conducted on effluent discharges where no receiving water is available due to zero flow conditions.

b. If the receiving water is unsatisfactory as a result of instream toxicity (fails to fulfill the test acceptance criteria), the permittee may substitute synthetic dilution water

for the receiving water in all subsequent tests provided the unacceptable receiving water test met the following stipulations:

- (1) a synthetic dilution water control which fulfills the test acceptance requirements was run concurrently with the receiving water control;
- (2) the test indicating receiving water toxicity has been carried out to completion;
- (3) the permittee includes all test results indicating receiving water toxicity with the full report and information required; and
- (4) the synthetic dilution water shall have a pH, hardness, and alkalinity similar to that of the receiving water or closest downstream perennial water not adversely affected by the discharge, provided the magnitude of these parameters will not cause toxicity in the synthetic dilution water.

iii. Samples and Composites

- a. The permittee shall collect a minimum of three samples (flow-weighted composite if possible) from the outfall(s).
- b. The permittee shall collect a second and third sample (composite samples if possible) for use during the 24-hour renewal of each dilution concentration for each test. The permittee must collect the composite samples so that the maximum holding time for any effluent sample shall not exceed 36 hours for first use of the sample. The permittee must have initiated the toxicity test within 36 hours after the collection of the last portion of the first composite sample. Samples shall be chilled to 0-6 degrees Centigrade during collection, shipping, and storage. A holding time up to 72 hours is allowed upon notification to DEQ of the need for additional holding time.
- c. The permittee must collect the composite samples such that the effluent samples are representative of the discharge duration, and of any periodic episode of chlorination, biocide usage, or other potentially toxic substance discharged on an intermittent basis.

C. REPORTING

- i. The permittee shall prepare a full report of the results of all tests conducted pursuant to this part in accordance with the Report Preparation Section of the most current publication of the method manual, for every valid or invalid toxicity test initiated, whether carried to completion or not. The permittee shall retain each full report and submit them to the Division via NetDMR. For any test which fails, is considered invalid, or which is terminated early for any reason, the full report must be submitted for Division review.
- ii. A valid test for each species must be reported during each reporting period specified in

PART I of this permit. One set of biomonitoring data for each species is to be recorded on the DMR for each reporting period. Additional results are reported on Unscheduled DMRs.

- iii. The permittee shall submit the results of each valid toxicity test on the DMR for that reporting period in accordance with PART I of this permit, as follows below. Submit increased frequency test information clearly marked as such with Unscheduled DMR. Only results of valid tests are to be reported on the DMR.

Reporting Requirement	Parameter STORET CODE	
	<i>Ceriodaphnia dubia</i>	<i>Pimephales promelas</i>
Enter a "1" if the No Observed Effect Concentration (NOEC) for survival is less than the critical dilution, otherwise enter a "0"	TLP3B	TLP6C
Report the NOEC value for survival	TOP3B	TOP6C
Enter a "1" if the NOEC for growth or reproduction is less than the critical dilution, otherwise enter a "0"	TGP3B	TGP6C
Report the NOEC value for growth or reproduction	TPP3B	TPP6C
Report the highest (critical dilution or control) Coefficient of Variation	TQP3B	TQP6C
Report the lowest NOEC value (survival, reproduction, or growth) LIMIT CODE	51710	51714
The permittee shall submit the results of the monthly increased frequency toxicity tests on the Unscheduled DMRs.		

iv. DMR parameters

Report the following parameters on the DMR:

Outfall 009

Scheduled DMR: TLP6C, TOP6C, TPP6C, TGP6C, TQP6C, 51714, TLP3B, TOP3B, TPP3B, TGP3B, TQP3B, 51710.

Unscheduled DMR: TLP6C, TOP6C, TPP6C, TGP6C, TQP6C, 51714, TLP3B, TOP3B, TPP3B, TGP3B, TQP3B, 51710.

Outfall 028

Scheduled DMR: TLP3B, TOP3B, TPP3B, TGP3B, TQP3B, 51710.

Unscheduled DMR: TLP3B, TOP3B, TPP3B, TGP3B, TQP3B, 51710.

D. MONITORING FREQUENCY REDUCTION

- i. The permittee may apply for a testing frequency reduction upon the successful completion of the first four consecutive quarters of testing for a test species, with no lethal or sub-lethal effects demonstrated at or below the critical dilution. If granted, the monitoring frequency for that test species may be reduced to not less than once per six months.
- ii. Certification - The permittee must certify in writing that no test failures have occurred and that all tests meet all test acceptability criteria above. In addition, the permittee must provide a list with each test performed including test initiation date, species, and NOECs. Upon review and acceptance of this information, the Division will issue a letter of confirmation of the monitoring frequency reduction. A copy of the letter will be forwarded to the Division's compliance section to update the permit reporting requirements.
- iii. Failures - If any test demonstrates lethal or sub-lethal effects at or below the critical dilution at any time during the life of this permit, three monthly retests are required. If a frequency reduction had been granted, the monitoring frequency for the affected test species reverts to once per quarter until the permit is re-issued.
- iv. This monitoring frequency reduction applies only until the expiration date of this permit, at which time the monitoring frequency for both test species reverts to once per quarter until the permit is re-issued.
- v. For administratively continued facilities where permit renewal was held up by no fault of the permittee, the following language regarding WET testing frequency reduction applies after permit renewal:

The permittee may apply for a testing frequency reduction upon the successful completion of the first four consecutive quarters of testing after the expiration date of the previous permit, for one or both test species, provided that all of the following conditions are met:

- a. The permittee tested quarterly upon the expiration date of that permit, and
- b. The issuance of the renewed permit was not delayed by any fault of the permittee, and
- c. No lethal or sub-lethal effects are demonstrated at or below the critical dilution for the first four consecutive quarters of testing after the expiration date of the previous permit.

PART III STANDARD CONDITIONS

SECTION A – GENERAL CONDITIONS

1. Duty to Comply

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the federal Clean Water Act and the Arkansas Water and Air Pollution Control Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; and/or for denial of a permit renewal application. **Any values reported in the required Discharge Monitoring Report (DMR) which are in excess of an effluent limitation specified in Part I shall constitute evidence of violation of such effluent limitation and of this permit.**

2. Penalties for Violations of Permit Conditions

The Arkansas Water and Air Pollution Control Act provides that any person who violates any provisions of a permit issued under the Act shall be guilty of a misdemeanor and upon conviction thereof shall be subject to imprisonment for not more than one (1) year, or a fine of not more than twenty-five thousand dollars (\$25,000) or by both such fine and imprisonment for each day of such violation. Any person who violates any provision of a permit issued under the Act may also be subject to civil penalty in such amount as the court shall find appropriate, not to exceed ten thousand dollars (\$10,000) for each day of such violation. The fact that any such violation may constitute a misdemeanor shall not be a bar to the maintenance of such civil action.

3. Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause including, but not limited to the following:

- A. Violation of any terms or conditions of this permit.
- B. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts.
- C. A change in any conditions that requires either a temporary or permanent reduction or elimination of the authorized discharge.
- D. A determination that the permitted activity endangers human health or the environment and can only be regulated to acceptable levels by permit modification or termination.
- E. Failure of the permittee to comply with the provisions of PC&EC Rule 9 (Permit fees) as required by Part III.A.11 herein.

The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

4. **Toxic Pollutants**

Notwithstanding Part III.A.3, if any toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under PC&EC Rule 2, as amended, or Section 307(a) of the Clean Water Act for a toxic pollutant which is present in the discharge and that standard or prohibition is more stringent than any limitations on the pollutant in this permit, this permit shall be modified or revoked and reissued to conform to the toxic effluent standards or prohibition and the permittee so notified.

The permittee shall comply with effluent standards, narrative criteria, or prohibitions established under PC&EC Rule 2, as amended, or Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

5. **Civil and Criminal Liability**

Except as provided in permit conditions for “Bypass of Treatment Facilities” (Part III.B.4), and “Upset” (Part III.B.5), nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance. Any false or materially misleading representation or concealment of information required to be reported by the provisions of this permit or applicable state and federal statutes or regulations which defeats the regulatory purposes of the permit may subject the permittee to criminal enforcement pursuant to the Arkansas Water and Air Pollution Control Act (Ark. Code Ann. § 8-4-101 et seq.).

6. **Oil and Hazardous Substance Liability**

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject to under Section 311 of the Clean Water Act.

7. **State Laws**

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law, rule, or regulation under authority preserved by Section 510 of the Clean Water Act.

8. **Property Rights**

The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.

9. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provisions of this permit to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

10. Applicable Federal, State, or Local Requirements

Permittees are responsible for compliance with all applicable terms and conditions of this permit. Receipt of this permit does not relieve any operator of the responsibility to comply with any other applicable federal, state, or local requirement, statute, ordinance, or regulation.

11. Permit Fees

The permittee shall comply with all applicable permit fee requirements (i.e., including annual permit fees following the initial permit fee that will be invoiced every year the permit is active) for wastewater discharge permits as described in PC&EC Rule 9 (Rule for the Fee System for Environmental Permits). Failure to promptly remit all required fees shall be grounds for the Director to initiate action to terminate this permit under the provisions of 40 C.F.R. §§ 122.64 and 124.5(d), as adopted in PC&EC Rule 6, and the provisions of PC&EC Rule 8.

SECTION B – OPERATION AND MAINTENANCE OF POLLUTION CONTROLS**1. Proper Operation and Maintenance**

- A. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.
- B. The permittee shall provide an adequate operating staff which is duly qualified to carry out operation, maintenance, and testing functions required to ensure compliance with the conditions of this permit.

2. Need to Halt or Reduce not a Defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. Upon reduction, loss, or failure of the treatment facility, the permittee shall, to the extent necessary to maintain compliance with its permit, control production or discharges or both until the facility is restored or an alternative method of treatment is provided. This requirement applies, for example, when the primary source of power for the treatment facility is reduced, is lost, or alternate power supply fails.

3. **Duty to Mitigate**

The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment or the water receiving the discharge.

4. **Bypass of Treatment Facilities**

“Bypass” means the intentional diversion of waste streams from any portion of a treatment facility, as defined at 40 C.F.R. § 122.41(m)(1)(i).

A. Bypass not exceeding limitation

The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Parts III.B.4.B and 4.C.

B. Notice

1. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten (10) days before the date of the bypass.
2. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in Part III.D.6 (24-hour notice).

C. Prohibition of bypass

1. Bypass is prohibited and the Director may take enforcement action against a permittee for bypass, unless:
 - (a) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
 - (b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if the permittee could have installed adequate backup equipment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
 - (c) The permittee submitted notices as required by Part III.B.4.B.
2. The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed above in Part III.B.4.C(1).

5. **Upset Conditions**

- #### A. Effect of an upset.
- An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements

of Part III.B.5.B of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

B. Conditions necessary for demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

1. An upset occurred and that the permittee can identify the specific cause(s) of the upset.
2. The permitted facility was at the time being properly operated.
3. The permittee submitted notice of the upset as required by Part III.D.6.
4. The permittee complied with any remedial measures required by Part III.B.3.

C. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

6. **Removed Substances**

- A. Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering waters of the state. The Permittee must comply with all applicable state and federal regulations governing the disposal of sludge, including but not limited to 40 C.F.R. Parts 257, 258, and 503.
- B. Any changes to the permittee's disposal practices described in the Statement of Basis, as derived from the permit application, will require at least 180 days prior notice to the Director to allow time for additional permitting. Please note that the 180 day notification requirement may be waived if additional permitting is not required for the change.

7. **Power Failure**

The permittee is responsible for maintaining adequate safeguards to prevent the discharge of untreated or inadequately treated wastes during electrical power failure either by means of alternate power sources, standby generators, or retention of inadequately treated effluent.

SECTION C – MONITORING AND RECORDS

1. **Representative Sampling**

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge during the entire monitoring period. All samples shall be taken at the monitoring points specified in this permit and, unless otherwise specified, before the effluent joins or is diluted by any other waste stream, body of water, or substance. Monitoring points shall not be changed without notification to and the approval of the Director. Intermittent discharge shall be monitored.

2. **Flow Measurement**

Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated at least once per year, and maintained to ensure the accuracy of the measurements are consistent with the accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of less than +/- 10% from true discharge rates throughout the range of expected discharge volumes and shall be installed at the monitoring point of the discharge.

Calculated Flow Measurement

For calculated flow measurements that are performed in accordance with either the permit requirements or a Division approved method (i.e., as allowed in the *Other Specified Monitoring Requirements* condition under Part II), the +/- 10% accuracy requirement described above is waived. This waiver is only applicable when the method used for calculation of the flow has been reviewed and approved by the Division.

3. **Monitoring Procedures**

Monitoring must be conducted according to test procedures approved under 40 C.F.R. Part 136, unless other test procedures have been specified in this permit. The permittee shall calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at intervals frequent enough to ensure accuracy of measurements and shall ensure that both calibration and maintenance activities will be conducted. An adequate analytical quality control program, including the analysis of sufficient standards, spikes, and duplicate samples to ensure the accuracy of all required analytical results shall be maintained by the permittee or designated commercial laboratory. At a minimum, spikes and duplicate samples are to be analyzed on 10% of the samples.

4. **Penalties for Tampering**

The Arkansas Water and Air Pollution Control Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under the Act shall be guilty of a misdemeanor and upon conviction thereof shall be subject to imprisonment for not more than one (1) year or a fine of not more than ten thousand dollars (\$10,000) or by both such fine and imprisonment.

5. **Reporting of Monitoring Results**

40 C.F.R. § 127.11(a)(1) and 40 C.F.R. § 127.16(a) require that monitoring results must be reported on a Discharge Monitoring Reports (DMR) and filed electronically. Signatory Authorities must initially request access for a NetDMR account. Once a NetDMR account is established, use the following link to access electronic filing: <https://cdx.epa.gov>. Permittees who are unable to file electronically may request a waiver from the Director in accordance with 40 C.F.R. § 127.15. Monitoring results obtained during the previous monitoring period shall be summarized and reported on a DMR dated and submitted no later than the 25th day of the month, following the completed reporting period beginning on the effective date of the permit.

6. **Additional Monitoring by the Permittee**

If the permittee monitors any pollutant more frequently than required by this permit, using test procedures approved under 40 C.F.R. Part 136 or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR. Such increased frequency shall also be indicated on the DMR.

7. **Retention of Records**

The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit for a period of at least 3 years from the date of the sample, measurement, report, or application. This period may be extended by request of the Director at any time.

8. **Record Contents**

Records and monitoring information shall include:

- A. The date, exact place, time, and methods of sampling or measurements, and preservatives used, if any.
- B. The individual(s) who performed the sampling or measurements.
- C. The date(s) and time analyses were performed.
- D. The individual(s) who performed the analyses.
- E. The analytical techniques or methods used.
- F. The measurements and results of such analyses.
- G. The chain of custody that records the sequence of custody, control, transfer, analysis, and measurement of the analyses.

9. **Inspection and Entry**

The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

- A. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit.
- B. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit.
- C. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit.
- D. Sample, inspect, or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location.

SECTION D – REPORTING REQUIREMENTS

1. **Planned Changes**

The Permittee shall give notice to the Director as soon as possible but no later than 180 days prior to any planned physical alterations or additions to the permitted facility [40 C.F.R. § 122.41(l)]. Notice is required only when:

- A. The alteration or addition to a permitted facility may meet one of the criteria for new sources at 40 C.F.R. § 122.29(b).
- B. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to the notification requirements under 40 C.F.R. § 122.42(b).

2. **Anticipated Noncompliance**

The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

3. **Transfers**

The permit is nontransferable to any person except after notice to the Director. The Director may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Act.

4. **Monitoring Reports**

Monitoring results shall be reported at the intervals and in the form specified in Part III.C.5. **Discharge Monitoring Reports must be submitted even when no discharge occurs during the reporting period.**

5. **Compliance Schedule**

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date. Any reports of noncompliance shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

6. **Twenty-four Hour Report**

Please be aware that the notifications can be sent by email to EE.Water.Enforcement.Report@arkansas.gov or at 501-682-0624 for immediate reporting:

- A. The permittee shall report any noncompliance which may endanger health or the environment within 24 hours from the time the permittee becomes aware of the circumstances to the Enforcement Branch of the Office of Water Quality of DEQ. A written

submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain the following information:

1. A description of the noncompliance and its cause.
2. The period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue.
3. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

B. The following must be reported within 24 hours:

1. Any unanticipated bypass which exceeds any effluent limitation in the permit.
2. Any upset which exceeds any effluent limitation in the permit.
3. Violation of a maximum daily discharge limitation for any of the pollutants listed in Part I of the permit.

C. The Director may waive the written report on a case-by-case basis if the notification has been received within 24 hours by the Enforcement Branch of the Office of Water Quality.

7. **Other Noncompliance**

The permittee shall report all instances of noncompliance not reported under Parts III.D.4, 5, and 6, at the time monitoring reports are submitted. The reports shall contain the information listed at Part III.D.6.

8. **Changes in Discharge of Toxic Substances for Industrial Dischargers including Existing Manufacturing, Commercial, Mining, and Silvicultural Dischargers**

The permittee shall notify the Director as soon as he/she knows or has reason to believe:

- A. That any activity has occurred or will occur which would result in the discharge on a routine or frequent basis of any toxic pollutant including those listed in 40 C.F.R. § 401.15 which is not limited in the permit, if that discharge will exceed the highest of the “notification levels” described in 40 C.F.R. § 122.42(a)(1).
- B. That any activity has occurred or will occur which would result in any discharge on a non-routine or infrequent basis of a toxic pollutant including those listed in 40 C.F.R. § 401.15 which is not limited in the permit, if that discharge will exceed the highest of the “notification levels” described in 40 C.F.R. § 122.42(a)(2).

9. **Duty to Provide Information**

The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit. Information shall be submitted in the form, manner, and time frame requested by the Director.

10. **Duty to Reapply**

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. The complete application shall be submitted at least 180 days before the expiration date of this permit. The Director may grant permission to submit an application less than 180 days in advance but no later than the permit expiration date. Continuation of expiring permits shall be implemented through procedures outlined by PC&EC Rule 6.

11. **Signatory Requirements**

All applications, reports, or information submitted to the Director shall be signed and certified as follows:

A. All **permit applications** shall be signed as follows:

1. For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:
 - (a) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation.
 - (b) The manager of one or more manufacturing, production, or operation facilities, provided: the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
2. For a partnership or sole proprietorship: by a general partner or proprietor, respectively.
3. For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:
 - (a) The chief executive officer of the agency.
 - (b) A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.

B. All **reports** required by the permit and **other information** requested by the Director shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

1. The authorization is made in writing by a person described above.
2. The authorization specified either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position).
3. The written authorization is submitted to the Director.

C. Certification. Any person signing a document under this section shall make the following certification:

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

12. Availability of Reports

Except for data determined to be confidential under 40 C.F.R. Part 2 and PC&EC Rule 6, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Division of Environmental Quality. As required by the regulations and rules, the name and address of any permit applicant or permittee, permit applications, permits, and effluent data shall not be considered confidential.

13. Penalties for Falsification of Reports

The Arkansas Water and Air Pollution Control Act provides that any person who knowingly makes any false statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained under this permit shall be subject to civil penalties specified in Part III.A.2 and/or criminal penalties under the authority of the Arkansas Water and Air Pollution Control Act (Ark. Code Ann. § 8-4-101 et seq.).

14. Other Information

Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, it shall promptly submit such facts or information.

PART IV DEFINITIONS

All definitions contained in Section 502 of the Clean Water Act and 40 C.F.R. § 122.2 shall apply to this permit and are incorporated herein by reference. Additional definitions of words or phrases used in this permit are as follows:

1. **“7-Day Average”** means the highest allowable average of “daily discharges” over a calendar week, calculated as the sum of all “daily discharges” measured during a calendar week, divided by the number of “daily discharges” measured during that week (also known as “average weekly”). The 7-Day Average for Fecal Coliform Bacteria (FCB), or *E. coli*, is the geometric mean of the “daily discharges” of all effluent samples collected during a calendar week in colonies, or most probable number (MPN) per 100 ml.
2. **“Act”** means the Clean Water Act, Public Law 95-217 (33.U.S.C. 1251 et seq.) as amended.
3. **“Administrator”** means the Administrator of the U.S. Environmental Protection Agency.
4. **“Applicable standards and limitations”** means all State, interstate, and federal standards and limitations to which a “discharge,” a “sewage sludge use or disposal practice,” or a related activity is subject under the Act, including “effluent limitations,” water quality standards, standards of performance, toxic effluent standards or prohibitions, “best management practices,” pretreatment standards, and “standards for sewage sludge use or disposal” under sections 301, 302, 303, 304, 306, 307, 308, 403, and 405 of the Act.
5. **“Applicable water quality standards”** means all water quality standards to which a discharge is subject under the Act and which has been (a) approved or permitted to remain in effect by the Administrator following submission to the Administrator pursuant to Section 303(a) of the Act, or (b) promulgated by the Director pursuant to Section 303(b) or 303(c) of the Act, and standards promulgated under (PC&EC) Rule 2, as amended.
6. **“Best Management Practices (BMPs)”** means activities, practices, maintenance procedures, and other management practices designed to prevent or reduce the pollution of waters of the State. BMPs also include treatment technologies, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may include structural devices or nonstructural practices.
7. **“Bypass”** means the intentional diversion of waste streams from any portion of a treatment facility, as defined at 40 C.F.R. § 122.41(m)(1)(i).
8. **“Composite sample”** means a mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing a minimum of 4 effluent portions collected at equal time intervals (but not closer than one hour apart) during operational hours, within the 24-hour period, and combined proportional to flow or a sample collected at more frequent intervals proportional to flow over the 24-hour period.
9. **“CV”** means coefficient of variation.
10. **“Daily Discharge”** means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling.
 - A. **Mass Calculations:** For pollutants with limitations expressed in terms of mass, the “daily discharge” is calculated as the total mass of pollutant discharged over the sampling day.
 - B. **Concentration Calculations:** For pollutants with limitations expressed in other units of measurement, the “daily discharge” is calculated as the average measurement of the pollutant over the day.

11. **“Daily Maximum”** discharge limitation means the highest allowable “daily discharge” during the calendar month.
12. **“Director”** means the Director of the Division of Environmental Quality.
13. **“Dissolved oxygen limit”** means
 - A. when limited in the permit as a minimum monthly average, the lowest acceptable monthly average value, determined by averaging all samples taken during the calendar month; **OR**
 - B. when limited in the permit as an instantaneous minimum value, that no value measured during the reporting period may fall below the stated value.
14. **“Division”** means the Division of Environmental Quality (**DEQ**).
15. **“E. coli”** means a sample that consists of one effluent grab portion collected during a 24-hour period at peak loads. For *E. coli*, report the Daily Maximum as the highest “daily discharge” during the calendar month, 7-Day Average as the geometric mean of all “daily discharges” within a calendar week, and the Monthly Average as the geometric mean of all “daily discharges” within a calendar month, in colonies or MPN per 100 ml.
16. **“Fecal Coliform Bacteria (FCB)”** means a sample that consists of one effluent grab portion collected during a 24-hour period at peak loads. For FCB, report the Daily Maximum as the highest “daily discharge” during the calendar month, 7-Day Average as the geometric mean of all “daily discharges” within a calendar week, and the Monthly Average as the geometric mean of all “daily discharges” within a calendar month, in colonies or MPN per 100 ml.
17. **“Grab sample”** means an individual sample collected in less than 15 minutes in conjunction with an instantaneous flow measurement.
18. **“Industrial User”** means a source of Indirect Discharge. Indirect Discharge means the introduction of pollutants into a POTW from any non-domestic source regulated under section 307(b), (c), or (d) of the Act.
19. **“Instantaneous flow measurement”** means the flow measured during the minimum time required for the flow-measuring device or method to produce a result in that instance. To the extent practical, instantaneous flow measurements coincide with the collection of any grab samples required for the same sampling period so that together the samples and flow are representative of the discharge during that sampling period.
20. **“Instantaneous Maximum”** (when limited in the permit as an instantaneous maximum value) means that no value measured during the reporting period may fall above the stated value.
21. **“Instantaneous Minimum”** (when limited in the permit as an instantaneous minimum value) means that no value measured during the reporting period may fall below the stated value.
22. **“Interference”** means a discharge which, alone or in conjunction with a discharge or discharges from other sources, both:
 - A. Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use, or disposal; and
 - B. Therefore is a cause of a violation of any requirement of the POTW’s NPDES permit (including an increase in the magnitude or duration of a violation), or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations, or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act (CWA), the Solid Waste Disposal Act (SWDA) (including Title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

23. “Monitoring and Reporting”

NPDES permits specify monitoring and reporting requirements for specific periods defined as follows:

- A. **“MONTHLY”** means a calendar month, or any portion of a calendar month, for monitoring requirement frequency of once/month or more frequently.
 - B. **“BI-MONTHLY”** means two (2) calendar months or any portion of 2 calendar months for monitoring requirement frequency of once/2 months or more frequently.
 - C. **“QUARTERLY”** means:
 - 1. a **fixed calendar quarter** (or any part of the fixed calendar quarter) for a non-seasonal effluent characteristic with a measurement frequency of once/quarter. Fixed calendar quarters are: January through March, April through June, July through September, and October through December; **OR**
 - 2. a **fixed three month period** (or any part of the fixed three month period) of, or dependent upon, the seasons specified in the permit for a seasonal effluent characteristic with a monitoring requirement frequency of once/quarter that does not coincide with the fixed calendar quarter. Seasonal calendar quarters are: May through July, August through October, November through January, and February through April.
 - D. **“SEMI-ANNUAL”** means the fixed time periods January through June, and July through December (or any portion thereof) for an effluent characteristic with a measurement frequency of once/6 months.
 - E. **“ANNUAL” or “YEARLY”** means a fixed calendar year, or any portion of the fixed calendar year, for an effluent characteristic or parameter with a measurement frequency of once/year. A calendar year is January through December, or any portion thereof.
24. **“Monthly Average”** means the highest allowable average of “daily discharges” over a calendar month, calculated as the sum of all “daily discharges” measured during a calendar month, divided by the number of “daily discharges” measured during that month. For Fecal Coliform Bacteria (FCB) or *E. coli*, report the Monthly Average as the geometric mean of all “daily discharges” within a calendar month.
25. **“National Pollutant Discharge Elimination System (NPDES)”** means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements under Sections 307, 402, 318, and 405 of the Act.
26. **“NOEC”** means No Observed Effect Concentration.
27. **“Pass Through”** means a discharge which exits the POTW in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW’s NPDES permit (including an increase in the magnitude or duration of a violation).
28. **“PC&EC”** means the Pollution Control and Ecology Commission.
29. **“Percent Removal”** means a percentage expression of the removal efficiency across a treatment plant for a given pollutant parameter, as determined from the 30-day average values of the effluent pollutant concentrations for a given time period.
30. **“PMSD”** means Percent Minimum Significant Difference.
31. **“POTW”** means Publicly Owned Treatment Works, as defined in 40 C.F.R. § 403.3(q).
32. **“Severe property damage”** means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in products.

33. **“Sewage sludge”** means any solid, semi-solid, or liquid residue removed during the treatment of municipal waste water or domestic sewage. Sewage sludge includes, but is not limited to, solids removed during primary, secondary, or advanced waste water treatment, scum, septage, portable toilet pumpings, type III marine sanitation device pumpings ([33 C.F.R. Part 159](#)), and sewage sludge products. Sewage sludge does not include grit or screenings, or ash generated during the incineration of sewage sludge.
34. **“Treatment works”** means any devices and systems used in storage, treatment, recycling, and reclamation of municipal sewage and industrial wastes, of a liquid nature to implement section 201 of the Act, or necessary to recycle reuse water at the most economic cost over the estimated life of the works, including intercepting sewers, sewage collection systems, pumping, power and other equipment, and alterations thereof; elements essential to provide a reliable recycled supply such as standby treatment units and clear well facilities, and any works, including site acquisition of the land that will be an integral part of the treatment process or is used for ultimate disposal of residues resulting from such treatment.
35. **Units of Measure:**
- A. **“cfs”** means cubic feet per second.
 - B. **“MGD”** means million gallons per day.
 - C. **“µg/l”** means micrograms per liter, or parts per billion (ppb).
 - D. **“mg/l”** means milligrams per liter, or parts per million (ppm).
 - E. **“ppb”** means parts per billion.
 - F. **“ppm”** means parts per million.
 - G. **“s.u.”** means standard units.
 - H. **“lb/d”** means pounds per day.
 - I. **“col/100 ml”** means colonies per 100 milliliters, or most probable number (MPN) per 100 milliliters.
36. **“Upset”** means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. Any upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventive maintenance, or careless or improper operations.
37. **“Visible sheen”** means the presence of a film or sheen upon or a discoloration of the surface of the discharge. A sheen can also be from a thin glistening layer of oil on the surface of the discharge.
38. **“Week”** means a calendar week, consisting of the 7-day period of Sunday through Saturday.
39. **“Weekday”** means Monday – Friday.

Draft Fact Sheet

This Fact Sheet is for information and justification of the permit requirements only. Please note that it is not enforceable. This permitting decision is for the renewal of discharge Permit Number AR0000582 with Arkansas Department of Energy and Environment – Division of Environmental Quality (DEQ) Arkansas Facility Identification Number (AFIN) 63-00487 to discharge to Waters of the State.

1. PERMITTING AUTHORITY

The issuing office is:

Division of Environmental Quality
5301 Northshore Drive
North Little Rock, Arkansas 72118-5317

2. APPLICANT

The applicant's mailing address is:

Reynolds Metals Company, LLC - Bauxite Operation
201 Isabella Street, Suite 500
Pittsburgh, PA 15212-5858

The facility address is:

Reynolds Metals Company, LLC - Bauxite Operation
1401 Bauxite Cut-off Road
Bauxite, AR 72011

3. PREPARED BY

The permit was prepared by:

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4. PERMIT ACTIVITY

Previous Permit Effective Date:	November 1, 2018
Previous Permit Minor Modification Date:	November 15, 2018
Previous Permit Expiration Date:	October 31, 2023

The permittee submitted a permit renewal application on April 27, 2023, October 20, 2023,

July 29, 2024, and April 3, 2025. The previous discharge permit is being reissued for a 5-year term in accordance with regulations promulgated at 40 C.F.R. § 122.46(a).

This renewal permit includes revised hydrograph controlled release (HCR) discharge tiers for Selenium at outfall 028 based on the ongoing reduction of Selenium concentrations in the effluent achieved with the environmental improvement project (EIP). See section 11.G of this fact sheet for detailed calculations of the revised HCR tiers.

This renewal permit also includes reduced monitoring frequency for pH at Outfall 009 as requested in a letter dated April 3, 2025. The frequency was reduced from continuous to once/week because the detention time of the pond system is over 27 days at average flow and over 9 days at highest monthly average flow reported over the past two years. Also, there have been no pH violations reported in the past four years. The letter also requested a monitoring reduction for effluent flow to once/week. The letter incorrectly stated that the current frequency was continuous, however the current effluent flow frequency at Outfall 009 is five/week. This flow frequency will remain at five/week at Outfall 009 to be consistent with the flow frequency at Outfall 028 and taking into account the highest monthly average flow rate reported in the past two years.

DOCUMENT ABBREVIATIONS

In the document that follows, various abbreviations are used. They are as follows:

PC&EC - Pollution Control and Ecology Commission
BAT - best available technology economically achievable
BCT - best conventional pollutant control technology
BMP - best management practice
BOD₅ - five-day biochemical oxygen demand
BPJ - best professional judgment
BPT - best practicable control technology currently available
CBOD₅ - carbonaceous biochemical oxygen demand
CD - critical dilution
C.F.R. - Code of Federal Regulations
cfs - cubic feet per second
COD - chemical oxygen demand
COE - United States Corp of Engineers
CPP - continuing planning process
CWA - Clean Water Act
DMR - discharge monitoring report
DO - dissolved oxygen
EIP - environmental improvement project
ELG - effluent limitation guidelines
EPA - United States Environmental Protection Agency
ESA - Endangered Species Act
FCB - fecal coliform bacteria

gpm - gallons per minute
MGD - million gallons per day
MQL - minimum quantification level
NAICS - North American Industry Classification System
NH₃-N - ammonia nitrogen
NO₃ + NO₂-N - nitrate + nitrite nitrogen
NPDES - National Pollutant Discharge Elimination System
O&G - oil and grease
Rule 2 - PC&EC Rule 2: 8 CAR Part 21
Rule 6 - PC&EC Rule 6: 8 CAR Part 25
Rule 8 - PC&EC Rule 8: 8 CAR Part 11
Rule 9 - PC&EC Rule 9: 8 CAR Part 12
RP - reasonable potential
SIC - standard industrial classification
TDS - total dissolved solids
TMDL - total maximum daily load
TP - total phosphorus
TRC - total residual chlorine
TSS - total suspended solids
UAA - use attainability analysis
USF&WS - United States Fish and Wildlife Service
USGS - United States Geological Survey
WET - whole effluent toxicity
WQMP - water quality management plan
WQS - Water Quality standards
WWTP - wastewater treatment plant

Compliance and Enforcement History:

The compliance and enforcement history for this facility can be reviewed by using the following web link:

[Compliance and Enforcement Report](#)

5. SIGNIFICANT CHANGES FROM THE PREVIOUSLY ISSUED PERMIT

The permittee is responsible for carefully reading the permit in detail and becoming familiar with all of the changes therein:

1. The permittee mailing address and driving directions have been removed from the cover page.
2. Chain of custody requirements have been added in Part III.C.8.G.
3. The Twenty-four Hour Report condition in Part III.D.6 has been revised.
4. The Changes in Discharge of Toxic Substances for Industrial Dischargers condition in Part III.D.8 has been revised.
5. The definitions in Part IV have been revised for clarity.
6. The Selenium-based HCR tiers have been revised at Outfall 028 based on reduced Selenium concentrations achieved under the EIP.

7. The three year interim whole effluent toxicity reporting requirements at Outfalls 009 and 028 were removed since this time period has ended.
8. A schedule of compliance and revised limits for Selenium at Outfall 009 becoming effective on November 25, 2029 was added to the permit since the temporary EIP Selenium standard for Holly Creek expires during this next permit term on November 24, 2029.
9. The sublethal WET limit for *C. dubia* and *P. promelas* at Outfall 009 was revised from 80% to 100%.
10. The sublethal WET limit for *C. dubia* at Outfall 028 was revised from 62% to 83%.
11. Thallium monitoring and reporting for first year of permit was removed from Part IA of the permit at Outfalls 009 and 028.
12. Monitoring frequency for pH was changed from continuous to once/week at Outfall 009 to be consistent with the frequency at Outfall 028.
13. Monitoring and reporting requirement for the first year of the renewal permit was added for Arsenic and Manganese at Outfall 009.
14. Monitoring and reporting requirement for the first year of the renewal permit was added for Arsenic at Outfall 028.

6. RECEIVING STREAM SEGMENT AND DISCHARGE LOCATION

The outfalls are located at the following coordinates based on the previous permit, and confirmed with Google Earth using WGS84:

Outfall 008: Latitude: 34° 33' 1.4" N; Longitude: 92° 28' 8.6" W

Outfall 009: Latitude: 34° 32' 6.0" N; Longitude: 92° 32' 3.3" W

Outfall 028: Latitude: 34° 34' 3.4" N; Longitude: 92° 28' 44.9" W

The receiving waters named:

Outfall 008 - unnamed tributary of Hurricane Creek, thence to Hurricane Creek, thence to the Saline River, thence to the Ouachita River

Outfall 009 - Holly Creek, thence to the Saline River, thence to the Ouachita River

Outfall 028 - Hurricane Creek, thence to the Saline River, thence to the Ouachita River in Segment 2C of the Ouachita River Basin.

The receiving streams with Assessment Unit AR_08040203_006 (closest downstream assessment unit assigned to Hurricane Creek) and AR_08040203_914 (closest downstream assessment unit assigned to Holly Creek) are Waters of the State classified for primary and secondary contact recreation (Hurricane Creek), secondary contact recreation (Holly Creek), raw water source for industrial and agricultural water supplies; propagation of desirable species of fish and other aquatic life; and other compatible uses.

The entire length of the Saline River (201 river miles) from confluence with the Alum and North Forks to confluence with the Ouachita River is classified by the State as an Extraordinary Resource Water (ERW). The Saline River from the Grant-Saline county line to the confluence

with the Ouachita River is classified by the State as a Natural and Scenic Waterway (NSW). The lower Saline River from the Grant-Cleveland county line to the confluence with the Ouachita River is classified by the State as an Ecologically Sensitive Waterbody (ESW). The entire length of the Saline River is listed on the Nationwide Rivers Inventory, which is a National Park Service listing of river segments in the United States that are believed to possess one or more outstandingly remarkable values.

7. 303(d) LIST, TOTAL MAXIMUM DAILY LOADS, ENDANGERED SPECIES, AND ANTI-DEGRADATION CONSIDERATIONS

A. 303(d) List

Outfall 008

Outfall 008 discharges to an unnamed tributary which flows to Assessment Unit AR_08040203_006 of Hurricane Creek, which is not listed on the 2026 303(d) list. The effluent from this outfall travels a considerable distance (over 48 miles) before entering Assessment Unit AR_08040204_006 of the Saline River, which is listed on the 2026 303(d) list for Turbidity. Considering the significant distance from the outfall to the impaired segment and the permit already includes TSS limits for this outfall, no additional permitting action for Outfall 008 is necessary regarding this Turbidity listing.

Outfall 028

Outfall 028 discharges to Assessment Unit AR_08040203_006 of Hurricane Creek, which is not listed on the 2026 303(d) list. The effluent from this outfall travels a considerable distance (over 48 miles) before entering Assessment Unit AR_08040204_006 of the Saline River, which is listed on the 2026 303(d) list for Turbidity. Considering the significant distance from the outfall to the impaired segment and the permit already includes TSS limits for this outfall, no additional permitting action for Outfall 028 is necessary regarding this Turbidity listing.

A TMDL has been established for the Saline River Basin for TDS, which established a wasteload allocation for TDS (expressed as concentration) at Outfall 028. Therefore, this wasteload allocation is included in the permit for Outfall 028 to be consistent with the TMDL. See section 7.B before for more detailed discussion.

Outfall 009

Outfall 009 discharges to Assessment Unit AR_08040203_914 of Holly Creek, which is not listed on the 2026 303(d) list. The effluent travels approximately 2.9 miles in Holly Creek to Assessment Unit AR_08040203_913 of the Saline River East Bifurcation, which has an established TMDL for TDS. The TMDL assigns a wasteload allocation for Outfall 009. A mass limit as a function of Saline River flow rate is included in the permit and is

consistent with the implementation approach in the TMDL. See section 7.B below for a more detailed discussion.

B. Applicable Total Maximum Daily Load (TMDL) Reports

Outfall 028

A TMDL for Total Dissolved Solids (TDS) for the Saline River Basin, Arkansas was finalized on August 24, 2011 and revised on February 19, 2020. The TMDL established a TDS concentration of 1,738 mg/L. Based on the TMDL, this concentration was determined by a mass balance analysis, and effluent concentrations were adjusted so that the stream reach would meet the water quality criteria after mixing. The hydrologically controlled release (HCR) conditions applicable to this outfall were taken into account in this mass balance analysis. In accordance with 40 C.F.R. § 122.44(d)(1)(vii)(B), effluent limits in NPDES permits are required to be consistent with the approved TMDL. Therefore, the TMDL derived concentration is being implemented in the permit at this outfall. The TMDL does not contain a mass loading for TDS at this outfall since the discharge flow is allowed to be adjusted under the permitted HCR conditions based on the upstream flow measured in Hurricane Creek.

Outfall 009 – WLA Development from the TMDL

A TMDL for Total Dissolved Solids (TDS) for the Saline River Basin, Arkansas was finalized on August 24, 2011 and revised on February 19, 2020. The TMDL was developed using the load duration curve methodology. This method illustrates allowable loading at a wide range of streamflow conditions. The load duration curve shows the calculation of the TMDL at any flow rather than at a single critical flow. The official TMDL wasteload allocation is reported as a single number, but the load duration curve is provided to demonstrate the value of the acceptable load at any streamflow.

For Outfall 009, the official single WLA established in the TMDL is 81,451 lb/day of TDS. This single value represents the WLA based on a long term average taking into consideration the flow data collected on the Saline River over a long term basis. The load duration curve was developed using streamflow data over a 34 year period collected at USGS station 07363000 which is located on Saline River at Benton, Arkansas. This outfall discharges to Holly Creek then travels approximately 2.9 miles before confluence with Reach 010 of the Saline River.

Outfall 009 – WLA and Water Quality Protection at Critical Flow

As shown by the load duration curve in the TMDL (Figure F-3 of Appendix F), assimilative capacity of the Saline River is dependent on the streamflow. As the streamflow decreases, the assimilative capacity also decreases and vice-versa. In order to maintain the water quality criterion for TDS in the Saline River, the TDS load permitted to be discharged at this outfall was developed using a Hydrograph Controlled Release (HCR) methodology. This methodology is necessary because during times when the Saline River flow is lower than average, the single value WLA of 81,451 lb/day would not adequately protect the

water quality criterion. In fact, at critical flow conditions in the Saline River (7Q10 = 2.67 cfs = 1.72 MGD at USGS 07363000), if the facility discharged 81,451 lb/day (which calculates to a discharge flow of 6.1 MGD when discharging at a concentration needed to meet Holly Creek WQS of 1,600 mg/L), this would result in a downstream concentration in the Saline River of over 1,200 mg/L (over 10 times the WQS) based on the calculation shown below. This calculation conservatively assumes that the upstream Saline River TDS concentration is 87 mg/L (90th percentile of observed 1990-2011 stream data from OUA0026).

$$\text{IWC (mg/L)} = (\text{upstream load} + \text{effluent load}) / (\text{downstream flow} \times 8.34)$$

$$\text{IWC (mg/L)} = ((1.72 \text{ MGD} \times 8.34 \times 87 \text{ mg/L}) + (81,451 \text{ lb/day})) / ((6.1 + 1.72 \text{ MGD}) \times 8.34)$$

$$\text{IWC (mg/L)} = 1,268 \text{ mg/L (over 10 times higher than WQS of 120 mg/L)}$$

Therefore, a mass limit that is consistent with the single value wasteload allocation set forth in the TMDL and dependent on the flow rate of Saline River is needed to protect the Saline River during all streamflows.

Outfall 009 HCR for Protection of Saline River Over Entire Range of Streamflows

Page 22 of the TMDL states, “Outfall 009 operates under hydrologically controlled release; that is, the discharge volume is determined on the basis of the upstream Saline River flow rate and TDS concentration.” This approach is used in this permit, is consistent with the TMDL, and is protective of the water quality criterion for TDS in the Saline River over the entire range of streamflows.

To develop a mass limit dependent on Saline River flow, a daily water balance for the treated water holding ponds that discharge to Outfall 009 was developed using 40 years of Saline River daily flow data collected at USGS Station in Benton during 1950-1979 and 2000-2011 (USGS did not collect flow data during 1980-1999). This water balance was used to estimate the long term average TDS load that could be discharged to Holly Creek to comply with the long term average TDS wasteload allocation of 81,451 lb/day for Outfall 009.

The daily water balance spreadsheet developed by the facility calculates water entering and exiting the holding ponds for each day over a period of 40 years. These calculations were carried out on a daily basis over a long period of time because the amount of water that can be discharged varies with the amount of flow in the Saline River. Additionally, the discharge can also be limited by either the amount of water stored in the holding ponds or the capacity of the flume through which the water is discharged. This spreadsheet was used to develop a TDS permit limit expressed in lb/day per cfs of Saline River flow. The proposed limit was adjusted in the spreadsheet until the water balance yielded a long term average effluent TDS load that was equal to the single WLA value of 81,451 lb/day from the TMDL. This resulted in a value of 171.5 lb/day per cfs of Saline River flow.

To demonstrate that the TDS limit of 171.5 lb/day per cfs is protective of the water quality criterion of the Saline River (120 mg/L), the following calculations were performed to determine the instream waste concentration (IWC). The 90th percentile of the measured TDS values in the Saline River during 1990-2011 (21 years) was used as a background concentration (87 mg/L). The downstream concentration (IWC) is calculated using the following mass balance equation for comparison with the water quality criterion.

$$\begin{aligned} \text{Downstream load} &= \text{Upstream load} + \text{Effluent load} \\ (\text{IWC})(\text{downstream flow})(8.34) &= \text{Upstream load} + \text{Effluent load} \end{aligned}$$

The mass balance equation can then be expressed as follows:

$$\text{IWC (mg/L)} = (\text{upstream load} + \text{effluent load}) / (\text{downstream flow} \times 8.34) \quad (1)$$

Where,

$$\begin{aligned} \text{Upstream flow} &= 100 \text{ cfs} = 64.63 \text{ MGD (arbitrary value chosen for evaluation)} \\ \text{Upstream conc.} &= 87 \text{ mg/L (90}^{\text{th}} \text{ percentile of 21 years of data)} \\ \text{Upstream load} &= \text{Upstream flow} \times \text{Upstream concentration} \times 8.34 \\ &= 64.63 \text{ MGD} \times 87 \text{ mg/L} \times 8.34 = 46,894 \text{ lb/day} \\ \text{Effluent load} &= 171.5 \text{ lb/day/cfs} \times \text{Upstream flow} \\ &= 171.5 \text{ lb/day/cfs} \times 100 \text{ cfs} = 17,150 \text{ lb/day} \end{aligned}$$

Using equation (1) shown above:

$$\begin{aligned} \text{IWC (mg/L)} &= (46,894 \text{ lb/day} + 17,150 \text{ lb/day}) / (64.63 \text{ MGD} \times 8.34) \\ \text{IWC (mg/L)} &= 118.8 \text{ mg/L (less than WQC of 120 mg/L)} \end{aligned}$$

Note: This calculation shown above is conservative. It overestimates the IWC because the downstream flow used in the calculation is set equal to the upstream flow (does not include the volume of water added by the effluent).

The above calculation conservatively shows that if the effluent load is limited to 171.5 lb/day per cfs of Saline River flow, then the water quality criterion of the Saline River is protected during all ranges of stream flow. This limit is expressed in the permit as a daily maximum in order to comply with Saline River TDS WQC on a short-term basis, as well as comply with the TMDL assigned WLA on a long-term basis.

Outfall 009 TMDL Implementation Plan

The permittee will measure the TDS concentration at Outfall 009 once per week and measure the effluent flow on a continuous basis. The permittee will use the Saline River USGS station at Benton for the daily flow rate of the Saline River, or alternatively use the Saline River USGS station at Shaw Bridge or other Saline River USGS Station approved in writing by DEQ. If using the Shaw Bridge gage or other downstream Saline River USGS station, the effluent flow will be subtracted from the gage flow to determine the upstream Saline River flow. The Outfall 009 HCR discharge will then be adjusted daily during a

normal five (5) day work week based on the previous weekly TDS effluent concentration and the daily flow rate of the Saline River. Once the permittee receives the TDS effluent value from the contract lab, this TDS value will be used to calculate the daily HCR flows from Outfall 009 that will comply with the daily maximum permit limit of 171.5 lb/day per cfs of Saline River flow. The permittee shall calculate the TDS lb/day per cfs value that is discharged each day during each calendar month and report those daily values on the appropriate monthly DMR. The monthly average TDS load discharged from Outfall 009 shall be reported on the DMR and calculated using the definition of monthly average in Part IV of the permit.

C. Endangered Species

No comments on the application were received from the USF&WS.

In a letter on the previous draft permit public noticed on July 15, 2008, the Arkansas Natural Heritage Commission identified the following species of conservation concern that are known to occur in the Saline River within five miles downstream of Outfall 009:

Alasmidonta marginata, elktoe – state concern
Cyprogenia aberti, western fanshell – state concern
Lampsilis powellii, Arkansas fatmucket – federal concern (threatened)
Lampsilis satura, sandbank pocketbook – state concern
Lasmigona costata, flutedshell – state concern
Ligumia recta, black sandshell – state concern
Notropis perpallidus, peppered shiner – state concern
Obovaria jacksoniana, southern hickorynut – state concern
Ptychobranhus occidentalis, Ouachita kidneyshell – state concern
Quadrula metanevra, monkeyface – state concern
Villosa arkansasensis, Ouachita creekshell – state concern
Villosa lienosa, little spectaclecase – state concern

In a letter on the draft permit public noticed on July 28, 2018, the Department of Arkansas Heritage identified the following additional species of conservation concern that is known to occur in the Saline River within five miles downstream of Outfall 009:

Cyprogenia sp. cf aberti, Ouachita Fanshell – state concern

The limits in the permit are designed to protect all beneficial uses of the receiving waters, including propagation of desirable species of fish and other aquatic life, which includes the above species of concern. Therefore, DEQ has determined that the permit limits will serve to help protect the species of concern identified above.

D. Anti-Degradation

The limitations and requirements set forth in this permit for discharge into waters of the state are consistent with the Anti-degradation Policy and all other applicable water quality

standards found in PC&EC Rule 2.

8. OUTFALL, TREATMENT PROCESS DESCRIPTION, AND FACILITY CONSTRUCTION

The following is a description of the facility described in the application:

- A. Average Flow based on the highest monthly average flow during past two years (October 2022 through September 2024):

Outfall 008: No discharge

Outfall 009: 22.8 MGD

Outfall 028: 6.5 MGD

- B. Type of Treatment: neutralization with Sulfuric Acid and/or Carbon Dioxide, and precipitation with a flocculent aid (alum, bentonite and/or polymer).
- C. Discharge Description: acid mine drainage and stormwater runoff from inactive mines, acid mine drainage and stormwater from leased mining sites, and seepage from bauxite residue disposal area sites
- D. Facility Status: This facility was evaluated using the NPDES Permit Rating Worksheet (MRAT) to determine the correct permitting status. Since the facility's MRAT score of 140 is more than 80, this facility is classified as a major industrial.
- E. Facility Construction: This permit does not authorize or approve the construction or modification of any part of the treatment system or facilities. Approval for such construction must be by permit issued under Rule 6.202.

9. ACTIVITY

Under the Standard Industrial Classification (SIC) code of 1099 or North American Industry Classification System (NAICS) code of 212290, the applicant's activities are the operation of metal ore mining.

10. SOLIDS PRACTICES

Any solids generated will be disposed of in an inactive mine pit or re-dissolved in water to be treated. The permittee will handle and dispose of solids in such a manner so as to protect public health and the environment from any reasonably anticipated adverse effects due to any toxic pollutants which may be present.

11. DEVELOPMENT AND BASIS FOR PERMIT CONDITIONS

The Division of Environmental Quality has determined to issue a permit for the discharge described in the application. Permit requirements are based on federal regulations (40 C.F.R. Parts 122, 124, and Subchapter N) and rules promulgated pursuant to the Arkansas Water and

Air Pollution Control Act (Ark. Code Ann. § 8-4-101 et seq.). All of the information contained in the application, including all of the submitted effluent testing data, was reviewed to determine the need for effluent limits and other permit requirements.

The following is an explanation of the derivation of the conditions of the permit and the reasons for them or, in the case of notices of intent to deny or terminate, reasons suggesting the decisions as required under 40 C.F.R. § 124.7.

A. Technology-Based Versus Water Quality-Based Effluent Limitations and Conditions

Following regulations promulgated at 40 C.F.R. § 122.44, the permit limits are based on either technology-based effluent limits pursuant to 40 C.F.R. § 122.44(a) or on State water quality standards and requirements pursuant to 40 C.F.R. § 122.44(d), whichever are more stringent as follows:

Table 1 Outfall 008 Comparison of TBEL vs QBEL vs Previous Permit								
Parameter	Water Quality-Based		Technology-Based		Previous Permit		Draft Permit	
	Monthly Avg. mg/l	Daily Max. mg/l	Monthly Avg. mg/l	Daily Max. mg/l	Monthly Avg. mg/l	Daily Max. mg/l	Monthly Avg. mg/l	Daily Max. mg/l
Outfall 008								
TSS	N/A	N/A	20.0	30.0	20.0	30.0	20.0	30.0
Iron	N/A	N/A	0.5	1.0	0.5	1.0	0.5	1.0
Aluminum	N/A	N/A	1.0	2.0	1.0	2.0	1.0	2.0
Chlorides	N/A	N/A	Report	Report	Report	Report	Report	Report
Sulfates	N/A	N/A	Report	Report	Report	Report	Report	Report
TDS	N/A	N/A	Report	Report	Report	Report	Report	Report
pH	6.0-9.0 s.u.		6.0-9.0 s.u.		6.0-9.0 s.u.		6.0-9.0 s.u.	
Chronic WET Testing	Report		N/A		Report		Report	

Table 2
Outfall 009 Comparison of TBEL vs QBEL vs Previous Permit

Parameter	Water Quality-Based		Technology-Based		Previous Permit		Draft Permit	
	Monthly Avg. mg/l	Daily Max. mg/l	Monthly Avg. mg/l	Daily Max. mg/l	Monthly Avg. mg/l	Daily Max. mg/l	Monthly Avg. mg/l	Daily Max. mg/l
Outfall 009								
TSS	N/A	N/A	20.0	30.0	20.0	30.0	20.0	30.0
Iron	N/A	N/A	0.5	1.0	0.5	1.0	0.5	1.0
Aluminum	N/A	N/A	1.0	2.0	1.0	2.0	1.0	2.0
Selenium (interim) ¹	17.7 µg/l	35.5 µg/l	N/A	N/A	17.7 µg/l	35.5 µg/l	17.7 µg/l	35.5 µg/l
Selenium (final) ²	5.6 µg/l	11.2 µg/l	N/A	N/A	17.7 µg/l	35.5 µg/l	5.6 µg/l	11.2 µg/l
Chlorides	N/A	N/A	Report	Report	Report	Report	Report	Report
Sulfates	N/A	N/A	Report	Report	Report	Report	Report	Report
TDS	N/A	171.5 lb/day per cfs	Report	N/A	Report	171.5 lb/day per cfs	Report	171.5 lb/day per cfs
Arsenic	N/A	N/A	Report	Report	N/A	N/A	Report	Report
Manganese	N/A	N/A	Report	Report	N/A	N/A	Report	Report
pH	6.0-9.0 s.u.		6.0-9.0 s.u.		6.0-9.0 s.u.		6.0-9.0 s.u.	
Chronic WET Limits (<i>P. promelas</i> and <i>C. dubia</i>)	Not < 100% (Lethal limit) Not < 100% (Sublethal limit)		N/A		Not < 100% (Lethal limit) Not < 80% (Sublethal limit)		Not < 100% (Lethal limit) Not < 100% (Sublethal limit)	

¹ Interim limit lasts until November 24, 2029.

² Final limit begins November 25, 2029.

Table 3
Outfall 028 Comparison of TBEL vs QBEL vs Previous Permit

Parameter	Water Quality-Based		Technology-Based		Previous Permit		Draft Permit	
	Monthly Avg. mg/l	Daily Max. mg/l	Monthly Avg. mg/l	Daily Max. mg/l	Monthly Avg. mg/l	Daily Max. mg/l	Monthly Avg. mg/l	Daily Max. mg/l
Outfall 028								
TSS	N/A	N/A	20.0	30.0	20.0	30.0	20.0	30.0
Iron	N/A	N/A	0.5	1.0	0.5	1.0	0.5	1.0
Aluminum	N/A	N/A	1.0	2.0	1.0	2.0	1.0	2.0
Selenium	5.6 µg/l ¹	11.2 µg/l ¹	N/A	N/A	HCR	HCR	HCR	HCR
Chlorides	N/A	N/A	Report	Report	Report	Report	Report	Report
Sulfates	N/A	N/A	Report	Report	Report	Report	Report	Report
TDS	1738	N/A	N/A	Report	1738	Report	1738	Report
Arsenic	N/A	N/A	Report	Report	N/A	N/A	Report	Report
pH	6.0-9.0 s.u.		6.0-9.0 s.u.		6.0-9.0 s.u.		6.0-9.0 s.u.	
Chronic WET Limits (<i>C. dubia</i>)	Not < 83% (Lethal limit) Not < 83% (Sublethal limit)		N/A		Not < 62% (Lethal limit) Not < 62% (Sublethal limit)		Not < 83% (Lethal limit) Not < 83% (Sublethal limit)	

¹ Water quality-based limits without considering HCR conditions.

B. Justification for Limitations and Conditions of the Draft Permit

Table 4 Justification of Limits/Monitoring		
Parameter	Water Quality or Technology	Justification
TSS (Outfalls 008, 009, 028)	Technology	40 C.F.R. § 440.24, 40 C.F.R. § 122.44(l), and previous permit.
Aluminum (Outfalls 008, 009, 028)	Technology	40 C.F.R. § 440.24, 40 C.F.R. § 122.44(l), and previous permit.
Iron (Outfalls 008, 009, 028)	Technology	40 C.F.R. § 440.24, 40 C.F.R. § 122.44(l), and previous permit.
pH (Outfalls 008, 009, 028)	Technology	40 C.F.R. § 440.24, 40 C.F.R. § 122.44(l), and previous permit.
Selenium (Outfall 009)	Water Quality	Appendix A of Rule 2, EIP for Holly Creek adopted by APC&E on July 22, 2011 and approved by EPA on November 24, 2014, CWA § 402(o), and previous permit
Selenium (Outfall 028)	Water Quality	Rule 2.508
Chlorides (Outfalls 008, 009, 028)	Technology	40 C.F.R. § 122.44(l), and previous permit. No limits are included at this time based on no reasonable potential being shown. See Section 11.H of this fact sheet for the reasonable potential analysis.
Sulfates (Outfalls 008, 009, 028)	Technology	40 C.F.R. § 122.44(l), and previous permit. No limits are included at this time based on no reasonable potential being shown. See Section 11.I of this fact sheet for the reasonable potential analysis.
TDS (Outfall 008)	Technology	40 C.F.R. § 122.44(l), and previous permit. No limits are included at this time based on no reasonable potential being shown. See Section 11.J of this fact sheet for the reasonable potential analysis.
TDS (Outfalls 009 and 028)	Water Quality	Final TMDL Report dated August 24, 2011 and revised on February 19, 2020 entitled “TMDLs for Total Dissolved Solids for the Saline River Basin, Arkansas.” See Section 11.J of this fact sheet for detailed discussion.
Chronic WET Reporting (Outfall 008)	Technology	40 C.F.R. § 122.44(l), and previous permit.
Chronic WET Limits (Outfalls 009 and 028)	Water Quality	40 C.F.R. § 122.44(d)(1)(v) Rule 2.409

Table 4		
Justification of Limits/Monitoring		
Parameter	Water Quality or Technology	Justification
Arsenic (Outfalls 009 and 028)	Technology	Monitoring for one year is included in accordance with the CPP for parameters that demonstrate reasonable potential to exceed National Recommended Criteria, but the state has not yet developed a standard.
Manganese (Outfall 009)	Technology	Monitoring for one year is included in accordance with the CPP for parameters that demonstrate reasonable potential to exceed National Recommended Criteria, but the state has not yet developed a standard.

No new information was received to warrant adding, removing, or revising any limitations in the permit, with the exception of the revision of the Outfall 028 HCR discharge tiers for Selenium and the lethal and sublethal WET limits at Outfall 028. Therefore, except for the aforementioned revisions, the limitations in the permit are consistent with the limitations in the previous permit.

C. **Anti-backsliding**

The permit is consistent with the requirements to meet Anti-backsliding provisions of the Clean Water Act (CWA), Section 402(o) [40 C.F.R. § 122.44(l)]. The final effluent limitations for reissuance permits must be as stringent as those in the previous permit, unless the less stringent limitations can be justified using exceptions listed in CWA § 402(o)(2), CWA § 303(d)(4), or 40 C.F.R. § 122.44(l)(2)(i).

The permit maintains the requirements of the previous permit with the exception of the revision of the Outfall 028 HCR discharge tiers for Selenium and the lethal and sublethal WET limits at Outfall 028. The HCR discharge tiers for Selenium at Outfall 028 were revised to reflect the continued reduction of Selenium concentrations achieved through the Environmental Improvement Project (EIP). This revision of HCR discharge tiers is allowed in accordance with CWA § 402(o)(2) since new information (Selenium effluent data) is available which was not available at the time of previous permit issuance. The revised WET limits at Outfall 028 are more stringent than previous permit based on the revised worst-case HCR discharge tier.

D. **Limits Calculations**

1. Mass Limits:

In accordance with 40 C.F.R. § 122.45(f)(1), all pollutants limited in permits shall have limitations expressed in terms of mass if feasible. 40 C.F.R. § 122.45(f)(2) allows for pollutants which are limited in terms of mass to also be limited in terms of other units of measurement.

Mass limits are not included for Outfall 008 because the flow rate from this outfall can be highly variable depending on amount of rainfall.

Variable mass limits for TDS are included for Outfall 009 based on daily Saline River flow rate consistent with and derived from the wasteload allocation assigned to Outfall 009 in the final TMDL report dated August 2011.

Mass limits are not included for Outfall 028 because this outfall is flow limited by the HCR requirements in the permit.

2. Daily Maximum Limits:

Daily maximum limits for TSS, Iron, Aluminum, and pH at Outfalls 008, 009, and 028 are based on 40 C.F.R. § 440.24.

Daily maximum limits for Selenium at Outfall 009 is based on Attachment V of the CPP (Implementation of Aquatic Life Criteria).

Daily maximum limits for TDS mass per unit of streamflow in the Saline River at Outfall 009 is based on a derived value from a long term flow balance analysis of Saline River flows and facility flows in order to comply with the wasteload allocation assigned to this outfall in the 2011 TMDL report. The derived daily maximum value of 171.5 lb/day per cfs of Saline River flow was demonstrated to be consistent with the WLA of 81,451 lb/day given in the TMDL based on long term flow balance analysis of Saline River flows shown in Section 7.B of this fact sheet.

E. **208 Plan (Water Quality Management Plan)**

The 208 Plan, developed by the DEQ under provisions of Section 208 of the federal Clean Water Act, is a comprehensive program to work toward achieving federal water goals in Arkansas. The initial 208 Plan, adopted in 1979, provides for annual updates, but can be revised more often if necessary. There are no updates to the 208 Plan occurring with this permit renewal.

F. **Applicable Effluent Limitations Guidelines**

Discharges from facilities of this type are covered by Federal effluent limitations guidelines promulgated under 40 C.F.R. Part 440 – Ore Mining and Dressing Point Source Category, Subpart B – Aluminum Ore Subcategory. The provisions of this subpart are applicable to discharges of mine drainage from facilities engaged in the mining of bauxite as an aluminum ore. The permittee leases land to a third party that mines bauxite. Water from this mining activity enters the permittee's treatment system. Because of these leases, the Best Available Demonstrated Technology (BADT) standards within the New Source Performance Standards (NSPS) apply to this facility. The following table lists the effluent limitation guideline limits for TSS, Iron, Aluminum, and pH. The NSPS (BADT) - based limits are included for all outfalls.

Table 5 Comparison of Technology-Based Standards						
Parameter	BPT 40 C.F.R. § 440.22		BAT 40 C.F.R. § 440.22		NSPS (BADT) 40 C.F.R. § 440.24	
	Monthly Avg. mg/l	Daily Maximum mg/l	Monthly Avg. mg/l	Daily Maximum mg/l	Monthly Avg. mg/l	Daily Maximum mg/l
TSS	20.0	30.0	N/A	N/A	20.0	30.0
Iron	0.5	1.0	0.5	1.0	0.5	1.0
Aluminum	1.0	2.0	1.0	2.0	1.0	2.0
pH	6.0-9.0 s.u.		N/A		6.0-9.0 s.u.	

G. Outfall 028 Hydrograph Controlled Release (HCR)

The HCR tiers are protective of the water quality standard for Selenium in Hurricane Creek and allow operational flexibility for Reynolds Metals Company.

Table 6 Outfall 028 Hydrograph Controlled Release Tiers		
HCR Tier Number	Selenium Effluent Concentration Range	Maximum Effluent Flow, as a % of Upstream Flow
1	$0 < C_e \leq 6 \mu\text{g/l}$	335%
2	$6 < C_e \leq 8 \mu\text{g/l}$	111%
3	$8 < C_e \leq 10 \mu\text{g/l}$	67%
4	$10 < C_e \leq 14 \mu\text{g/l}$	37%

The following mass balance formula has been used to determine these flows. This calculation has been continued from the previous permit and is based upon Rule 2.404's mixing zone requirements and the Continuing Planning Process.

$$Q_b C_b + Q_e C_e = Q_d C_d$$

where,

Q_b = background flow = 67% of upstream flow (mixing zone allocation)

Q_e = effluent flow

Q_d = downstream flow = $Q_b + Q_e$

C_b = upstream concentration = $0 \mu\text{g/l}$

C_e = effluent concentration

C_d = downstream concentration after mixing = chronic WQS for Selenium = $5 \mu\text{g/l}$

Tier 1 calculations

Assume upstream flow is 1 cfs and effluent concentration is 6 µg/l. The allowable maximum discharge flow that will not cause an exceedance of WQS is calculated using the above equation and solving for Q_e as follows:

$$\begin{aligned}Q_e &= Q_d C_d - Q_b C_b / C_e \\Q_e &= (Q_b + Q_e)(C_d) - (Q_b C_b) / C_e \\Q_e &= (0.67 + Q_e)(5) - (0.67)(0) / 6 \\6Q_e &= 3.35 + 5Q_e \\Q_e &= 3.35 \\Q_e &= 3.35 \text{ or } 335\%\end{aligned}$$

This shows that at effluent concentrations up to 6 µg/l, the effluent flow (Q_e) can be up to 335% of streamflow.

Tier 2 calculations

Assume upstream flow is 1 cfs and effluent concentration is 8 µg/l. The allowable maximum discharge flow that will not cause an exceedance of WQS is calculated using above equation and solving for Q_e as follows:

$$\begin{aligned}Q_e &= Q_d C_d - Q_b C_b / C_e \\Q_e &= (Q_b + Q_e)(C_d) - (Q_b C_b) / C_e \\Q_e &= (0.67 + Q_e)(5) - (0.67)(0) / 8 \\8Q_e &= 3.35 + 5Q_e \\3Q_e &= 3.35 \\Q_e &= 1.11 \text{ or } 111\%\end{aligned}$$

This shows that at effluent concentrations greater than 6 µg/l and less than or equal to 8 µg/l, the effluent flow (Q_e) can be up to 111% of streamflow.

Tier 3 calculations

Assume upstream flow is 1 cfs and effluent concentration is 10 µg/l. The allowable maximum discharge flow that will not cause an exceedance of WQS is calculated using above equation and solving for Qe as follows:

$$\begin{aligned}Q_e &= Q_d C_d - Q_b C_b / C_e \\Q_e &= (Q_b + Q_e)(C_d) - (Q_b C_b) / C_e \\Q_e &= (0.67 + Q_e)(5) - (0.67)(0) / 10 \\10Q_e &= 3.35 + 5Q_e \\5Q_e &= 3.35 \\Q_e &= 0.67 \text{ or } 67\%\end{aligned}$$

This shows that at effluent concentrations greater than 8 µg/l and less than or equal to 10 µg/l, the effluent flow (Qe) can be up to 67% of streamflow.

Tier 4 calculations

Assume upstream flow is 1 cfs and effluent concentration is 14 µg/l. The allowable maximum discharge flow that will not cause an exceedance of WQS is calculated using above equation and solving for Qe as follows:

$$\begin{aligned}Q_e &= Q_d C_d - Q_b C_b / C_e \\Q_e &= (Q_b + Q_e)(C_d) - (Q_b C_b) / C_e \\Q_e &= (0.67 + Q_e)(5) - (0.67)(0) / 14 \\14Q_e &= 3.35 + 5Q_e \\9Q_e &= 3.35 \\Q_e &= 0.37 \text{ or } 37\%\end{aligned}$$

This shows that at effluent concentrations greater than 10 and less than or equal to 14 µg/l, the effluent flow (Qe) can be up to 37% of streamflow.

H. Chloride Reasonable Potential Evaluation

Outfall 008

Since this outfall has not discharged in the previous permit term, there are no Chloride effluent data to evaluate. Pursuant to 40 C.F.R. § 122.44(l), Chloride monitoring and reporting requirements are being continued from the previous permit at Outfall 008.

Outfall 009

Since the domestic drinking water designated use in Holly Creek was removed by a Use Attainability Analysis (UAA), no comparison to drinking water standards was performed. The water quality standard for Chloride is 30 mg/L in Holly Creek. The Instream Waste Concentration (IWC) is calculated using the following mass balance equation for comparison with the water quality standard.

$$IWC = (C_d \times Q_d) + (C_b \times Q_b) / (Q_d + Q_b)$$

where,

C_d = highest monthly average Chloride value reported Oct 2019 to Sep 2024 = 17 mg/L

C_b = background Chloride concentration = 5 mg/L (South Central Plains Ecoregion)

Q_d = highest monthly average flow Oct 2022 – Sep 2024 = 22.8 MGD = 35.34 cfs

Q_b = harmonic mean flow of Holly Creek upstream of outfall = 0.0286 cfs

Harmonic Mean Flow Statistics						
Statistic	Value	Unit	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
					Min	Max
QAH	0.0286	ft ³ /s				

<http://pubs.usgs.gov/sir/2015/5031/>

Breaker, B.K., 2015. Dry season mean monthly flow and harmonic mean flow regression equations for selected ungaged basins in Arkansas: U.S. Geological Survey Scientific Investigations Report 2015-5031, 25 p.

$$IWC = (17 \times 35.34) + (5 \times 0.0286) / (35.34 + 0.0286)$$

$$IWC = 17 \text{ mg/L}$$

Since 17 mg/L is less than 30 mg/L, no reasonable potential is shown to exceed water quality standards for Chloride. Therefore, Chloride limits are not included. Pursuant to 40 C.F.R. § 122.44(l), Chloride monitoring and reporting requirements are being continued from previous permit at Outfall 009.

Next, the highest reported monthly average effluent Chloride value reported Oct 2019 to Sep 2024 of 17 mg/L was evaluated and confirmed to meet WQS of 14 mg/L applicable to the “Saline River east bifurcation at Holly Creek” found in Rule 2.511(A) as follows:

The Instream Waste Concentration (IWC) is calculated using the following mass balance equation for comparison with the water quality standard.

$$IWC = (C_d \times Q_d) + (C_b \times Q_b) / (Q_d + Q_b)$$

where,

C_d = highest monthly average Chloride value reported Oct 2019 to Sep 2024 = 17 mg/L

C_b = background Chloride concentration = 5 mg/L (South Central Plains Ecoregion)

Q_d = highest monthly average flow Oct 2022 – Sep 2024 = 22.8 MGD = 35.34 cfs

Q_b = 57.2 cfs, harmonic mean flow of “Saline River east bifurcation” (StreamStats)

Harmonic Mean Flow Statistics						
Statistic	Value	Unit	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
					Min	Max
QAH	57.2	ft ³ /s	77		35.5	92.2

<http://pubs.usgs.gov/sir/2015/5031/>

Breaker, B.K., 2015. Dry season mean monthly flow and harmonic mean flow regression equations for selected ungaged basins in Arkansas: U.S. Geological Survey Scientific Investigations Report 2015-5031, 25 p.

$$IWC = (17 \times 35.34) + (5 \times 57.2) / (35.34 + 57.2)$$

$$IWC = 9.6 \text{ mg/L}$$

Since IWC (9.6 mg/L) is less than WQS (14 mg/L), the permit limit is protective of the WQS in the Saline River east bifurcation.

Outfall 028

Since the domestic drinking water designated use was removed in Hurricane Creek by a Use Attainability Analysis (UAA), no comparison to drinking water standards was performed. The water quality standard for Chloride is 125 mg/L in Hurricane Creek.

The Instream Waste Concentration (IWC) is calculated using the following mass balance equation for comparison with the water quality standard.

$$IWC = (C_d \times Q_d) + (C_b \times Q_b) / (Q_d + Q_b)$$

where,

C_d = highest monthly average effluent concentration Oct 2019 to Sep 2024 = 15 mg/L

C_b = background Chloride concentration = 5 mg/L (South Central Plains Ecoregion)

Q_b = background flow

Q_d = discharge flow = 3.35 x Q_b (HCR limits flow to 335% of Q_b at worst case tier)

Using substitution, the IWC equation becomes:

$$IWC = (C_d \times 3.35Q_b) + (C_b \times Q_b) / (3.35Q_b + Q_b)$$

$$IWC = (C_d \times 3.35Q_b) + (C_b \times Q_b) / 4.35Q_b$$

$$IWC = 0.77C_d + 0.23C_b$$

$$IWC = (0.77)(15) + (0.23)(5)$$

$$IWC = 12.7 \text{ mg/L}$$

Since 12.7 mg/L is less than 125 mg/L, no reasonable potential is shown to exceed water quality standards for Chloride. Therefore, Chloride limits are not included. Pursuant to 40 C.F.R. § 122.44(l), Chloride monitoring and reporting requirements are being continued at Outfall 028.

I. Sulfate Reasonable Potential Evaluation

Outfall 008

Since this outfall has not discharged in the previous permit term, there are no Sulfate effluent data to evaluate. Pursuant to 40 C.F.R. § 122.44(l), Sulfate monitoring and reporting requirements are being continued at Outfall 008.

Outfall 009

Since the domestic drinking water designated use was removed in Holly Creek by a Use Attainability Analysis (UAA), no comparison to drinking water standards was performed. The water quality standard for Sulfate is 860 mg/L in Holly Creek.

The Instream Waste Concentration (IWC) is calculated using the following mass balance equation for comparison with the water quality standard.

$$IWC = (C_d \times Q_d) + (C_b \times Q_b) / (Q_d + Q_b)$$

where,

C_d = highest monthly average effluent concentration Oct 2019 – Sep 2024 = 620 mg/L

C_b = background Sulfate concentration = 13 mg/L (South Central Plains Ecoregion)

Q_d = highest monthly average flow Oct 2022 – Sep 2024 = 22.8 MGD = 35.34 cfs

Q_b = harmonic mean flow of Holly Creek upstream of outfall = 0.0286 cfs

Harmonic Mean Flow Statistics						
Statistic	Value	Unit	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
					Min	Max
QAH	0.0286	ft ³ /s				

<http://pubs.usgs.gov/sir/2015/5031/>

Breaker_B.K._ 2015_ Dry season mean monthly flow and harmonic mean flow regression equations for selected ungaged basins in Arkansas: U.S. Geological Survey Scientific Investigations Report 2015-5031_ 25 p.

$$IWC = (620 \times 35.34) + (13 \times 0.0286) / (35.34 + 0.0286)$$

$$IWC = 620 \text{ mg/L}$$

Since 620 mg/L is less than 860 mg/L, no reasonable potential is shown to exceed water quality standards for Sulfate. Pursuant to 40 C.F.R. § 122.44(l), Sulfate monitoring and reporting requirements are being continued at Outfall 009.

Outfall 028

Since the domestic drinking water designated use was removed in Hurricane Creek by a Use Attainability Analysis (UAA), no comparison to drinking water standards was performed.

The water quality standard for Sulfate is 730 mg/L in Hurricane Creek.

The Instream Waste Concentration (IWC) is calculated using the following mass balance equation for comparison with the water quality standard.

$$IWC = (Cd \times Qd) + (Cb \times Qb) / (Qd + Qb)$$

where,

Cd = highest monthly average Sulfate value reported Oct 2019 – Sep 2024 = 540 mg/L

Cb = background Sulfate concentration = 13 mg/L (South Central Plains Ecoregion)

Qb = background flow

Qd = discharge flow = 3.35 x Qb (HCR limits flow to 335% of Qb at worst case tier)

Using substitution, the IWC equation becomes:

$$IWC = (Cd \times 3.35Qb) + (Cb \times Qb) / (3.35Qb + Qb)$$

$$IWC = (Cd \times 3.35Qb) + (Cb \times Qb) / 4.35Qb$$

$$IWC = 0.77Cd + 0.23Cb$$

$$IWC = (0.77)(540) + (0.23)(13)$$

$$IWC = 419 \text{ mg/L}$$

Since the IWC does not exceed 730 mg/L, no reasonable potential is shown to exceed water quality standards for Sulfate. Pursuant to 40 C.F.R. § 122.44(l), Sulfate monitoring and reporting requirements are being continued at Outfall 028.

J. Total Dissolved Solids Reasonable Potential Evaluation

Outfall 008

Since this outfall has not discharged in the previous permit term, there are no TDS effluent data to evaluate. Pursuant to 40 C.F.R. § 122.44(l), TDS monitoring and reporting requirements are being continued at Outfall 008. The TMDL report dated August 2011 does not assign a wasteload allocation for this outfall.

Outfall 009

No reasonable potential analysis was performed for Outfall 009 because the final TMDL report dated August 2011 assigns a wasteload allocation for this outfall. Therefore, a TDS limit of 171.5 lb/day per cfs of Saline River flow consistent with the TMDL is continued

for this outfall. See section 7.B of this fact sheet for details.

Outfall 028

No reasonable potential analysis was performed for Outfall 028 because the final TMDL report dated August 2011 assigns a wasteload allocation for this outfall. Therefore, a TDS limit of 1,738 mg/L consistent with the TMDL is continued for this outfall. See section 7.B of this fact sheet for details.

K. Evaluation of Priority Pollutants and Non-Priority Pollutants

DEQ has reviewed and evaluated the effluent in accordance with the potential toxicity of each analyzed pollutant using the procedures outlined in the Continuing Planning Process (CPP). The water quality criteria available when this evaluation was performed was used in Tables 7 through 14 in this section.

The concentration of each pollutant after mixing with the receiving stream was compared to the applicable water quality standards as established in the Arkansas Water Quality Standards (AWQS), Rule 2 (Rule 2.508) and criteria obtained from the “Quality Criteria for Water, 1986 (Gold Book).”

Under Federal Regulation 40 C.F.R. § 122.44(d), as adopted by Rule 6, if a discharge poses the reasonable potential to cause or contribute to an exceedance above a water quality standard, the permit must contain an effluent limitation for that pollutant. Effluent limitations for the toxicants listed below have been derived in a manner consistent with the Technical Support Document (TSD) for Water Quality-based Toxics Control (EPA, March 1991), the CPP, and 40 C.F.R. § 122.45(c).

The following items were used in calculations:

Table 7		
Items Used in Evaluation		
Parameter	Value	Source
Outfall 009		
Discharge Flow = Q	22.80 MGD = 35.28 cfs	Highest monthly average flow rate reported over the past two years (October 2022 – September 2024)
7Q10 Background Flow	0 cfs	USGS StreamStats
LTA Background Flow	0.12 cfs	Calculated from harmonic mean flow from USGS 07363000 gage on Saline River at Benton (38 cfs) and ratio of watershed areas of Holly Creek at outfall location (0.18 mi ²) and Saline River at Benton (550 mi ²)

Table 7 Items Used in Evaluation		
Parameter	Value	Source
TSS	5.5 mg/l	CPP for South Central ecoregion
Hardness as CaCO ₃	31 mg/l	CPP for South Central ecoregion
Outfall 028		
Discharge Flow = Q	2.17 MGD = 3.35 cfs	Based on Tier 1 of HCR which allows effluent flow up to 335% of streamflow.
7Q10 Background Flow	1.0 cfs	Arbitrary value picked to calculate discharge flow above based on Tier 1 of HCR.
LTA Background Flow	1.0	Arbitrary value picked to calculate discharge flow above based on Tier 1 of HCR.
TSS	5.5 mg/l	CPP for South Central ecoregion
Hardness as CaCO ₃	31 mg/l	CPP for South Central ecoregion

The following pollutants were reported above detection levels:

Table 8 Reported Pollutants in Application		
Pollutant	Concentration Reported, µg/l	MQL, µg/l
Outfall 009		
Arsenic, Total Rec.	6.5 ³	0.5
Copper, Total Rec.	1.0 ¹	0.5
Nickel, Total Rec.	11 ³	0.5
Selenium, Total Rec.	8.6 ²	5
Aluminum, Total Rec.	390 ²	2.5
Barium, Total Rec.	3.6 ³	2
Boron, Total Rec.	170 ³	100
Bromide	330 ³	200
Fluoride	1,100 ³	1000
Iron, Total Rec.	450 ²	20
Magnesium, Total Rec.	3,000 ³	50
Molybdenum, Total Rec.	63 ³	10
Manganese, Total Rec.	780 ³	50
Outfall 028		
Arsenic, Total Rec.	6.0 ³	0.5

Table 8		
Reported Pollutants in Application		
Pollutant	Concentration Reported, $\mu\text{g/l}$	
Copper, Total Rec.	1.7 ⁴	
Nickel, Total Rec.	4.9 ³	
Selenium, Total Rec.	Tier 1	7.7 ⁵
	Tier 2	8.3 ⁵
	Tier 3	None ⁶
	Tier 4	None ⁶
	Tier 5	None ⁶
Aluminum, Total Rec.	610 ²	
Barium, Total Rec.	4.4 ³	
Boron, Total Rec.	150 ³	
Iron, Total Rec.	380 ²	
Magnesium, Total Rec.	2600 ³	
Molybdenum, Total Rec.	62 ³	
Manganese, Total Rec.	200 ³	

¹ Geometric Mean of 3 data points from Pace in June 2023 and 1 from Eurofins in October 2023.

² Maximum of 104 data points reported on Form 2C from March 2021 – February 2023.

³ Single data point from PPS/EPA Form 2C from application.

⁴ Single data point from Eurofins in October 2023.

⁵ Highest actual reported under indicated Tier from September 2022 to August 2024.

⁶ No reported data under indicated Tier from September 2022 to August 2024.

The permittee performed a priority pollutant scan at Outfalls 009 and 028 in February 2023 for the renewal application. The results indicated that the reported Copper value from Eurofins (formerly American Interplex) would show reasonable potential and trigger the addition of a Copper limit. The permittee then gathered 19 additional Copper samples at Outfalls 009 and 028 during March 2023 and were again analyzed by Eurofins, but the results were generally reported above the potential permit limit. The permittee investigated the accuracy of the Copper results further by collecting 3 samples in June 2023 at Outfall 009 and splitting these 3 samples between 2 different third party labs (Pace and Eurofins). Both labs used EPA Method 200.8. The split sample results were significantly different between the two labs with the Pace results being lower than Eurofins results. Based on the significant differences between the split sample results, Eurofins initiated an analytical method review. Eurofins discovered that the outfall samples for American Interplex Control Numbers 273202R, 273813, 274011, 274412, 274200, 274381, and Eurofins Job Number 192-2472-1, were potentially impacted by matrix interference from sodium and argon combining to create a positive bias for copper. Eurofins found an appropriate alternative mass 65 allowed by EPA Method 200.8, which appears to be free of interferences for Outfalls 009 and 028. This method validation was completed on July 5, 2023. Therefore, all copper samples taken prior to this method validation date (see Control

Numbers and Job Numbers listed above) were not used in the reasonable potential evaluation for outfalls 009 and 028.

Following the method validation using the alternative mass, Eurofins recommended recollecting and reanalyzing copper samples using the alternative mass 65 in a letter dated September 14, 2023. This letter can be seen on page 31 of the permit renewal addendum which can be viewed using the following weblink:

https://www.adeq.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/AR0000582_Copper%20results%20addendum%20to%20renewal%20application_20231020.pdf

Based on the lab recommendation, the permittee re-sampled Outfalls 009 and 028 in October 2023 using Eurofins lab. The 3 Pace copper results from June 2023 and the Eurofins copper result from October 2023 were used in the reasonable potential evaluation for outfall 009. The October 2023 copper result from Eurofins was used in the reasonable potential evaluation for outfall 028.

Instream Waste Concentrations (IWCs) were calculated in the manner described in Appendix D of the CPP and compared to the applicable Criteria. The following tables summarize the results of the analysis. The complete evaluations can be viewed on the Division's website at the following weblinks:

[Outfall 009 PPS Evaluation](#)

[Outfall 028 PPS Evaluation](#)

1. Aquatic Toxicity Evaluation

Table 9 Acute Criteria Evaluation for Outfall 009					
Pollutant	Concentration Reported (C_e) $\mu\text{g/l}$	$C_e \times 2.13^1$	Instream Waste Concentration (IWC)	Criteria ²	Reasonable Potential (Yes/No)
			Acute, $\mu\text{g/l}$	Acute, $\mu\text{g/l}$	
Arsenic, Total Rec.	6.5	13.85	13.85	³	No
Copper, Total Rec.	1.0	2.13	2.13	14.79	No
Nickel, Total Rec.	11	23.43	23.43	1061.45	No
Selenium, Total Rec.	A reasonable potential evaluation was not performed since the permit already contains limits for this pollutant.				
Aluminum, Total Rec.	A reasonable potential evaluation was not performed since the permit already contains limits for this pollutant.				
Barium, Total Rec.	3.6	7.67	7.67	³	No
Boron, Total Rec.	170	362.10	362.10	³	No
Bromide	330	702.90	702.90	³	No
Fluoride	1,100	2343.00	2343.00	³	No
Iron, Total Rec.	A reasonable potential evaluation was not performed since the permit already contains limits for this pollutant.				
Magnesium, Total Rec.	3,000	6390.00	6390.00	³	No
Molybdenum, Total Rec.	63	134.19	134.19	³	No
Manganese, Total Rec.	780	1661.40	1661.40	³	No

¹ Statistical ratio used to estimate the 95th percentile using a single effluent concentration or the geometric mean of a dataset.

² Criteria are from Rule 2.508 unless otherwise specified.

³ No criteria available at this time.

Table 10
Chronic Criteria Evaluation for Outfall 009

Pollutant	Concentration Reported (C_e) $\mu\text{g/l}$	$C_e \times 2.13^1$	Instream Waste Concentration (IWC)	Criteria ²	Reasonable Potential (Yes/No)
			Chronic, $\mu\text{g/l}$	Chronic, $\mu\text{g/l}$	
Arsenic, Total Rec.	6.5	13.85	13.85	³	No
Copper, Total Rec.	1.0	2.13	2.13	10.93	No
Nickel, Total Rec.	11	23.43	23.43	117.88	No
Selenium, Total Rec.	A reasonable potential evaluation was not performed since the permit already contains limits for this pollutant.				
Aluminum, Total Rec.	A reasonable potential evaluation was not performed since the permit already contains limits for this pollutant.				
Barium, Total Rec.	3.6	7.67	7.67	³	No
Boron, Total Rec.	170	362.10	362.10	³	No
Bromide	330	702.90	702.90	³	No
Fluoride	1,100	2343.00	2343.00	³	No
Iron, Total Rec.	A reasonable potential evaluation was not performed since the permit already contains limits for this pollutant.				
Magnesium, Total Rec.	3,000	6390.00	6390.00	³	No
Molybdenum, Total Rec.	63	134.19	134.19	³	No
Manganese, Total Rec.	780	1661.40	1661.40	³	No

¹ Statistical ratio used to estimate the 95th percentile using a single effluent concentration or the geometric mean of a dataset.

² Criteria are from Rule 2.508 unless otherwise specified.

³ No criteria are available at this time.

Table 11
Acute Criteria Evaluation for Outfall 028

Pollutant	Concentration Reported (C_e) $\mu\text{g/l}$	$C_e \times 2.13^1$	Instream Waste Concentration (IWC)	Criteria ²	Reasonable Potential (Yes/No)
			Acute, $\mu\text{g/l}$	Acute, $\mu\text{g/l}$	
Arsenic, Total Rec.	6.0	12.78	11.63	³	No
Copper, Total Rec.	1.7	3.62	3.30	14.79	No
Nickel, Total Rec.	4.9	10.44	9.50	1061.45	No
Selenium, Total Rec.	A reasonable potential evaluation was not performed since the permit already contains limits for this pollutant.				
Aluminum, Total Rec.	A reasonable potential evaluation was not performed since the permit already contains limits for this pollutant.				
Barium, Total Rec.	4.4	9.37	8.53	³	No
Boron, Total Rec.	150	319.50	290.85	³	No
Iron, Total Rec.	A reasonable potential evaluation was not performed since the permit already contains limits for this pollutant.				
Magnesium, Total Rec.	2600	5538.00	5041.36	³	No
Molybdenum, Total Rec.	62	132.06	120.22	³	No
Manganese, Total Rec.	200	426.00	387.80	³	No

¹ Statistical ratio used to estimate the 95th percentile using a single effluent concentration or the geometric mean of a dataset.

² Criteria are from Rule 2.508 unless otherwise specified.

³ No criteria available at this time.

Table 12
Chronic Criteria Evaluation for Outfall 028

Pollutant	Concentration Reported (C_e) $\mu\text{g/l}$	$C_e \times 2.13^1$	Instream Waste Concentration (IWC)	Criteria ²	Reasonable Potential (Yes/No)
			Chronic, $\mu\text{g/l}$	Chronic, $\mu\text{g/l}$	
Arsenic, Total Rec.	6.0	12.78	10.65	³	No
Copper, Total Rec.	1.7	3.62	3.02	10.93	No
Nickel, Total Rec.	4.9	10.44	8.70	117.88	No
Selenium, Total Rec.	A reasonable potential evaluation was not performed since the permit already contains limits for this pollutant.				
Aluminum, Total Rec.	A reasonable potential evaluation was not performed since the permit already contains limits for this pollutant.				
Barium, Total Rec.	4.4	9.37	7.81	³	No
Boron, Total Rec.	150	319.50	266.25	³	No
Iron, Total Rec.	A reasonable potential evaluation was not performed since the permit already contains limits for this pollutant.				
Magnesium, Total Rec.	2600	5538.00	4614.95	³	No
Molybdenum, Total Rec.	62	132.06	110.05	³	No
Manganese, Total Rec.	200	426.00	355.00	³	No

¹ Statistical ratio used to estimate the 95th percentile using a single effluent concentration or the geometric mean of a dataset.

² Criteria are from Rule 2.508 unless otherwise specified.

³ No criteria available at this time.

2. Human Health (Bioaccumulation) Evaluation

Table 13 Human Health Evaluation for Outfall 009					
Pollutant	Concentration Reported (C_e) $\mu\text{g/l}$	$C_e \times 2.13^1$	Instream Waste Concentration (IWC)	Criteria ²	Reasonable Potential (Yes/No)
Arsenic, Total Rec.	6.5	13.85	13.80	1.4	Yes
Copper, Total Rec.	1.0	2.13	2	13,000	No
Nickel, Total Rec.	11	23.43	23.35	46,000	No
Selenium, Total Rec.	A reasonable potential evaluation was not performed since the permit already contains limits for this pollutant.				
Aluminum, Total Rec.	A reasonable potential evaluation was not performed since the permit already contains limits for this pollutant.				
Barium, Total Rec.	3.6	7.67	7.64	10,000	No
Boron, Total Rec.	170	362.10	360.87	³	No
Bromide	330	702.90	700.52	³	No
Fluoride	1100	2343.00	2335.06	³	No
Iron, Total Rec.	A reasonable potential evaluation was not performed since the permit already contains limits for this pollutant.				
Magnesium, Total Rec.	3000	6390.00	6368.34	³	No
Molybdenum, Total Rec.	63	134.19	133.74	³	No
Manganese, Total Rec.	780	1661.40	1655.77	1,000	Yes

¹ Statistical ratio used to estimate the 95th percentile using a single effluent concentration or the geometric mean of a dataset.

² Unless otherwise specified, criteria are adapted from [“National Recommended Water Quality Criteria – Human Health Criteria Table,” EPA](#). The respective WQC from the noted reference are Consumption of Organism Only values. The values from the reference are for a lifetime risk factor of 10^{-6} . These values have been multiplied by 10 to correspond to human health criteria lifetime risk factor of 10^{-5} as stated in Rule 2.508.

³ No bioaccumulation criteria were found in [“National Recommended Water Quality Criteria – Human Health Criteria Table,” EPA](#). Domestic drinking water supply use has been removed by a UAA for Holly Creek, therefore drinking water criteria are not applicable for this parameter.

Table 14
Human Health Evaluation for Outfall 028

Pollutant	Concentration Reported (C_e) $\mu\text{g/l}$	$C_e \times 2.13^1$	Instream Waste Concentration (IWC)	Criteria ²	Reasonable Potential (Yes/No)
Arsenic, Total Rec.	6.0	12.78	9.84	1.4	Yes
Copper, Total Rec.	1.7	3.62	2.79	13,000	No
Nickel, Total Rec.	4.9	10.44	8.04	46,000	No
Selenium, Total Rec.	A reasonable potential evaluation was not performed since the permit already contains limits for this pollutant.				
Aluminum, Total Rec.	A reasonable potential evaluation was not performed since the permit already contains limits for this pollutant.				
Barium, Total Rec.	4.4	9.37	7.22	10,000	No
Boron, Total Rec.	150	319.50	246.05	³	No
Iron, Total Rec.	A reasonable potential evaluation was not performed since the permit already contains limits for this pollutant.				
Magnesium, Total Rec.	2600	5538.00	4264.84	³	No
Molybdenum, Total Rec.	62	132.06	101.70	³	No
Manganese, Total Rec.	200	426.00	328.06	1,000	No

¹ Statistical ratio used to estimate the 95th percentile using a single effluent concentration or the geometric mean of a dataset.

² Unless otherwise specified, criteria are adapted from [“National Recommended Water Quality Criteria – Human Health Criteria Table,” EPA](#). The respective WQC from the noted reference are Consumption of Organism Only values. The values from the reference are for a lifetime risk factor of 10^{-6} . These values have been multiplied by 10 to correspond to human health criteria lifetime risk factor of 10^{-5} as stated in Rule 2.508.

³ No bioaccumulation criteria were found in [“National Recommended Water Quality Criteria – Human Health Criteria Table,” EPA](#). Domestic drinking water supply use has been removed by a UAA for the unnamed tributary to Hurricane Creek and Hurricane Creek, therefore drinking water criteria are not applicable for this parameter.

As shown in Tables 13 and 14, DEQ has determined from the submitted information that the discharge shows reasonable potential to cause or contribute to an exceedance above a listed criteria for Arsenic at Outfalls 009 and 028, and for Manganese at Outfall 009. A.C.A. § 8-4-216 authorizes the Department to require the submission of any information relevant to meeting the requirements of the Arkansas Water and Air Pollution Control Act. A requirement to monitor and report for these parameters once per quarter for one year has been added to the permit so that in the event that a WQS for these parameters is added to Rule 2.508, data will be available to perform a reasonable potential analysis. This is in accordance with the procedure in Appendix D of the CPP (Appendix D, Part IV – Chemical Specific Standards and Criteria, Section E – Protection of Human Health Criteria of the Discharge Permit, Toxic Control Implementation Procedure). A reopener clause has been included in the permit (see Part II.2) to provide permit limits if state water quality standards are developed for the applicable pollutants, and the data shows that there is a reasonable potential for the discharge to violate those water quality standards.

Iron and Aluminum were not evaluated since the permit already contains limits for these parameters, and limits for Iron and Aluminum are being continued from the previous permit. Selenium was not evaluated since Selenium was already limited in the previous permit using tiered HCR restrictions based on measured Selenium effluent concentration. This permit updates the ranges of the HCR tiers based on the latest measured effluent values. The calculations showing how each tier meets water quality are shown in section 11.G.

12. WHOLE EFFLUENT TOXICITY

Outfall 008

Section 101(a)(3) of the Clean Water Act states that "...it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited." In addition, DEQ is required under 40 C.F.R. § 122.44(d)(1), adopted by reference in PC&EC Rule 6, to include conditions as necessary to achieve water quality standards as established under Section 303 of the Clean Water Act. Arkansas has established a narrative criteria which states, "toxic materials shall not be present in receiving waters in such quantities as to be toxic to human, animal, plant or aquatic life or to interfere with the normal propagation, growth and survival of aquatic biota."

Whole effluent toxicity (WET) testing is the most direct measure of potential toxicity which incorporates the effects of synergism of effluent components and receiving stream water quality characteristics. It is the national policy of EPA to use bioassays as a measure of toxicity to allow evaluation of the effects of a discharge upon a receiving water (49 Federal Register 9016-9019, March 9, 1984). EPA Region 6 and the State of Arkansas are now implementing the Post Third Round Policy and Strategy established on September 9, 1992, and EPA Region 6 Post-Third Round Whole Effluent Toxicity Testing Frequencies, revised March 13, 2000.

Whole effluent toxicity testing of the effluent is thereby required as a condition of this permit to assess potential toxicity. The whole effluent toxicity testing procedures stipulated as a condition of this permit are as follows:

TOXICITY TESTS

FREQUENCY

Chronic WET

once/quarter

Requirements for measurement frequency are based on the CPP.

Since 7Q10 is less than 100 cfs (ft³/sec), chronic WET testing requirements will be included in the permit.

The calculations for dilution used for chronic WET testing are as follows:

$$\text{Critical dilution (CD)} = (Q_d / (Q_d + Q_b)) \times 100$$

$$Q_d = \text{Average flow (estimated value if discharge were to occur)} = 3.7 \text{ MGD} = 5.7 \text{ cfs}$$

$$7Q_{10} = 0 \text{ cfs}$$

$$Q_b = \text{Background flow} = (0.67) \times 7Q_{10} = 0 \text{ cfs}$$

$$CD = (5.7) / (5.7 + 0) \times 100 = 100\%$$

Toxicity tests shall be performed in accordance with protocols described in "Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms," EPA/600/4-91/002, July 1994. A minimum of five effluent dilutions in addition to an appropriate control (0%) are to be used in the toxicity tests. These additional effluent concentrations are 32%, 42%, 56%, 75%, and 100% (See the CPP). The low-flow effluent

concentration (critical dilution) is defined as 100% effluent. The requirement for chronic WET tests is based on the magnitude of the facility's discharge with respect to receiving stream flow. The stipulated test species, *Ceriodaphnia dubia* and the Fathead minnow (*Pimephales promelas*) are representative of organisms indigenous to the geographic area of the facility; the use of these is consistent with the requirements of the State water quality standards. The WET testing frequency has been established to provide data representative of the toxic potential of the facility's discharge, in accordance with the regulations promulgated at 40 C.F.R. § 122.48.

Results of all dilutions as well as the associated chemical monitoring of pH, temperature, hardness, dissolved oxygen, conductivity, and alkalinity shall be reported according to EPA-821-R-02-013, October 2002, and shall be submitted as an attachment to the Discharge Monitoring Report (DMR).

This permit may be reopened to require further WET testing studies, Toxicity Reduction Evaluation (TRE), and/or effluent limits if WET testing data submitted to the Division shows toxicity in the permittee's discharge. Modification or revocation of this permit is subject to the provisions of 40 C.F.R. § 122.62, as adopted by reference in PC&EC Rule 6. Increased or intensified toxicity testing may also be required in accordance with Section 308 of the Clean Water Act and Section 8-4-201 of the Arkansas Water and Air Pollution Control Act (Act 472 of 1949, as amended).

Administrative Records

The following information summarizes toxicity tests submitted by the permittee during the term of the current permit at Outfall 008 (no discharge reported during previous permit term).

Permit Number:	AR0000582	AFIN:	63-00487	Outfall Number:	008
Date of Review:	10/23/2024	Reviewer:	N. McKenna/M. Barnett		
Facility Name:	Reynolds Metal Company, LLC Bauxite Operations				
Previous Dilution series:	32, 42, 56, 75, 100%	Proposed Dilution Series:	32, 42, 56, 75, 100%		
Previous Critical Dilution:	100%	Proposed Critical Dilution:	100%		
Previous TRE activities:	none				
Frequency recommendation by species					
<i>Pimephales promelas</i> (Fathead minnow):	once per quarter				
<i>Ceriodaphnia dubia</i> (water flea):	once per quarter				
TEST DATA SUMMARY					
	Vertebrate		Invertebrate		
TEST DATE	Lethal	Sub-Lethal	Lethal	Sub-Lethal	
	NOEC	NOEC	NOEC	NOEC	
No Reported Discharges					
PERMIT ACTION					
<i>P. promelas</i> - monitoring					
<i>C. dubia</i> - monitoring					

Outfall 009

Section 101(a)(3) of the Clean Water Act states that "...it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited..." To ensure that the CWA's prohibitions for toxics are met, EPA has issued a "Policy for the Development of Water Quality-Based Permit Limitations for Toxic Pollutants (49 FR 9016-9019, 3/9/84)." In support of the national policy, Region 6 adopted the "Policy for Post Third Round NPDES Permitting" and the "Post Third Round NPDES Permit Implementation Strategy" on October 1, 1992. In addition, DEQ is required under 40 C.F.R. § 122.44(d)(1), adopted by reference in PC&EC Rule 6, to include conditions as necessary to achieve water quality standards as established under Section 303 of the Clean Water Act.

The Regional policy and strategy are designed to ensure that no source will be allowed to discharge any wastewater which (1) results in instream aquatic toxicity; (2) causes a violation of an applicable narrative or numerical State Water Quality Standard (WQS) resulting in non-conformance with the provisions of 40 C.F.R. § 122.44(d); (3) results in the endangerment of a drinking water supply; or (4) results in aquatic bioaccumulation which threatens human health.

Whole effluent toxicity (WET) testing has been established for assessing and protecting against impacts upon water quality and designated uses caused by the aggregate toxic effect of the discharge of pollutants. The stipulated test species, which are appropriate to measure whole effluent toxicity, are consistent with the requirements of the State Water Quality Standards. The WET testing frequency has been established to reflect the likelihood of ambient toxicity and to provide data representative of the toxic potential of the facility's discharge, in accordance with the regulations promulgated at 40 C.F.R. § 122.48.

Implementation

Arkansas has established a narrative water quality standard under the authority of Section 303 of the CWA which states, "toxic materials shall not be present in receiving waters in such quantities as to be toxic to human, animal, plant or aquatic life or to interfere with the normal propagation, growth and survival of aquatic biota."

Whole effluent toxicity testing conducted by the permittee has shown potential ambient toxicity to be the result of the permittee's discharge to the receiving stream or waterbody, at the appropriate instream critical dilution. Pursuant to 40 C.F.R. § 122.44(d)(1)(v), DEQ has determined from the permittee's self-reporting that the discharge from this facility does have the reasonable potential to cause, or contribute to an instream excursion above the narrative standard within the applicable State Water Quality Standards, in violation of Section 101(a)(3) of the Clean Water Act. Therefore, the draft permit must establish chronic effluent limitations following regulations promulgated by 40 C.F.R. § 122.44(d)(1)(v). These chronic effluent limitations (7-day NOEC) are continued to be applied at Outfall 009 beginning on effective date of the permit. For Outfall 009, the 7-day NOEC value for chronic lethal and sub-lethal limits shall not be less than 100% (Critical Dilution). WET testing of the effluent is thereby

required as a condition of this permit to assess potential toxicity. The WET testing procedures stipulated as a condition of this permit are as follows:

TOXICITY TESTS

FREQUENCY

Chronic WET

Once/quarter

Requirements for measurement frequency are based on the CPP.

Since 7Q10 is less than 100 cfs (ft³/sec), chronic WET testing requirements will be included in the permit.

The calculations for dilution used for chronic WET testing are as follows:

$$\text{Critical dilution (CD)} = (Q_d / (Q_d + Q_b)) \times 100$$

$$Q_d = \text{Average flow} = 22.8 \text{ MGD} = 35.3 \text{ cfs}$$

$$7Q_{10} = 0 \text{ cfs}$$

$$Q_b = \text{Background flow} = 0.67 \times 7Q_{10} = 0 \text{ cfs}$$

$$CD = (35.3) / (35.3 + 0) \times 100 = 100\%$$

Toxicity tests shall be performed in accordance with protocols described in “Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms,” EPA/600/4-91/002, July 1994. A minimum of five effluent dilutions in addition to an appropriate control (0%) are to be used in the toxicity tests. These additional effluent concentrations are 32%, 42%, 56%, 75%, and 100% (See the CPP). The low-flow effluent concentration (critical dilution) is defined as 100% effluent. The requirement for chronic WET tests is based on the magnitude of the facility’s discharge with respect to receiving stream flow. The stipulated test species, *Ceriodaphnia dubia* and the Fathead minnow (*Pimephales promelas*) are representative of organisms indigenous to the geographic area of the facility; the use of these is consistent with the requirements of the State water quality standards. The WET testing frequency has been established to provide data representative of the toxic potential of the facility’s discharge, in accordance with the regulations promulgated at 40 C.F.R. § 122.48.

Results of all dilutions as well as the associated chemical monitoring of pH, temperature, hardness, dissolved oxygen, conductivity, and alkalinity shall be reported according to EPA-821-R-02-013, October 2002, and shall be submitted as an attachment to the Discharge Monitoring Report (DMR).

This permit may be reopened to require further WET testing studies, Toxicity Reduction Evaluation (TRE), and/or effluent limits if WET testing data submitted to the Division shows toxicity in the permittee’s discharge. Modification or revocation of this permit is subject to the provisions of 40 C.F.R. § 122.62, as adopted by reference in PC&EC Rule 6. Increased or intensified toxicity testing may also be required in accordance with Section 308 of the Clean Water Act and Section 8- 4-201 of the Arkansas Water and Air Pollution Control Act (Act 472 of 1949, as amended).

Administrative Records

The following information summarizes toxicity tests submitted by the permittee during the term of the current permit at Outfall 009.

Permit Number:	AR0000582	AFIN:	63-00487	Outfall Number:	009
Date of Review:	10/23/2024	Reviewer:	N. McKenna/M. Barnett		
Facility Name:	Reynolds Metals Company- Bauxite Operations				
Previous Dilution series:	32, 42, 56, 80, 100%	Proposed Dilution Series:	32, 42, 56, 75, 100%		
Previous Critical Dilution:	100%	Proposed Critical Dilution:	100%		
Previous TRE activities:	P. promelas TRE initiated in March 2020, final report July 2022				
Frequency recommendation by species					
<i>Pimephales promelas</i> (Fathead minnow):	once per quarter				
<i>Ceriodaphnia dubia</i> (water flea):	once per quarter				
TEST DATA SUMMARY					
TEST DATE	Vertebrate		Invertebrate		
	Lethal NOEC	Sub-Lethal NOEC	Lethal NOEC	Sub-Lethal NOEC	
9/30/2019	100	100	100	100	
12/31/2019	100	100	100	100	
1/31/2020	0	0	100	100	
2/29/2020	42	42			Pp failure-- retest 1
3/30/2020	100	100			Pp pass--retest 2
4/30/2020	100	100			Pp pass--retest 3
4/30/2020			100	100	
6/30/2020	100	100	100	100	
10/31/2020	100	100			
12/31/2020	100	100			Split Sample
12/31/2020			100	100	Split Sample
3/31/2021			100	100	Split sample
3/31/2021	100	100			Split Sample
6/30/2021	100	100	100	100	
9/30/2021	100	100			
9/30/2021			100	100	
12/31/2021	100	32			Split sample
12/31/2021			100	100	
3/31/2022	100	100			
3/31/2022			100	100	
6/30/2022	100	100			
6/30/2022			100	100	
9/30/2022	100	100	100	100	
12/31/2022	100	100	100	100	
3/31/2023	100	100	100	100	
6/30/2023	100	100	100	100	
9/30/2023	100	100	100	100	
12/31/2023	100	100	100	100	
3/31/2024	100	100	100	100	
6/30/2024	100	100	100	100	
Failures noted in BOLD					
REASONABLE POTENTIAL CALCULATIONS					
	Vertebrate Lethal	Vertebrate Sub-lethal	Invertebrate Lethal	Invertebrate Sub-Lethal	
Min NOEC Observed	16	16	100	100	
TU at Min Observed	6.25	6.25	1.00	1.00	
Count	23	23	20	20	
Failure Count	2	3	0	0	
Mean	1.288	1.381	1.000	1.000	
Std. Dev.	1.119	1.180	0.000	0.000	
CV	0.9	0.9	0	0	
RPMF	1.5	1.5	0	0	
Reasonable Potential	9.375	9.375	0.000	0.000	
100/Critical dilution	1.000	1.000	1.000	1.000	
Does Reasonable Potential Exist	Yes	Yes	No	No	
PERMIT ACTION					
P. promelas - Limit 51714 - not < 100%					
C. dubia - Limit 51710 - not < 100%					

Although there appears to be no RP for *C. dubia*, limits for both organisms carry forward from previous permit. According to EPA Region 6, implementation of WET Permitting Strategy (May, 2005) for sub-lethal limits at the 80% effluent level is no longer appropriate. The limit at 100% is now applicable to both lethal and sub-lethal endpoints.

Outfall 028

Section 101(a)(3) of the Clean Water Act states that "...it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited..." To ensure that the CWA's prohibitions for toxics are met, EPA has issued a "Policy for the Development of Water Quality-Based Permit Limitations for Toxic Pollutants (49 FR 9016-9019, 3/9/84)." In support of the national policy, Region 6 adopted the "Policy for Post Third Round NPDES Permitting" and the "Post Third Round NPDES Permit Implementation Strategy" on October 1, 1992. In addition, DEQ is required under 40 C.F.R. § 122.44(d)(1), adopted by reference in PC&EC Rule 6, to include conditions as necessary to achieve water quality standards as established under Section 303 of the Clean Water Act.

The Regional policy and strategy are designed to ensure that no source will be allowed to discharge any wastewater which (1) results in instream aquatic toxicity; (2) causes a violation of an applicable narrative or numerical State Water Quality Standard (WQS) resulting in non-conformance with the provisions of 40 C.F.R. § 122.44(d); (3) results in the endangerment of a drinking water supply; or (4) results in aquatic bioaccumulation which threatens human health.

Whole effluent toxicity (WET) testing has been established for assessing and protecting against impacts upon water quality and designated uses caused by the aggregate toxic effect of the discharge of pollutants. The stipulated test species, which are appropriate to measure whole effluent toxicity, are consistent with the requirements of the State Water Quality Standards. The WET testing frequency has been established to reflect the likelihood of ambient toxicity and to provide data representative of the toxic potential of the facility's discharge, in accordance with the regulations promulgated at 40 C.F.R. § 122.48.

Implementation

Arkansas has established a narrative water quality standard under the authority of Section 303 of the CWA which states, "toxic materials shall not be present in receiving waters in such quantities as to be toxic to human, animal, plant or aquatic life or to interfere with the normal propagation, growth and survival of aquatic biota."

Whole effluent toxicity testing conducted by the permittee has shown potential ambient toxicity to be the result of the permittee's discharge to the receiving stream or waterbody, at the appropriate instream critical dilution. Pursuant to 40 C.F.R. § 122.44(d)(1)(v), DEQ has determined from the permittee's self-reporting that the discharge from this facility does have the reasonable potential to cause, or contribute to an instream excursion above the narrative standard within the applicable State Water Quality Standards, in violation of Section 101(a)(3) of the Clean Water Act. Therefore, the draft permit must establish chronic effluent limitations following Regulations promulgated by 40 C.F.R. § 122.44(d)(1)(v). These chronic effluent

limitations (7-day NOEC) are applied at Outfall 028 beginning on the effective date of permit. For Outfall 028, the *C. dubia* 7-day NOEC value for chronic limits shall not be less than 83% (Critical Dilution). WET testing of the effluent is thereby required as a condition of this permit to assess potential toxicity. The WET testing procedures stipulated as a condition of this permit are as follows:

TOXICITY TESTS

FREQUENCY

Chronic WET

Once/quarter

Requirements for measurement frequency are based on the CPP.

The calculations for dilution used for chronic WET testing are as follows:

Based on discharge flow (Qd) of 335% of background flow (worst case scenario from outfall tiers) and arbitrary assumption of a background flow (Qb) of 1 cfs

$$\text{Critical dilution (CD)\%} = [(Qd / (Qd + (0.67 \times Qb))) \times 100]$$

$$\text{Critical dilution (CD)\%} = [(3.35 \times 1) / (3.35 \times 1) + (0.67 \times 1)] \times 100$$

$$\text{Critical dilution (CD)\%} = 83\%$$

Toxicity tests shall be performed in accordance with protocols described in “Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms,” EPA/600/4-91/002, July 1994. A minimum of five effluent dilutions in addition to an appropriate control (0%) are to be used in the toxicity tests. These additional effluent concentrations are 26%, 35%, 47%, 62%, and 83% (See the CPP). The low-flow effluent concentration (critical dilution) is defined as 83% effluent. The requirement for chronic WET tests is based on the magnitude of the facility’s discharge with respect to receiving stream flow. The stipulated test species, *Ceriodaphnia dubia* and the Fathead minnow (*Pimephales promelas*) are representative of organisms indigenous to the geographic area of the facility; the use of these is consistent with the requirements of the State water quality standards. The WET testing frequency has been established to provide data representative of the toxic potential of the facility’s discharge, in accordance with the regulations promulgated at 40 C.F.R. § 122.48.

Results of all dilutions as well as the associated chemical monitoring of pH, temperature, hardness, dissolved oxygen, conductivity, and alkalinity shall be reported according to EPA-821-R-02-013, October 2002, and shall be submitted as an attachment to the Discharge Monitoring Report (DMR).

This permit may be reopened to require further WET testing studies, Toxicity Reduction Evaluation (TRE), and/or effluent limits if WET testing data submitted to the Division shows toxicity in the permittee’s discharge. Modification or revocation of this permit is subject to the provisions of 40 C.F.R. § 122.62, as adopted by reference in PC&EC Rule 6. Increased or intensified toxicity testing may also be required in accordance with Section 308 of the Clean Water Act and Section 8- 4-201 of the Arkansas Water and Air Pollution Control Act (Act 472 of 1949, as amended).

Administrative Records

The following information summarizes toxicity tests submitted by the permittee during the term of the current permit at Outfall 028.

DRAFT

Permit Number:	AR0000582	AFIN:	63-00487	Outfall Number:	028
Date of Review:	10/23/2024	Reviewer:	N. McKenna/M. Barnett		
Facility Name:	Reynolds Metal Company, LLC Bauxite Operations				
Previous Dilution series:	26, 35, 47, 62, 83%	Proposed Dilution Series:	26, 35, 47, 62, 83%		
Previous Critical Dilution:	62%	Proposed Critical Dilution:	83%		
Previous TRE activities:	none				
Frequency recommendation by species					
<i>Pimephales promelas</i> (Fathead minnow):	once per quarter				
<i>Ceriodaphnia dubia</i> (water flea):	once per quarter				

TEST DATA SUMMARY

TEST DATE	Vertebrate		Invertebrate	
	Lethal NOEC	Sub-Lethal NOEC	Lethal NOEC	Sub-Lethal NOEC
9/30/2019	83	83	83	83
12/31/2019	83	83	83	83
3/30/2020	83	83	83	83
6/30/2020	83	83	83	83
9/30/2020	83	83	83	83
12/31/2020	83	83	83	83
3/31/2021	83	83	83	83
6/30/2021	83	83	83	83
9/30/2021	83	83	83	83
12/31/2021	83	83	83	83
3/31/2022	83	83	83	83
6/30/2022	83	83	83	83
9/30/2022	83	83	83	83
12/31/2022	83	83	83	83
3/31/2023	83	83	83	83
6/30/2023	83	83	83	83
9/30/2023	83	83	83	83
12/31/2023	83	83	83	83
3/31/2024	83	83	83	83
6/30/2024	83	83	83	83
9/30/2024	83	83	83	83

Failures noted in **BOLD**

REASONABLE POTENTIAL CALCULATIONS

	Vertebrate Lethal	Vertebrate Sub-lethal	Invertebrate Lethal	Invertebrate Sub-Lethal
Min NOEC Observed	83	83	83	83
TU at Min Observed	1.20	1.20	1.20	1.20
Count	20	20	20	20
Failure Count				
Mean	1.205	1.205	1.205	1.205
Std. Dev.	0.000	0.000	0.000	0.000
CV	0	0	0	0
RPMF	0	0	0	0
Reasonable Potential	0.000	0.000	0.000	0.000
100/Critical dilution	1.613	1.613	1.613	1.613
Does Reasonable Potential Exist	No	No	No	No

PERMIT ACTION

P. promelas - chronic monitoring
C. dubia - Limit 51710 - not < 83%

Although analysis does not indicate reasonable potential for either organism, *C. dubia* limits carry forward from the previous permit. Note that the limit value changed from 62% to 83% based on revised worst case HCR tier.

13. STORMWATER REQUIREMENTS

The federal regulations at 40 C.F.R. § 122.26(b)(14) require certain industrial sectors to have NPDES permit coverage for stormwater discharges from the facility. These requirements include the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) to control the quality of stormwater discharges from the facility. This facility was issued stormwater permit coverage under NPDES Tracking number ARR00C423 on June 28, 2022. Since a portion of the stormwater runoff from the site is discharged via outfalls 008, 009, and 028, requirements for Best Management Practices (BMPs) is included in Part II of this permit.

14. SAMPLE TYPE AND FREQUENCY

Regulations require permits to establish monitoring requirements to yield data representative of the monitored activity [40 C.F.R. § 122.48(b)] and to ensure compliance with permit limitations [40 C.F.R. § 122.44(i)(1)]. The monitoring frequencies are based on best engineering judgment of the permit writer considering the nature of the facility and the previous permit. The monitoring frequency for pH at Outfall 009 was revised from continuous to once/week to be consistent with the frequency at Outfall 028, and because the detention time of the pond system is 27 days at average effluent flow and over 9 days at the highest reported monthly average flow during previous two years.

Table 15 Sample Type and Frequency Comparison Outfall 008				
Parameter	Previous Permit		Draft Permit	
	Frequency of Sample	Sample Type	Frequency of Sample	Sample Type
Flow	Continuous	Record	Continuous	Record
TSS	Once/week	Grab	Once/week	Grab
Aluminum	Once/week	Grab	Once/week	Grab
Iron	Once/week	Grab	Once/week	Grab
Selenium	Once/week	Grab	Once/week	Grab
Chlorides	Once/week	Grab	Once/week	Grab
Sulfates	Once/week	Grab	Once/week	Grab
TDS	Once/week	Grab	Once/week	Grab
pH	Continuous	Record	Continuous	Record
Chronic WET	Once/quarter	Composite	Once/quarter	Composite

Table 16 Sample Type and Frequency Comparison Outfall 009				
Parameter	Previous Permit		Draft Permit	
	Frequency of Sample	Sample Type	Frequency of Sample	Sample Type
Effluent flow	Five/week	Instantaneous	Five/week	Instantaneous
Saline River flow	Five/week	Record	Five/week	Record
TSS	Once/week	Grab	Once/week	Grab
Aluminum	Once/week	Grab	Once/week	Grab
Iron	Once/week	Grab	Once/week	Grab
Selenium	Once/week	Grab	Once/week	Grab
Arsenic ¹	N/A	N/A	Once/quarter ¹	Grab
Manganese ¹	N/A	N/A	Once/quarter ¹	Grab
Chlorides	Once/week	Grab	Once/week	Grab
Sulfates	Once/week	Grab	Once/week	Grab
TDS	Once/week	Grab	Once/week	Grab
pH	Continuous	Record	Once/week	Grab
Chronic WET	Once/quarter	Composite	Once/quarter	Composite

¹ Arsenic and Manganese monitoring required for first year of permit only.

Table 17 Sample Type and Frequency Comparison Outfall 028				
Parameter	Previous Permit		Draft Permit	
	Frequency of Sample	Sample Type	Frequency of Sample	Sample Type
Effluent Flow	Five/week	Instantaneous	Five/week	Instantaneous
Upstream Flow	Five/week	Instantaneous	Five/week	Instantaneous
Effluent Flow as a percentage of Upstream Flow	Five/week	Calculate	Five/week	Calculate
TSS	Once/week	Grab	Once/week	Grab
Aluminum	Once/week	Grab	Once/week	Grab
Iron	Once/week	Grab	Once/week	Grab
Selenium	Once/week	Grab	Once/week	Grab
Arsenic ¹	N/A	N/A	Once/quarter ¹	Grab
Chlorides	Once/week	Grab	Once/week	Grab
Sulfates	Once/week	Grab	Once/week	Grab
TDS	Once/week	Grab	Once/week	Grab
pH	Once/week	Grab	Once/week	Grab
Chronic WET	Once/quarter	Composite	Once/quarter	Composite

¹ Arsenic monitoring required for first year of permit only.

15. PERMIT COMPLIANCE SCHEDULE

A Schedule of Compliance has been included in this permit for Selenium at Outfall 009 since the temporary water quality criteria established under the approved Environmental Improvement Project (EIP) expires within the term of this renewal permit. Compliance with the final Selenium limit at Outfall 009 is required in accordance with the schedule provided in Part IB of the permit.

16. MONITORING AND REPORTING

The applicant is at all times required to monitor the discharge on a regular basis and report the results monthly. The monitoring results will be available to the public.

17. SOURCES

The following sources were used to write the permit:

- A. [Application No. AR0000582 received April 27, 2023.](#)
- B. Arkansas Water Quality Management Plan (WQMP).

- C. PC&EC Rule 2, codified in 8 CAR Part 21.
- D. PC&EC Rule 3, codified in 8 CAR Part 22.
- E. PC&EC Rule 6, codified in 8 CAR Part 25, which incorporates by reference certain federal regulations included in Title 40 of the Code of Federal Regulations at Rule 6.104, codified at 8 CAR § 25-104.
- F. 40 C.F.R. Parts 122 and 125.
- G. 40 C.F.R. Part 440, Subpart B.
- H. Discharge permit file AR0000582.
- I. Discharge Monitoring Reports (DMRs).
- J. “2026 Integrated Water Quality Monitoring and Assessment Report,” DEQ.
- K. “2026 List of Impaired Waterbodies (303(d) List),” DEQ.
- L. Region 6 Implementation Guidance for Arkansas Water Quality Standards promulgated at 40 C.F.R. § 131.36.
- M. Table 4 of letter dated February 8, 2008, from EPA Region 6 containing revised MQLs.
- N. [“TMDLs for Total Dissolved Solids for the Saline River Basin, Arkansas” dated August 11, 2011.](#)
- O. USGS StreamStats web-based program.
- P. Continuing Planning Process (CPP).
- Q. “OWQ Guidelines for Decimal Places and Rounding Conventions in NPDES Permits,” documented in a February 28, 2023 Interoffice Memorandum.
- R. Email from Mary Barnett to Shane Byrum regarding WET frequency reduction and dilution series for Outfall 028.
- S. Technical Support Document for Water Quality-based Toxic Control.
- T. [Inspection Report dated July 6, 2023.](#)
- U. [Enforcement/Compliance Review dated October 24, 2024.](#)
- V. [Planning Review dated October 28, 2024.](#)
- W. [NPDES Permit Rating Spreadsheet \(MRAT\) dated October 24, 2024.](#)
- X. [Addendum to renewal application dated October 20, 2023, regarding Copper samples.](#)
- Y. [Flow and pH frequency reduction request letter dated April 3, 2025.](#)

18. PUBLIC NOTICE

The public notice describes the procedures for the formulation of final determinations and shall provide for a public comment period of 30 days. During this period, any interested persons may submit written comments on the permit and may request a public hearing to provide verbal or written comments on the draft decision during the hearing. A request for a public hearing shall be in writing and shall state the nature of the issue(s) proposed to be raised in the hearing.

A copy of the permit and public notice will be sent via email to the Corps of Engineers, the Regional Director of the U.S. Fish and Wildlife Service, the Department of Parks, Heritage, and Tourism, the EPA, and the Arkansas Department of Health.

19. PERMIT FEE

In accordance with Rule 9.403(A)(1), the annual fee for the permit is \$15,000.

This facility is billed under Fee Code J.

20. POINT OF CONTACT

For additional information, contact:

Shane Byrum
Permits Branch, Office of Water Quality
Division of Environmental Quality
5301 Northshore Drive
North Little Rock, Arkansas 72118-5317
Telephone: (501) 682-0618



**DIVISION OF
ENVIRONMENTAL QUALITY**

Sarah Huckabee Sanders
GOVERNOR

Shane E. Khoury
SECRETARY

October 1, 2026

Via Email Only to: Robyn Gross, Global Director, Alcoa Transformation: Robyn.Gross@alcoa.com

RE: Permittee: Reynolds Metals Company, LLC
Facility: Bauxite Operation
Discharge Permit Number AR0000582, AFIN 63-00487

Dear Ms. Gross:

Attached are the public notice, a copy of the draft permit, and Fact Sheet, which the Arkansas Department of Energy and Environment – Division of Environmental Quality (DEQ) has prepared and emailed to you on the above date under the authority of the National Pollutant Discharge Elimination System (NPDES) and the Arkansas Water and Air Pollution Control Act.

In accordance with Rule 8.207, codified at 8 CAR § 11-207, the attached public notice will be or has been published by DEQ in a newspaper of general circulation of your facility for one (1) day only. An invoice for the cost of publishing the public notice and proof of publication will be sent to you by the advertising newspaper. The permittee must send proof of publication and proof of payment to the address at the bottom of this letter as soon as possible but no later than 30 days from the above date. Until this Division receives proof of publication of the public notice and payment of all permit fees, no further action will be taken on the issuance of your discharge permit.

For a list of changes, please see Section 5 of the attached Fact Sheet. Comments must be received at DEQ prior to the close of the public comment period as described in the enclosed public notice. Once a final permit is issued by the Director and becomes effective, the permittee must comply with all terms and conditions of the permit, or be subject to enforcement actions for any instances of noncompliance during the duration of the permit, usually five (5) years. Consequently, it is imperative that you, as the applicant, thoroughly review the attached documentation for accuracy, applicability, and your ability to comply with all conditions therein.

Should you have any questions concerning any part of the draft permit, please contact Shane Byrum at (501) 682-0618.

Sincerely,

Digitally signed by Stacie R. Wassell
DN: cn=Stacie R. Wassell, o=Division of
Environmental Quality, ou=Office of Water
Quality, email=stacie.wassell@adeq.state.ar.us,
c=US
Date: 2026.10.01 15:04:10 -05'00'

Stacie R. Wassell
Deputy Director, Office of Water Quality

Attachment

PUBLIC NOTICE OF DRAFT DISCHARGE PERMIT
PERMIT NUMBER AR0000582, AFIN 63-00487

In accordance with Ark. Code Ann. § 8-4-203(e), the Arkansas Department of Energy and Environment (E&E) – Division of Environmental Quality (DEQ), Office of Water Quality, gives the following notice:

Reynolds Metals Company, LLC - Bauxite Operation operates a facility located at 1401 Bauxite Cut-off Road, Bauxite, AR 72011 in Saline County. The facility is currently permitted to discharge acid mine drainage and stormwater runoff from inactive mines, acid mine drainage and stormwater from leased mining sites, and seepage from bauxite residue disposal area sites into an unnamed tributary of Hurricane Creek, thence to Hurricane Creek, thence to the Saline River, thence to the Ouachita River (via Outfall 008); into Holly Creek, thence to the Saline River, thence to the Ouachita River (via Outfall 009); into Hurricane Creek, thence to the Saline River, thence to the Ouachita River (via Outfall 028); in Segment 2C of the Ouachita River Basin. Reynolds Metals Company, LLC - Bauxite Operation submitted an application on April 27, 2023, with additional information received on October 20, 2023, July 29, 2024, and April 3, 2025, for the renewal of NPDES Permit No. AR0000582. The application has been reviewed by the DEQ's Office of Water Quality and has received tentative approval subject to the terms of this notice.

Citizens wishing to examine or obtain copies of the permit application, the draft permitting decision, the fact sheet may do so at E&E headquarters located at 5301 Northshore Drive, North Little Rock, AR 72118-5317. To request a copy of one or more of the documents, please call (501) 682-0622. For those with internet access, a copy of the proposed draft permit, as well as the publication date, may be found on DEQ's website at: https://www.adeq.state.ar.us/water/permits/drafts_pn.aspx

Comments on the draft permit will be accepted in accordance with Pollution Control and Ecology Commission (PC&EC) Rule 8.208, codified at 8 CAR § 11-208. DEQ's contact person for submitting written comments on the draft permit, or requesting a public hearing on the draft permit is Shane Byrum, at the above address and telephone number, or by email at EE.WaterComment@arkansas.gov.

The period for submitting comments on the draft permit, and for requesting a public hearing, shall begin on the date of publication of the public notice, and end at 4:30 p.m. (Central Time) on the 30th day after the publication date. If the last day of the comment period is a Saturday, Sunday, or legal holiday, the public comment period shall expire on the next day that is not a Saturday, Sunday, or legal holiday. For information regarding the actual publication date along with the actual date and time the comment period will end, please contact Shane Byrum at the above address and telephone number or by email at EE.WaterComment@arkansas.gov. Public notice, comments, and hearings will be conducted in accordance with Rules. 6.104(A)(5) [40 C.F.R. §§ 124.10 through 124.12 by reference] and 8.207 through 8.210 (Administrative Procedures), codified at 8 CAR § 25-104 and 8 CAR §§ 11-207 through 210. All persons, including the permittee, who wish to comment on DEQ's draft permitting decision must submit written comments to DEQ, along with their name and mailing address. A public hearing will be held when DEQ finds a significant degree of public interest. After the public comment period, DEQ will issue a final permitting decision. DEQ will notify the applicant and each person who has submitted written comments or requested notice of the final permitting decision. Any interested person who has submitted comments may appeal a final decision by DEQ in accordance with the PC&EC Rule 8, codified at 8 CAR Part 11.