Permit Number: AR0000582
AFIN: 63-00487

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.),

The applicant's mailing address is:

Reynolds Metals Company, LLC – Bauxite Operation
201 Isabella Street
Pittsburgh, PA 15212

The facility address is:

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

is authorized to discharge from a facility located as follows: approximately 3/4 mile south of the Bauxite Post Office off of Hwy 183 on Bauxite Cut-Off Road in Saline County, Arkansas.

Latitude: 34° 32' 56" N; Longitude: 92° 30' 19" W

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"; Longitude: 92° 28' 8.6"
Outfall 009: Latitude: 34° 32' 6.0"; Longitude: 92° 32' 3.3"
Outfall 028: Latitude: 34° 34' 3.4"; Longitude: 92° 28' 44.9"

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 on or before 180 days prior to the expiration date listed below for permit coverage past the expiration date.

Original Issue Date:	September 21, 2018
Original Effective Date:	November 1, 2018
Minor Modification Effective Date:	November 15, 2018
Expiration Date:	October 31, 2023

Caleb J. Osborne
Associate Director, Office of Water Quality
Arkansas Department of Environmental Quality

11.15.18
Minor Modification Issue Date

PART I
PERMIT REQUIREMENTS

SECTION A. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS: OUTFALL 008 - 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.

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 and calculations.

Effluent Characteristics	**Discharge Limitations**				**Monitoring Requirements**	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max	Monthly Avg.	Daily Max		
Flow[1]	N/A	N/A	Report	Report	continuous	record
Total Suspended Solids (TSS)	N/A	N/A	20.0	30.0	once/week	grab
Aluminum, Total[2]	N/A	N/A	1.0	2.0	once/week	grab
Iron, Total[2]	N/A	N/A	0.5	1.0	once/week	grab
Total Recoverable Selenium[2]	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 (TDS)	N/A	N/A	Report	Report	once/week	grab
pH	N/A	N/A	Minimum 6.0 s.u.	Maximum 9.0 s.u.	continuous	record
Whole Effluent Toxicity testing[3]	N/A	N/A	N/A	N/A	once/quarter	composite
Pimephales promelas (Chronic) [3]			7-Day Average			
Pass/Fail Lethality (7-day NOEC) TLP6C			Report (Pass=0/Fail=1)		once/quarter	composite
Pass/Fail Growth (7-day NOEC) TGP6C			Report (Pass=0/Fail=1)		once/quarter	composite
Survival (7-day NOEC) TOP6C			Report %		once/quarter	composite
Coefficient of Variation (Growth) TQP6C			Report %		once/quarter	composite
Growth (7-day NOEC) TPP6C			Report %		once/quarter	composite
Pass/Fail Retest 1 (7-day NOEC) 22418			Report (Pass=0/Fail=1)		once/month[4]	composite
Pass/Fail Retest 2 (7-day NOEC) 22419			Report (Pass=0/Fail=1)		once/month[4]	composite
Pass/Fail Retest 3 (7-day NOEC) 51444			Report (Pass=0/Fail=1)		once/month[4]	composite
Ceriodaphnia dubia (Chronic) [3]			7-Day Average			
Pass/Fail Lethality (7-day NOEC) TLP3B			Report (Pass=0/Fail=1)		once/quarter	composite
Pass/Fail production (7-day NOEC) TGP3B			Report (Pass=0/Fail=1)		once/quarter	composite
Survival (7-day NOEC) TOP3B			Report %		once/quarter	composite
Coefficient of Variation (Reproduction) TQP3B			Report %		once/quarter	composite
Reproduction (7-day NOEC) TPP3B			Report %		once/quarter	composite
Pass/Fail Retest 1 (7-day NOEC) 22415			Report (Pass=0/Fail=1)		once/month[4]	composite
Pass/Fail Retest 2 (7-day NOEC) 22416			Report (Pass=0/Fail=1)		once/month[4]	composite
Pass/Fail Retest 3 (7-day NOEC) 51443			Report (Pass=0/Fail=1)		once/month[4]	composite

[1] Report monthly average and daily maximum as MGD.
[2] See Condition No. 4 of Part II. (MQL Requirements).
[3] See Condition No. 9 of Part II (WET Testing Requirements).
[4] 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 (Condition Monitoring – Not Required This Period) under retest parameters. (reported on a quarterly DMR).

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 A. INTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS: OUTFALL 009 - 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.

During the period beginning on the effective date and lasting three years after the effective date, 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 and calculations.

Effluent Characteristics	Discharge Limitations				Monitoring Requirements	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max	Monthly Avg.	Daily Max		
Flow[1]	N/A	N/A	Report	Report	five/week [5]	instantaneous
Saline River Flow [5]	N/A	N/A	N/A	Report [5]	five/week [5]	record [5]
Total Suspended Solids (TSS)	N/A	N/A	20.0	30.0	once/week	grab
Aluminum, Total Recoverable [2]	N/A	N/A	1.0	2.0	once/week	grab
Iron, Total Recoverable [2]	N/A	N/A	0.5	1.0	once/week	grab
Selenium, Total Recoverable [2]	N/A	N/A	17.7 µg/l	35.5 µg/l	once/week	grab
Thallium, Total Recoverable [2, 7]	N/A	N/A	Report µg/l [7]	Report µg/l [7]	once/quarter [7]	grab
Manganese, Total Recoverable [2, 7]	N/A	N/A	Report µg/l [7]	Report µg/l [7]	once/quarter [7]	grab
Chlorides	N/A	N/A	Report	Report	once/week	grab
Sulfates	N/A	N/A	Report	Report	once/week	grab
Total Dissolved Solids (TDS)	Report	Report lb/day per cfs [6]	Report	Report	once/week	grab
pH	N/A	N/A	Minimum 6.0 s.u.	Maximum 9.0 s.u.	continuous	record
Chronic WET Testing [3]						
Pimephales promelas (Chronic) [3]			7-Day Average			
Pass/Fail Lethality (7-day NOEC) TLP6C			Report (Pass=0/Fail=1)		once/quarter	composite
Pass/Fail Growth (7-day NOEC) TGP6C			Report (Pass=0/Fail=1)		once/quarter	composite
Survival (7-day NOEC) TOP6C			Report %		once/quarter	composite
Coefficient of Variation (Growth) TQP6C			Report %		once/quarter	composite
Growth (7-day NOEC) TPP6C			Report %		once/quarter	composite
Pass/Fail Retest 1 (7-day NOEC) 22418			Report (Pass=0/Fail=1)		once/month[4]	composite
Pass/Fail Retest 2 (7-day NOEC) 22419			Report (Pass=0/Fail=1)		once/month[4]	composite
Pass/Fail Retest 3 (7-day NOEC) 51444			Report (Pass=0/Fail=1)		once/month[4]	composite
Ceriodaphnia dubia (Chronic) [3]			7-Day Average			
Pass/Fail Lethality (7-day NOEC) TLP3B			Report (Pass=0/Fail=1)		once/quarter	composite
Pass/Fail production (7-day NOEC) TGP3B			Report (Pass=0/Fail=1)		once/quarter	composite
Survival (7-day NOEC) TOP3B			Report %		once/quarter	composite
Coefficient of Variation (Reproduction) TQP3B			Report %		once/quarter	composite
Reproduction (7-day NOEC) TPP3B			Report %		once/quarter	composite
Pass/Fail Retest 1 (7-day NOEC) 22415			Report (Pass=0/Fail=1)		once/month[4]	composite
Pass/Fail Retest 2 (7-day NOEC) 22416			Report (Pass=0/Fail=1)		once/month[4]	composite
Pass/Fail Retest 3 (7-day NOEC) 51443			Report (Pass=0/Fail=1)		once/month[4]	composite

[1] Report monthly average and daily maximum as MGD.
[2] See Condition No. 4 of Part II. (MQL Requirements).
[3] See Condition No. 9 of Part II (WET Testing Requirements).
[4] 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 (Condition Monitoring – Not Required This Period) under retest parameters. (reported on a quarterly DMR).

[5] The effluent flow and Saline River flow shall be determined and recorded on a daily basis 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) or USGS Station 07363054 (Saline River at Shaw Bridge). See Part II.8 for calculation procedures for the HCR operating conditions.

[6] The permittee shall calculate "lb/day per cfs" value on a daily basis when discharging using procedure specified in Part II.8.

[7] Thallium 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.

SECTION A. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS: OUTFALL 009 - 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.

During the period beginning three years after 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.

Effluent Characteristics	**Discharge Limitations**				**Monitoring Requirements**	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max	Monthly Avg.	Daily Max		
Flow[1]	N/A	N/A	Report	Report	five/week [5]	instantaneous
Saline River Flow [5]	N/A	N/A	N/A	Report [5]	five/week [5]	record [5]
Total Suspended Solids (TSS)	N/A	N/A	20.0	30.0	once/week	grab
Aluminum, Total Recoverable[2]	N/A	N/A	1.0	2.0	once/week	grab
Iron, Total Recoverable[2]	N/A	N/A	0.5	1.0	once/week	grab
Total Recoverable Selenium[2]	N/A	N/A	17.7 µg/l	35.5 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 (TDS)	Report	171.5 lb/day per cfs [6]	Report	Report	once/week	grab
pH	N/A	N/A	Minimum 6.0 s.u.	Maximum 9.0 s.u.	continuous	record
Chronic WET Limits [3, 4]						
Pimephales promelas (Chronic) [3]	Daily Average Minimum		7-day Minimum			
Whole Effluent Toxicity (7-day NOEC) 51714	Lethal: Not < 100% Sublethal: Not < 80%		Lethal: Not < 100% Sublethal: Not < 80%		once/quarter once/quarter	composite composite
Ceriodaphnia dubia (Chronic) [3]	Daily Average Minimum		7-day Minimum			
Whole Effluent Toxicity (7-day NOEC) 51710	Lethal: Not < 100% Sublethal: Not < 80%		Lethal: Not < 100% Sublethal: Not < 80%		once/quarter once/quarter	composite composite
Pimephales promelas (Chronic) [3]			7-Day Average			
Pass/Fail Lethality (7-day NOEC) TLP6C			Report (Pass=0/Fail=1)		once/quarter	composite
Pass/Fail Growth (7-day NOEC) TGP6C			Report (Pass=0/Fail=1)		once/quarter	composite
Survival (7-day NOEC) TOP6C			Report %		once/quarter	composite
Coefficient of Variation (Growth) TQP6C			Report %		once/quarter	composite
Growth (7-day NOEC) TPP6C			Report %		once/quarter	composite
Ceriodaphnia dubia (Chronic) [3]			7-Day Average			
Pass/Fail Lethality (7-day NOEC) TLP3B			Report (Pass=0/Fail=1)		once/quarter	composite
Pass/Fail production (7-day NOEC) TGP3B			Report (Pass=0/Fail=1)		once/quarter	composite
Survival (7-day NOEC) TOP3B			Report %		once/quarter	composite
Coefficient of Variation (Reproduction) TQP3B			Report %		once/quarter	composite
Reproduction (7-day NOEC) TPP3B			Report %		once/quarter	composite

[1] Report monthly average and daily maximum as MGD.
[2] See Condition No. 4 of Part II. (MQL Requirements).
[3] See Condition No. 10 of Part II (WET Limit Requirements).
[4] As per Condition No. 10 of Part II (WET Limit Requirements), the permittee shall submit the results of the valid monthly increased frequency toxicity tests on the Unscheduled DMRs.

[5] The effluent flow and Saline River flow shall be determined and recorded on a daily basis 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) or USGS Station 07363054 (Saline River at Shaw Bridge). See Part II.8 for calculation procedures for the HCR operating conditions.

[6] The permittee shall calculate this value on a daily basis when discharging using procedure specified in Part II.8.

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 A. INTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS: OUTFALL 028 - 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.

During the period beginning on the effective date and lasting three years after the effective date, the permittee is authorized to discharge from Outfall 028. Such discharges shall be limited and monitored by the permittee as specified below.

Effluent Characteristics	**Discharge Limitations**				**Monitoring Requirements**	
	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 [2]	N/A	N/A	1.0	2.0	once/week	grab
Iron, Total Recoverable [2]	N/A	N/A	0.5	1.0	once/week	grab
Thallium, Total Recoverable [1,2]	N/A	N/A	Report µg/l [1,2]	Report µg/l [1,2]	once/quarter [1,2]	grab
Arsenic, Total Recoverable [1,2]	N/A	N/A	Report µg/l [1,2]	Report µg/l [1,2]	once/quarter [1,2]	grab
Chlorides	N/A	N/A	Report	Report	once/week	grab
Sulfates	N/A	N/A	Report	Report	once/week	grab
Total Dissolved Solids (TDS)	N/A	N/A	Report	Report	once/week	grab
pH	N/A	N/A	Minimum 6.0 s.u.	Maximum 9.0 s.u.	once/week	grab
Chronic WET Testing [3]	N/A	N/A	N/A	N/A	once/quarter	composite
Pimephales promelas (Chronic) [3]			7-Day Average			
Pass/Fail Lethality (7-day NOEC) TLP6C			Report (Pass=0/Fail=1)		once/quarter	composite
Pass/Fail Growth (7-day NOEC) TGP6C			Report (Pass=0/Fail=1)		once/quarter	composite
Survival (7-day NOEC) TOP6C			Report %		once/quarter	composite
Coefficient of Variation (Growth) TQP6C			Report %		once/quarter	composite
Growth (7-day NOEC) TPP6C			Report %		once/quarter	composite
Pass/Fail Retest 1 (7-day NOEC) 22418			Report (Pass=0/Fail=1)		once/month [4]	composite
Pass/Fail Retest 2 (7-day NOEC) 22419			Report (Pass=0/Fail=1)		once/month [4]	composite
Pass/Fail Retest 3 (7-day NOEC) 51444			Report (Pass=0/Fail=1)		once/month [4]	composite
Ceriodaphnia dubia (Chronic) [3]			7-Day Average			
Pass/Fail Lethality (7-day NOEC) TLP3B			Report (Pass=0/Fail=1)		once/quarter	composite
Pass/Fail production (7-day NOEC) TGP3B			Report (Pass=0/Fail=1)		once/quarter	composite
Survival (7-day NOEC) TOP3B			Report %		once/quarter	composite
Coefficient of Variation (Reproduction) TQP3B			Report %		once/quarter	composite
Reproduction (7-day NOEC) TPP3B			Report %		once/quarter	composite
Pass/Fail Retest 1 (7-day NOEC) 22415			Report (Pass=0/Fail=1)		once/month [4]	composite
Pass/Fail Retest 2 (7-day NOEC) 22416			Report (Pass=0/Fail=1)		once/month [4]	composite
Pass/Fail Retest 3 (7-day NOEC) 51443			Report (Pass=0/Fail=1)		once/month [4]	composite

[1] Thallium and Arsenic monitoring/reporting is only required for one year after effective date.
[2] See Condition No. 4 of Part II. (MQL Requirements).
[3] See Condition No. 9 of Part II (WET Testing Requirements).
[4] 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)

Outfall 028: Selenium Tier 1

Effluent Characteristics	Discharge Limitations				Monitoring Requirements	
	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 Ce ≤ 8 µg/l						
Effluent Flow [5]	N/A	N/A	Report	Report	five/week [8]	instantaneous
Upstream Flow [5]	N/A	N/A	Report [5]	Report [5]	five/week [8]	instantaneous [5]
Effluent Flow as a percentage of upstream flow [7]	N/A	N/A	N/A	111%	five/week [8]	calculate
Total Recoverable Selenium [6]	N/A	N/A	N/A	8.0 µg/l	once/week	grab

Outfall 028: Selenium Tier 2

Effluent Characteristics	Discharge Limitations				Monitoring Requirements	
	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 ≤ 10 µg/l						
Effluent Flow [5]	N/A	N/A	Report	Report	five/week [8]	instantaneous
Upstream Flow [5]	N/A	N/A	Report [5]	Report [5]	five/week [8]	instantaneous [5]
Effluent Flow as a percentage of upstream flow [7]	N/A	N/A	N/A	67%	five/week [8]	calculate
Total Recoverable Selenium [6]	N/A	N/A	N/A	10.0 µg/l	once/week	grab

Outfall 028: Selenium Tier 3

Effluent Characteristics	Discharge Limitations				Monitoring Requirements	
	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 ≤ 12 µg/l						
Effluent Flow [5]	N/A	N/A	Report	Report	five/week [8]	instantaneous
Upstream Flow [5]	N/A	N/A	Report [5]	Report [5]	five/week [8]	instantaneous [5]
Effluent Flow as a percentage of upstream flow [7]	N/A	N/A	N/A	48%	five/week [8]	calculate
Total Recoverable Selenium [6]	N/A	N/A	N/A	12.0 µg/l	once/week	grab

Outfall 028: Selenium Tier 4

Effluent Characteristics	Discharge Limitations				Monitoring Requirements	
	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 12 < Ce ≤ 16 µg/l						
Effluent Flow [5]	N/A	N/A	Report	Report	five/week [8]	instantaneous
Upstream Flow [5]	N/A	N/A	Report [5]	Report [5]	five/week [8]	instantaneous [5]
Effluent Flow as a percentage of upstream flow [7]	N/A	N/A	N/A	30%	five/week [8]	calculate
Total Recoverable Selenium [6]	N/A	N/A	N/A	16.0 µg/l	once/week	grab

Outfall 028: Selenium Tier 5

Effluent Characteristics	Discharge Limitations				Monitoring Requirements	
	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 16 < Ce ≤ 25 µg/l						
Effluent Flow [5]	N/A	N/A	Report	Report	five/week [8]	instantaneous
Upstream Flow [5]	N/A	N/A	Report [5]	Report [5]	five/week [8]	instantaneous [5]
Effluent Flow as a percentage of upstream flow [7]	N/A	N/A	N/A	17%	five/week [8]	calculate
Total Recoverable Selenium [6]	N/A	N/A	N/A	25.0 µg/l	once/week	grab

[5] Report monthly average and daily maximum as MGD. Stream flow shall be measured at the broad crested rectangular weir just downstream of the outfall. The effluent flow shall be subtracted from the measured stream flow to get the corrected upstream flow to report.

[6] See Condition No. 4 of Part II. (MQL Requirements).

[7] See Condition No. 7 of Part II (HCR Requirements)

[8] The effluent flow, upstream flow, and effluent flow percentage of upstream flow shall be determined and recorded on a daily basis 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 A. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS: OUTFALL 028 - 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.

During the period beginning three years after 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.

Effluent Characteristics	**Discharge Limitations**				**Monitoring Requirements**	
	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 [1]	N/A	N/A	1.0	2.0	once/week	grab
Iron, Total Recoverable [1]	N/A	N/A	0.5	1.0	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 (TDS)	N/A	N/A	1,738	Report	once/week	grab
pH	N/A	N/A	Minimum 6.0 s.u.	Maximum 9.0 s.u.	once/week	grab
Chronic WET Limits [2, 3]	Daily Average Minimum		7-day Minimum			
Ceriodaphnia dubia (Chronic)						
Whole Effluent Toxicity (7-day NOEC) 51710	Lethal: Not < 62% Sublethal: Not < 62%		Lethal: Not < 62% Sublethal: Not < 62%		once/quarter once/quarter	composite composite
Pimephales promelas (Chronic)			7-Day Average			
Pass/Fail Lethality (7-day NOEC) TLP6C			Report (Pass=0/Fail=1)		once/quarter	composite
Pass/Fail Growth (7-day NOEC) TGP6C			Report (Pass=0/Fail=1)		once/quarter	composite
Survival (7-day NOEC) TOP6C			Report %		once/quarter	composite
Coefficient of Variation (Growth) TQP6C			Report %		once/quarter	composite
Growth (7-day NOEC) TPP6C			Report %		once/quarter	composite
Pass/Fail Retest 1 (7-day NOEC) 22418			Report (Pass=0/Fail=1)		once/month [4]	composite
Pass/Fail Retest 2 (7-day NOEC) 22419			Report (Pass=0/Fail=1)		once/month [4]	composite
Pass/Fail Retest 3 (7-day NOEC) 51444			Report (Pass=0/Fail=1)		once/month [4]	composite
Ceriodaphnia dubia (Chronic)			7-Day Average			
Pass/Fail Lethality (7-day NOEC) TLP3B			Report (Pass=0/Fail=1)		once/quarter	composite
Pass/Fail production (7-day NOEC) TGP3B			Report (Pass=0/Fail=1)		once/quarter	composite
Survival (7-day NOEC) TOP3B			Report %		once/quarter	composite
Coefficient of Variation (Reproduction) TQP3B			Report %		once/quarter	composite
Reproduction (7-day NOEC) TPP3B			Report %		once/quarter	composite

[1] See Condition No. 4 of Part II (MQL Requirements).
[2] See Condition No. 10 of Part II (WET Limit Requirements for *C. dubia*). See Condition No. 9 of Part II for *P. promelas*.
[3] As per Condition No. 10 of Part II (WET Limit Requirements), the permittee shall submit the results of the valid monthly increased frequency toxicity tests on the Unscheduled DMRs.
[4] 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)

Outfall 028: Selenium Tier 1

Effluent Characteristics	Discharge Limitations				Monitoring Requirements	
	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 Ce ≤ 8 µg/l						
Effluent Flow [5]	N/A	N/A	Report	Report	five/week [8]	instantaneous
Upstream Flow [5]	N/A	N/A	Report [5]	Report [5]	five/week [8]	instantaneous [5]
Effluent Flow as a percentage of upstream flow [7]	N/A	N/A	N/A	111%	five/week [8]	calculate
Total Recoverable Selenium [6]	N/A	N/A	N/A	8.0 µg/l	once/week	grab

Outfall 028: Selenium Tier 2

Effluent Characteristics	Discharge Limitations				Monitoring Requirements	
	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 ≤ 10 µg/l						
Effluent Flow [5]	N/A	N/A	Report	Report	five/week [8]	instantaneous
Upstream Flow [5]	N/A	N/A	Report [5]	Report [5]	five/week [8]	instantaneous [5]
Effluent Flow as a percentage of upstream flow [7]	N/A	N/A	N/A	67%	five/week [8]	calculate
Total Recoverable Selenium [6]	N/A	N/A	N/A	10.0 µg/l	once/week	grab

Outfall 028: Selenium Tier 3

Effluent Characteristics	Discharge Limitations				Monitoring Requirements	
	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 ≤ 12 µg/l						
Effluent Flow [5]	N/A	N/A	Report	Report	five/week [8]	instantaneous
Upstream Flow [5]	N/A	N/A	Report [5]	Report [5]	five/week [8]	instantaneous [5]
Effluent Flow as a percentage of upstream flow [7]	N/A	N/A	N/A	48%	five/week [8]	calculate
Total Recoverable Selenium [6]	N/A	N/A	N/A	12.0 µg/l	once/week	grab

Outfall 028: Selenium Tier 4

Effluent Characteristics	Discharge Limitations				Monitoring Requirements	
	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 12 < Ce ≤ 16 µg/l						
Effluent Flow [5]	N/A	N/A	Report	Report	five/week [8]	instantaneous
Upstream Flow [5]	N/A	N/A	Report [5]	Report [5]	five/week [8]	instantaneous [5]
Effluent Flow as a percentage of upstream flow [7]	N/A	N/A	N/A	30%	five/week [8]	calculate
Total Recoverable Selenium [6]	N/A	N/A	N/A	16.0 µg/l	once/week	grab

Outfall 028: Selenium Tier 5

Effluent Characteristics	Discharge Limitations				Monitoring Requirements	
	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 16 < Ce ≤ 25 µg/l						
Effluent Flow [5]	N/A	N/A	Report	Report	five/week [8]	instantaneous
Upstream Flow [5]	N/A	N/A	Report [5]	Report [5]	five/week [8]	instantaneous [5]
Effluent Flow as a percentage of upstream flow [7]	N/A	N/A	N/A	17%	five/week [8]	calculate
Total Recoverable Selenium [6]	N/A	N/A	N/A	25.0 µg/l	once/week	grab

[5] Report monthly average and daily maximum as MGD. Stream flow shall be measured at the broad crested rectangular weir just downstream of the outfall. The outfall flow shall be subtracted from the measured stream flow to get the corrected upstream flow to report.
[6] See Condition No. 4 of Part II. (MQL Requirements).
[7] See Condition No. 7 of Part II (HCR Requirements).
[8] The effluent flow, upstream flow, and effluent flow percentage of upstream flow shall be determined and recorded on a daily basis 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

The permittee shall achieve compliance with the effluent limitations specified for discharges in accordance with the following schedule:

1. The permittee shall conduct a Priority Pollutant Scan and submit the results within 30 days of the first discharge from Outfall 008.

2. Compliance with the TDS and Whole Effluent Toxicity (WET) limits at Outfalls 009 and 028, is required three (3) years after the effective date of the permit.

The permittee shall submit progress reports addressing the progress towards attaining the TDS limits at Outfalls 009 and 028, the *C. dubia* and *P. promelas* WET limits at Outfall 009, and the *C. dubia* WET limits at Outfall 028, according to the following schedule:

ACTIVITY	**DUE DATE**
1st Progress Report[1, 2]	Twelve (12) months after effective date
2nd Progress Report[1, 3]	Twenty-four (24) months after effective date
Achieve Final Limits	Thirty-six (36) months after effective date
Final Progress Report[1, 4]	Thirty-seven (37) months after effective date

[1] If the permittee is already in compliance with the final permit limit, only documentation demonstrating compliance with the final limit will be required for the progress report.

[2] If the permittee is not in compliance with the Final Limitations following twelve (12) months of sampling, the initial Progress Report must detail how the permittee plans to come into compliance with the limits within the remaining twenty-four (24) months of the Interim period. Options must be provided that were considered along with which option* was selected. Any Best Management Practices (BMPs) that have been instituted to reduce the toxicity levels in the influent must also be discussed. If a study will be performed, a milestone schedule for the study must be provided.

* The permittee has the option to undertake any study deemed necessary to meet the final limitations during the interim period. Any additional treatment (including chemical addition) must be approved and construction approval granted prior to final installation.

[3] The second Progress Report must contain an update on the status of the chosen option from the initial Progress Report. If the facility is not meeting any of the milestones provided in the initial Progress Report, the facility must update the milestone schedule to show how the final limits will be met by the deadline.

[4] The final Progress Report must be submitted within one (1) month following the final thirty-six (36) month compliance date and include a certification that the final TDS and WET limits were met on the final compliance date and that the limits are still being met.

PART II
OTHER CONDITIONS

1. The operator of this wastewater treatment facility shall be an Advanced Industrial Operator licensed by the State of Arkansas in accordance with Act 1103 of 1991, Act 556 of 1993, Act 211 of 1971, and Regulation No. 3, as amended.

2. In accordance with 40 CFR Parts 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 new State water quality standard or 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 Section of the Water Division of the ADEQ for use of the alternate method or instrument.
   - The method and/or instrument is in compliance with 40 CFR Part 136 or approved in accordance with 40 CFR Part 136.5; and
   - All associated devices are installed, calibrated, and maintained to insure 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 Control/Quality Assurance 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. ADEQ must be notified in writing and the permittee must receive written approval from ADEQ if the permittee decides to return to the original permit monitoring requirements.

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

Pollutant	MQL (µg/l)
Total Rec. Aluminum	66.0[1]
Total Rec. Iron	99.0[1]
Total Rec. Selenium	5.0[2]
Total Rec. Thallium	0.5[2]
Total Rec. Manganese	3.3[1]
Total Rec. Arsenic	0.5[2]

[1] MQL for Aluminum, Iron and Manganese were 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 for Selenium, Arsenic, and Thallium are those values shown in 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 CFR Part 136. For any pollutant for which the permittee determines a site specific MDL, the permittee shall send to ADEQ, 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:

$$MQL = 3.3 \times MDL$$

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

5. Best Management Practices (BMPs), as defined in Part IV.6, 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.

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 Outfall 028 HCR discharge shall be adjusted daily during a 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 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 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 or station number 07363054 at Shaw Bridge. If using the Shaw Bridge flow gage, the facility shall subtract the effluent flow rate from 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. 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.

   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:

$$\text{lb/day per cfs} = \frac{\text{Flow at Outfall 009 (MGD)} \times \text{TDS concentration (mg/l)} \times 8.345}{\text{Flow of Saline River (cfs) @ USGS Station 07363000}}$$

If using the USGS station at Shaw Bridge, 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:

$$\text{lb/day per cfs} = \frac{\text{Flow at Outfall 009 (MGD) x TDS concentration (mg/l) x 8.345}}{\text{Flow of Saline River (cfs) @ USGS Station 07363054 – Outfall 009 flow (cfs)}}$$

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

Note: This condition applies to final WET reporting for both species at Outfall 008.
Note: This condition applies to interim WET reporting for both species at Outfall 009.
Note: This condition applies to interim WET reporting for *C. dubia* at Outfall 028.
Note: This condition applies to final WET reporting for *P. promelas* at Outfall 028.

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, 009, 028
REPORTED ON DMR AS FINAL OUTFALL:	008, 009, 028
CRITICAL DILUTION (%):	Outfall 008: 100% Outfall 009: 100% Outfall 028: 62%
EFFLUENT DILUTION SERIES (%):	Outfall 008: 32%, 42%, 56%, 75%, 100% Outfall 009: 32%, 42%, 56%, 80%, 100% Outfall 028: 26%, 35%, 47%, 62%, 83%
TESTING FREQUENCY:	once/quarter
COMPOSITE SAMPLE TYPE:	Defined at PART I
TEST SPECIES/METHODS:	40 CFR 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. This test should be terminated when 60% of the surviving females in the control produce three broods or at the end of eight days, whichever comes first.

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. A minimum of five (5) replicates with eight (8) organisms per replicate must be used in the control and in each effluent dilution of this test.

ii. The NOEC (No Observed Effect Concentration) is herein defined as the greatest effluent dilution at and below which toxicity (lethal or sub-lethal) 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 whole effluent toxicity limits, chemical specific effluent limits, additional testing, and/or other appropriate actions to address toxicity.

B. PERSISTENT LETHAL and/or SUB-LETHAL EFFECTS

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 (outfall 008-100%, outfall 009-100%, outfall 028-62%). 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.

If a frequency reduction, as specified in Item F, has been granted and any valid test demonstrates significant lethal or sub-lethal effects to a test species at or below the critical dilution, the frequency of testing for that species is automatically increased to once per quarter for the life of the permit. In addition:

i. Part I Testing Frequency Other Than Monthly

a. The permittee shall conduct a total of three (3) additional tests for any species that demonstrates significant lethal and/or sub-lethal effects at or below the critical dilution (outfall 008-100%, outfall 009-100%, outfall 028-62%). The additional tests shall be conducted monthly 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 scheduled toxicity test. A full report shall be prepared for each test required by this section in accordance with procedures outlined in Item D of this section and submitted with the period discharge monitoring report (DMR) to the permitting authority for review.

b. IF LETHAL EFFECTS HAVE BEEN DEMONSTRATED If any of the retests demonstrates significant lethal effects at or below the critical dilution (outfall 008-100%, outfall 009-100%, outfall 028-62%), the permittee shall initiate Toxicity Reduction Evaluation (TRE) requirements as specified in Item E of this

section. The permittee shall notify ADEQ in writing within 5 days of the failure of any retest, and the TRE initiation date will be the test completion date of the first failed retest. A TRE may also be required due to a demonstration of intermittent lethal effects at or below the critical dilution, or for failure to perform the required retests. A TRE required based on lethal effects should consider any sub-lethal effects as well.

c. IF SUB-LETHAL EFFECTS ONLY HAVE BEEN DEMONSTRATED If any two of the three retests demonstrates significant sub-lethal effects at 75% effluent or lower at Outfall 008, at 80% effluent or lower at Outfall 009, or at 62% effluent or lower at Outfall 028, the permittee shall initiate the Sub-Lethal Toxicity Reduction Evaluation (TRE_{SL}) requirements as specified in Item E of this section. The permittee shall notify ADEQ in writing within 5 days of the failure of any retest, and the Sub-Lethal Effects TRE initiation date will be the test completion date of the first failed retest. A TRE may also be required for failure to perform the required retests.

d. The provisions of Item B.i.a are suspended upon submittal of the TRE Action Plan.

C. REQUIRED TOXICITY TESTING CONDITIONS

i. Test Acceptance

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:

a. The toxicity test control (0% effluent) must have survival equal to or greater than 80%.

b. The mean number of Ceriodaphnia dubia neonates produced per surviving female in the control (0% effluent) must be 15 or more.

c. 60% of the surviving control females must produce three broods.

d. The mean dry weight of surviving Fathead minnow larvae at the end of the 7 days in the control (0% effluent) must be 0.25 mg per larva or greater.

e. The percent coefficient of variation between replicates shall be 40% or less in the control (0% effluent) for: the young of surviving females in the Ceriodaphnia dubia reproduction test; the growth and survival endpoints of the Fathead minnow test.

f. The percent coefficient of variation between replicates shall be 40% or less in the critical dilution, unless significant lethal or sub-lethal effects are exhibited for: the

young of surviving females in the Ceriodaphnia dubia reproduction test; the growth and survival endpoints of the Fathead minnow test.

g. If a test passes, yet the percent coefficient of variation between replicates is greater than 40% in the control (0% effluent) and/or in the critical dilution for: the young of surviving females in the Ceriodaphnia dubia reproduction test; the growth and survival endpoints of the Fathead minnow test, the test is determined to be invalid. A repeat test shall be conducted within the required reporting period of any test determined to be invalid.

h. If a test fails, test failure may not be construed or reported as invalid due to a coefficient of variation value of greater than 40%.

i. A Percent Minimum Significant Difference (PMSD) range of 13 - 47 for Ceriodaphnia dubia reproduction;

j. A PMSD range of 12 - 30 for Fathead minnow growth.

ii. Statistical Interpretation

a. For the Ceriodaphnia dubia survival test, the statistical analyses used to determine if there is a significant difference between the control and the critical dilution shall be Fisher's Exact Test as described in EPA/821/R-02-013 or the most recent update thereof.

b. For the Ceriodaphnia dubia reproduction test and the Fathead minnow larval survival and growth test, 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 EPA/821/R-02-013 or the most recent update thereof.

c. If the conditions of Test Acceptability are met in Item C.i above and the percent survival of the test organism is equal to or greater than 80% in the critical dilution concentration and all lower dilution concentrations, the test shall be considered to be a passing test, and the permittee shall report a survival NOEC of not less than the critical dilution for the DMR reporting requirements found in Item D below.

iii. 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 of Item C.i), 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 of Item C.i was run concurrently with the receiving water control;

(2) the test indicating receiving water toxicity has been carried out to completion (i.e., 7 days);

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

iv. Samples and Composites

a. The permittee shall collect a minimum of three flow-weighted composite samples from the outfall(s) listed at Item A.i above. Unless otherwise stated in this section, a composite sample for WET shall consist of a minimum of 12 subsamples gathered at equal time intervals during a 24-hour period.

b. The permittee shall collect second and third composite samples for use during 24-hour renewals of each dilution concentration for each test. The permittee must collect the composite samples such that the effluent samples, on use, are representative of any periodic episode of chlorination, biocide usage or other potentially toxic substance discharged on a regular or intermittent basis.

c. The permittee must collect all three flow-weighted composite samples within the monitoring period. Second and/or third composite samples shall not be collected into the next monitoring period; such tests will be determined to not meet either reporting period requirements. Monitoring period definitions are listed in Part IV.

d. The permittee must collect the composite samples so that the maximum holding time for any effluent sample shall not exceed 72 hours. 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 between 0 and 6 degrees Centigrade during collection, shipping, and/or storage.

e. 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, the minimum number of effluent portions and the sample holding time are waived during that sampling period. However, the permittee must have collected an effluent composite sample volume during the period of discharge that is sufficient to complete the required toxicity tests with daily renewal of effluent. When possible, the effluent samples used for the toxicity tests shall be collected on separate days if the discharge occurs over multiple 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 D of this section.

f. MULTIPLE OUTFALLS: If the provisions of this section are applicable to multiple outfalls, the permittee shall combine the composite effluent samples in proportion to the average flow from the outfalls listed in Item A.i. above for the day the sample was collected. The permittee shall perform the toxicity test on the flow-weighted composite of the outfall samples.

g. If chlorination is part of the treatment process, the permittee shall not allow the sample to be dechlorinated at the laboratory. At the time of sample collection, the permittee shall measure the total residual chlorine (TRC) of the effluent. The measured concentration of TRC for each sample shall be included in the lab report submitted by the permittee.

D. REPORTING

i. The permittee shall prepare a full report of the results of all tests conducted pursuant to this section in accordance with the Report Preparation Section of EPA/821/R-02-013, or the most current publication, for every valid or invalid toxicity test initiated whether carried to completion or not. The permittee shall retain each full report pursuant to the provisions of PART III.C.7 of this permit. The permittee shall submit full reports. For any test which fails, is considered invalid or which is terminated early for any reason, the full report must be submitted for agency review.

ii. A valid test for each species must be reported on the DMR during each reporting period specified in PART I of this permit. The full reports for all invalid tests, repeat tests (for invalid tests), and retests (for tests previously failed) performed during the reporting period must be attached to the DMR for Agency review.

iii. The permittee shall submit the results of each valid toxicity test on the subsequent monthly DMR for that reporting period in accordance with PART III.D.4 of this permit, as follows below. Only results of valid tests are to be reported on the DMR.

a. Pimephales promelas (Fathead minnow)

(1) If the No Observed Effect Concentration (NOEC) for survival is less than the critical dilution, enter a '1'; otherwise, enter a '0' for Parameter No. TLP6C

(2) Report the NOEC value for survival, Parameter No. TOP6C

(3) Report the NOEC value for growth, Parameter No. TPP6C

(4) If the NOEC for growth is less than the critical dilution, enter a '1'; otherwise, enter a '0' for Parameter No. TGP6C

(5) Report the highest (critical dilution or control) Coefficient of Variation for growth, Parameter No. TQP6C

(6) If conducting retests due to a test failure (demonstration of significant toxic effects at or below the critical dilution):

(A) Consecutive Monthly Retest 1: If the NOEC (lowest lethal or sub-lethal) for *P. promelas* is less than the critical dilution, enter a '1'; otherwise, enter a '0' under Parameter No. 22418 (reported on quarterly DMR);

(B) Consecutive Monthly Retest 2: If the NOEC (lowest lethal or sub-lethal) for *P. promelas* is less than the critical dilution, enter a '1'; otherwise, enter a '0' under Parameter No. 22419 (reported on quarterly DMR);

(C) Consecutive Monthly Retest 3: If the NOEC (lowest lethal or sub-lethal) for *P. promelas* is less than the critical dilution, enter a '1'; otherwise, enter a '0' under Parameter No. 51444 (reported on quarterly DMR);

(D) If testing on a quarterly basis, the permittee may substitute one of the retests in lieu of one scheduled toxicity test;

(E) If retests are not required, Report NODI=9 (Conditional Monitoring - Not Required This Period) under Parameter Nos. 22418, 22419, 51444 (reported on quarterly DMR)

b. Ceriodaphnia dubia

(1) If the NOEC for survival is less than the critical dilution, enter a '1'; otherwise, enter a '0' for Parameter No. TLP3B

(2) Report the NOEC value for survival, Parameter No. TOP3B

(3) Report the NOEC value for reproduction, Parameter No. TPP3B

(4) If the NOEC for reproduction is less than the critical dilution, enter a '1'; otherwise, enter a '0' for Parameter No. TGP3B

(5) Report the higher (critical dilution or control) Coefficient of Variation for reproduction, Parameter No. TQP3B

(6) If conducting retests due to a test failure (demonstration of significant toxic effects at or below the critical dilution):

(A) Consecutive Monthly Retest 1: If the NOEC (lowest lethal or sub-lethal) for *C. dubia* is less than the critical dilution, enter a '1'; otherwise, enter a '0' under Parameter No. 22415 (reported on quarterly DMR);

(B) Consecutive Monthly Retest 2: If the NOEC (lowest lethal or sub-lethal) for *C. dubia* is less than the critical dilution, enter a '1'; otherwise, enter a '0' under Parameter No. 22416 (reported on quarterly DMR);

(C) Consecutive Monthly Retest 3: If the NOEC (lowest lethal or sub-lethal) for *C. dubia* is less than the critical dilution, enter a '1'; otherwise, enter a '0' under Parameter No. 51443 (reported on quarterly DMR);

(D) If testing on a quarterly basis, the permittee may substitute one of the retests in lieu of one scheduled toxicity test;

(E) If retests are not required, Report NODI=9 (Conditional Monitoring - Not Required This Period) under Parameter Nos. 22415, 22416, and 51443 (reported on quarterly DMR)

E. TOXICITY REDUCTION EVALUATIONS (TREs)

TREs for lethal and sub-lethal effects are performed in a very similar manner. EPA Region 6 is currently addressing TREs as follows: a sub-lethal TRE (TRE_{SL}) is triggered based on three sub-lethal test failures at or below the critical dilution (outfall 008- 100%, outfall 009-100%, outfall 028-62%) while a lethal effects TRE (TRE_L) is triggered based on only two test failures for lethality at or below the critical dilution. In addition, EPA Region 6 will consider the magnitude of toxicity and use flexibility when considering a TRE_{SL} where there are no effects at effluent dilutions of 75% or lower at Outfall 008 and no effects at effluent dilutions of 80% or lower at Outfall 009.

i. Within ninety (90) days of confirming toxicity, as outlined above, the permittee shall submit a Toxicity Reduction Evaluation (TRE) Action Plan and Schedule for conducting a TRE. The TRE Action Plan shall specify the approach and methodology to be used in performing the TRE. A Toxicity Reduction Evaluation 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 goal of the TRE is to maximally reduce the toxic effects of effluent at the critical dilution and includes 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, identifications and confirmation activities, source evaluation, treatability studies, or alternative approaches. When the permittee conducts Toxicity Characterization Procedures 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) and 'Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I' (EPA-600/6-91/005F), 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.

   The documents referenced above may be obtained through the National Technical Information Service (NTIS) by phone at (703) 487-4650, or by writing:

   U.S. Department of Commerce
   National Technical Information Service
   5285 Port Royal Road
   Springfield, VA 22161

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;

c. 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 lethality was demonstrated within 48 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;

d. Quality Assurance Plan (e.g., QA/QC implementation, corrective actions, etc.); and

e. 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. The permittee shall assume all risks for failure to achieve the required toxicity reduction.

iii. The permittee shall submit a quarterly TRE Activities Report, with the Discharge Monitoring Report 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; and

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.

iv. The permittee shall submit a Final Report on Toxicity Reduction Evaluation 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.

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 CFR 122.44(d)(1)(v).

F. MONITORING FREQUENCY REDUCTION

Note: This section only applies to *P. promelas* at Outfall 028.

i. The permittee may apply for a testing frequency reduction upon the successful completion of the first four consecutive quarters or first twelve consecutive months (in accordance with Item A.i.) of the current permit term of testing for one or both 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 year for the less sensitive species (usually the Fathead minnow) and not less than twice per year for the more sensitive test species (usually the *Ceriodaphnia dubia*).

ii. CERTIFICATION - The permittee must certify in writing that no test failures have occurred and that all tests meet all test acceptability criteria in Item C.i. above. In addition, the permittee must provide a list with each test performed including test initiation date, species, NOECs for lethal and sub-lethal effects and the maximum coefficient of variation for the controls. Upon review and acceptance of this information the agency will issue a letter of confirmation of the monitoring frequency reduction. A copy of the letter will be forwarded to the agency's Permit Compliance System section to update the permit reporting requirements.

iii. SUB-LETHAL OR SURVIVAL FAILURES - Monthly retesting is not required if the permittee is performing a TRE.

iv. Any monitoring frequency reduction granted 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.

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

Note: This condition applies to final *C. dubia* WET limits at Outfall 028.
Note: This condition applies to final *C. dubia* and *P. promelas* WET limits at Outfall 009.

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):	009 and 028
REPORTED ON DMR AS FINAL OUTFALL:	009 and 028
CRITICAL DILUTION (%):	Outfall 009: 100% Outfall 028: 62%
EFFLUENT DILUTION SERIES (%):	Outfall 009: 32%, 42%, 56%, 80%, 100% Outfall 028: 26%, 35%, 47%, 62%, 83%
CHRONIC LIMIT LETHAL AND SUB-LETHAL (*C. dubia*):	Outfall 028: Not < 62%
CHRONIC LIMIT-LETHAL (*C. dubia* and *P. promelas*):	Outfall 009: Not < 100%
CHRONIC LIMIT-SUB-LETHAL (*C. dubia* and *P. promelas*):	Outfall 009: Not < 80%
SCHEDULE OF COMPLIANCE:	Outfall 009: YES Outfall 028: YES
TESTING FREQUENCY	Once/quarter
COMPOSITE SAMPLE TYPE:	Defined at PART I
TEST SPECIES/METHODS:	40 CFR 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. This test should be terminated when 60% of the surviving females in the control produce three broods or at the end of eight days, whichever comes first.

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. A minimum of five (5) replicates with eight (8) organisms per replicate must be used in the control and in each effluent dilution of this test.

ii. The NOEC (No Observed Effect Concentration) is herein defined as the greatest effluent dilution at and below which toxicity (lethal or sub-lethal) 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 (outfall 009-100%, outfall 028-62%). 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 (outfall 009-100%, outfall 028-62%).

iii. The conditions of this item are effective beginning with the effective date of the WET limit. When the testing frequency stated above is less than monthly and the effluent fails the chronic endpoint below the required limit (outfall 009 - lethal: not <100%, sub-lethal: not <80%; outfall 028 lethal and sublethal: not <62%) as specified in Item A.i., the permittee shall be considered in violation of this permit limit and the frequency for the affected species will increase to monthly until such time 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 WET testing 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.

iv. This permit may be reopened to require chemical specific effluent limits, additional testing, and/or other appropriate actions to address toxicity.

B. REQUIRED TOXICITY TESTING CONDITIONS

i. Test Acceptance

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:

a. The toxicity test control (0% effluent) must have survival equal to or greater than 80%.

b. The mean number of Ceriodaphnia dubia neonates produced per surviving female in the control (0% effluent) must be 15 or more.

c. 60% of the surviving control females must produce three broods.

d. The mean dry weight of surviving Fathead minnow larvae at the end of the 7 days in the control (0% effluent) must be 0.25 mg per larva or greater.

e. The percent coefficient of variation between replicates shall be 40% or less in the control (0% effluent) for: the young of surviving females in the Ceriodaphnia dubia reproduction test, the growth and survival of the Fathead minnow test.

f. The percent coefficient of variation between replicates shall be 40% or less in the critical dilution, unless significant lethal or sub-lethal effects are exhibited for: the young of surviving females in the Ceriodaphnia dubia reproduction test; the growth and survival endpoints in the Fathead minnow test.

g. If a test passes, yet the percent coefficient of variation between replicates is greater than 40% in the control (0% effluent) and/or in the critical dilution for: the young of surviving females in the Ceriodaphnia dubia reproduction test; the growth and survival endpoints of the Fathead minnow test, the test is determined to be invalid. A repeat test shall be conducted within the required reporting period of any test determined to be invalid.

h. If a test fails, test failure may not be construed or reported as invalid due to a coefficient of variation value of greater than 40%.

i. A Percent Minimum Significant Difference (PMSD) range of 13 - 47 for Ceriodaphnia dubia reproduction;

j. A PMSD range of 12 - 30 for Fathead minnow growth.

ii. Statistical Interpretation

a. For the Ceriodaphnia dubia survival test, the statistical analyses used to determine if there is a significant difference between the control and the critical dilution shall be Fisher's Exact Test as described in EPA-821-R-02-013 or the most recent update thereof.

b. For the Ceriodaphnia dubia reproduction test and the Fathead minnow larval survival and growth test, 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 EPA-821-R-02-013, or the most recent update thereof.

c. If the conditions of Test Acceptability are met in Item B.i above and the percent survival of the test organism is equal to or greater than 80% in the critical dilution concentration and all lower dilution concentrations, the test shall be considered to be a passing test, and the permittee shall report a survival NOEC of not less than the critical dilution for the DMR reporting requirements found in Item C below.

iii. 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 where the receiving stream is classified as intermittent or where the receiving stream has no flow 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 of Item B.i), 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 of Item B.i was run concurrently with the receiving water control;

(2) the test indicating receiving water toxicity has been carried out to completion (i.e., 7 days);

(3) the permittee includes all test results indicating receiving water toxicity with the full report and information required by Item C.i below; 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.

iv. Samples and Composites

a. The permittee shall collect a minimum of three flow-weighted composite samples from the outfall(s) listed at Item A.i above. Unless otherwise stated in this section, a composite sample for WET shall consist of a minimum of 12 subsamples gathered at equal time intervals during a 24-hour period.

b. The permittee must collect all three flow-weighted composite samples within the monitoring period. The permittee shall collect second and third composite samples for use during 24-hour renewals of each dilution concentration for each test. The permittee must collect the composite samples such that the effluent samples are representative of any periodic episode of chlorination, biocide usage or other potentially toxic substance discharged on a regular or intermittent basis.

c. The permittee must collect all three flow-weighted composite samples within the monitoring period. Second and/or third composite samples shall not be collected

into the next monitoring period; such tests will be determined to not meet either reporting period requirements. Monitoring period definitions are listed in Part IV.

d. The permittee must collect the composite samples so that the maximum holding time for any effluent sample shall not exceed 72 hours. 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 between 0 and 6 degrees Centigrade during collection, shipping, and/or storage.

e. 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, the minimum number of effluent portions and the sample holding time are waived during that sampling period. However, the permittee must have collected an effluent composite sample volume during the period of discharge that is sufficient to complete the required toxicity tests with daily renewal of effluent. When possible, the effluent samples used for the toxicity tests shall be collected on separate days if the discharge occurs over multiple 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

f. MULTIPLE OUTFALLS: If the provisions of this section are applicable to multiple outfalls, the permittee shall combine the composite effluent samples in proportion to the average flow from the outfalls listed in Item A.i above for the day the sample was collected. The permittee shall perform the toxicity test on the flow-weighted composite of the outfall samples.

g. If chlorination is part of the treatment process, the permittee shall not allow the sample to be dechlorinated at the laboratory. At the time of sample collection the permittee shall measure the TRC of the effluent. The measured concentration of TRC for each sample shall be included in the lab report submitted by the permittee.

C. REPORTING

i. The permittee shall prepare a full report of the results of all tests conducted pursuant to this section in accordance with the Report Preparation Section of EPA-821-R-02-013, or the most current publication, for every valid or invalid toxicity test initiated whether carried to completion or not. The permittee shall retain each full report pursuant to the provisions of PART III.C.7 of this permit. The permittee shall submit full reports. For any test which fails, is considered invalid or which is terminated early for any reason, the full report must be submitted for agency review.

ii. The permittee shall report the Whole Effluent Toxicity values for the 30-Day Average Minimum and the 7-Day Minimum under Parameter No. 51710 for *C. dubia* and/or

51714 for *P. promelas*, if applicable, on the DMR for that reporting period in accordance with PART III.D.4 of this permit.

A valid test for each species must be reported on the DMR during each reporting period specified in PART I of this permit. Only ONE set of WET test data for each species is to be recorded on the DMR for each reporting period. The data submitted should reflect the LOWEST lethal and sub-lethal effects results for each species during the reporting period. The full reports for all invalid tests, repeat tests (for invalid tests), and retests (for tests previously failed) performed during the reporting period must be attached to the DMR for Agency review.

iii. The permittee shall submit the results of the valid toxicity test on the Scheduled DMR for that reporting period in accordance with PART III.D.4 of this permit, as follows below. The permittee shall submit the results of the valid monthly increased frequency toxicity tests on the Unscheduled DMRs. If testing on a quarterly basis, the permittee may substitute one of the monthly increased frequency toxicity tests in lieu of one Scheduled toxicity test on the Scheduled DMR. Only results of valid tests are to be reported on a DMR.

a. Pimephales promelas (Fathead minnow)

(1) If the No Observed Effect Concentration (NOEC) for survival is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TLP6C

(2) Report the NOEC value for survival, Parameter No. TOP6C

(3) Report the NOEC value for growth, Parameter No. TPP6C

(4) If the NOEC for growth is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TGP6C

(5) Report the highest (critical dilution or control) Coefficient of Variation for growth, Parameter No. TQP6C

(6) Report the lowest NOEC value for survival or growth, Limit Parameter No. 51714

(7) The permittee shall submit the results of the monthly increased frequency toxicity tests on the Unscheduled DMRs.

b. Ceriodaphnia dubia

(1) If the NOEC for survival is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TLP3B

(2) Report the NOEC value for survival, Parameter No. TOP3B

(3) Report the NOEC value for reproduction, Parameter No. TPP3B

(4) If the NOEC for reproduction is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TGP3B

(5) Report the higher (critical dilution or control) Coefficient of Variation for reproduction, Parameter No. TQP3B

(6) Report the lowest NOEC value for survival or reproduction, Limit Parameter No. 51710

(7) The permittee shall submit the results of the monthly increased frequency toxicity tests on the Unscheduled DMRs.

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 APC&EC Regulation No. 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 APC&EC Regulation No. 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 APC&EC Regulation No. 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 statues 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 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 requirements such as endangered species, state or local 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 APC&EC Regulation No. 9 (Regulation 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 CFR Parts 122.64 and 124.5(d), as adopted in APC&EC Regulation No. 6 and the provisions of APC&EC Regulation No. 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 carryout 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 CFR 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 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 or preventive maintenance.
(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 CFR Part 503, 40 CFR Part 257, and 40 CFR Part 258.

B. Any changes to the permittee's disposal practices described in the Fact Sheet, 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, 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 Department approved method (i.e., as allowed under Part II.3), 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 Department.

3. **Monitoring Procedures**

Monitoring must be conducted according to test procedures approved under 40 CFR 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 CFR 127.11 (a)(1) and 40 CFR 127.16 (a) require that monitoring reports 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, access to electronic filing should use the following link https://cdx.epa.gov. Permittees who are unable to file electronically may request a waiver from the Director in accordance with 40 CFR 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 CFR 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.

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 CFR 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 CFR 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 subject to effluent limitations in the permit, or to the notification requirements under 40 CFR 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

A. The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. 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 shall be included as information which 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 by the Director in Part I of the permit to be reported within 24 hours to the Enforcement Section of the Office of Water Quality of the ADEQ.

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

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

The Director shall be notified as soon as the permittee 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 which is not limited in the permit, if that discharge will exceed the highest of the "notification levels" described in 40 CFR Part 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 which is not limited in the permit, if that discharge will exceed the highest of the "notification levels" described in 40 CFR Part 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 governed by regulations promulgated in APC&EC Regulation No. 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 CFR Part 2 and APC&EC Regulation No. 6, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department of Environmental Quality. As required by the Regulations, 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 Air and Water 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 CFR 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. **"Act"** means the Clean Water Act, Public Law 95-217 (33.U.S.C. 1251 et seq.) as amended.
2. **"Administrator"** means the Administrator of the U.S. Environmental Protection Agency.
3. **"APC&EC"** means the Arkansas Pollution Control and Ecology Commission.
4. **"Applicable effluent standards and limitations"** means all State and Federal effluent standards and limitations to which a discharge is subject under the Act, including, but not limited to, effluent limitations, standards of performance, toxic effluent standards and prohibitions, and pretreatment standards.
5. **"Applicable water quality standards"** means all water quality standards to which a discharge is subject under the federal Clean Water 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 (APC&EC) Regulation No. 2, as amended.
6. **"Best Management Practices (BMPs)"** are 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 sewage. 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 CFR 122.41(m)(1)(i).
8. **"Composite sample"** is 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. **"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.
10. **"Daily Maximum"** discharge limitation means the highest allowable "daily discharge" during the calendar month.
11. **"Department"** means the Arkansas Department of Environmental Quality (**ADEQ**).
12. **"Director"** means the Director of the Arkansas Department of Environmental Quality.

13. **"Dissolved oxygen limit"** shall be defined as follows:
    a. When limited in the permit as a minimum monthly average, shall mean the lowest acceptable monthly average value, determined by averaging all samples taken during the calendar month.
    b. When limited in the permit as an instantaneous minimum value, shall mean that no value measured during the reporting period may fall below the stated value.
14. **"E-Coli"** a sample 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, and the Monthly Average as the geometric mean of all "daily discharges" within a calendar month, in colonies per 100 ml.
15. **"Fecal Coliform Bacteria (FCB)"** a sample 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, and the Monthly Average as the geometric mean of all "daily discharges" within a calendar month, in colonies per 100 ml.
16. **"Grab sample"** means an individual sample collected in less than 15 minutes in conjunction with an instantaneous flow measurement.
17. **"Industrial User**" means a nondomestic discharger, as identified in 40 CFR Part 403, introducing pollutants to a POTW.
18. **"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.
19. **"Instantaneous Maximum"** when limited in the permit as an instantaneous maximum value, shall mean that no value measured during the reporting period may fall above the stated value.
20. **"Instantaneous Minimum"** an instantaneous minimum value, shall mean that no value measured during the reporting period may fall below the stated value.
21. **"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.
22. **"Monitoring and Reporting"**

    When a permit becomes effective, monitoring requirements are of the immediate period of the permit effective date. Where the monitoring requirement for an effluent characteristic is monthly or more frequently, the Discharge Monitoring Report (DMR) shall be submitted by the 25th of the month following the sampling. Where the monitoring requirement for an effluent characteristic is Quarterly, Semi-Annual, Annual, or Yearly, the DMR shall be submitted by the 25th of the month following the monitoring period end date.

    A. **MONTHLY:**
    is defined as a calendar month or any portion of a calendar month for monitoring requirement frequency of once/month or more frequently.

    B. **BI-MONTHLY:**
    is defined as two (2) calendar months or any portion of 2 calendar months for monitoring requirement frequency of once/2 months or more frequently.

C. **QUARTERLY:**
   1. is defined as 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.
   2. is defined as 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:**
   is defined as 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 or twice/year.

E. **ANNUAL or YEARLY:**
   is defined as 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.

23. **"National Pollutant Discharge Elimination System"** 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 Clean Water Act.
24. **"POTW"** means Publicly Owned Treatment Works;
25. **"Reduction of CBOD5/BOD5 and TSS in mg/l Formula**"
    [(Influent – Effluent) / Influent] x 100
26. **"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.
27. **"Sewage sludge"** means the solids, residues, and precipitate separated from or created in sewage by the unit processes at a POTW. Sewage as used in this definition means any wastes, including wastes from humans, households, commercial establishments, industries, and stormwater runoff that are discharged to or otherwise enter a POTW.
28. **"7-Day Average"** Also known as "average weekly" 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. 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 per 100 ml.
29. **"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.

30. **Units of Measure:**
    "MGD" shall mean million gallons per day.
    "mg/l" shall mean milligrams per liter or parts per million (ppm).
    "µg/l" shall mean micrograms per liter or parts per billion (ppb).
    "cfs" shall mean cubic feet per second.
    "ppm" shall mean parts per million.
    "s.u." shall mean standard units.
31. **"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 of improper operations.
32. **"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.
33. **"Weekday"** means Monday – Friday.

Fact Sheet

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

1. PERMITTING AUTHORITY

The issuing office is:

Arkansas Department 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
Pittsburgh, PA 15212

The facility address is:

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

3. PREPARED BY

The permit was prepared by:

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4. PERMIT ACTIVITY

Previous Permit Effective Date: October 1, 2008
Previous Permit Expiration Date: September 30, 2011

The permittee submitted a permit renewal application on March 31, 2011. The previous discharge permit is being reissued for a 5-year term in accordance with regulations promulgated at 40 CFR Part 122.46(a).

DOCUMENT ABBREVIATIONS

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

APC&EC – Arkansas Pollution Control and Ecology Commission
BAT - best available technology economically achievable
BCT - best conventional pollutant control technology
BMP - best management practice
BOD_5 - five-day biochemical oxygen demand
BPJ - best professional judgment
BPT - best practicable control technology currently available
$CBOD_5$ - carbonaceous biochemical oxygen demand
CD - critical dilution
CFR - 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
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
$NO_3 + NO_2$-N - nitrate + nitrite nitrogen
NPDES - National Pollutant Discharge Elimination System
O&G - oil and grease
Reg. 2 - APC&EC Regulation No. 2
Reg. 6 - APC&EC Regulation No. 6
Reg. 8 - APC&EC Regulation No. 8
Reg. 9 - APC&EC Regulation No. 9
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:

https://www.adeq.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/AR0000582_Compliance%20Review%20for%20draft%20renewal_20161114.pdf

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. Whole Effluent Toxicity limits for *C. dubia* and *P. promelas* were added at Outfall 009 and Whole Effluent Toxicity limits for *C. dubia* were added at Outfall 028 based on a demonstration of reasonable potential for toxicity.

2. TDS mass limit at Outfall 009 and TDS concentration limit at Outfall 028 were added to be consistent with the final TMDL document dated August 2011 for the Saline River Basin.

3. Selenium limits were revised at Outfall 009 based on Arkansas Pollution Control and Ecology Commission Minute Order No. 11-19 promulgated on July 22, 2011 and approved by EPA on November 24, 2014.

4. A compliance schedule was included for new Whole Effluent Toxicity and TDS limits at Outfalls 009 and 028.

5. Sample frequency for effluent flow at Outfall 009 was changed from continuous to five/week with a footnote clarifying that flow is to be measured daily during a normal five day working week, excluding state and federal holidays, to be consistent with the Saline River flow sample frequency and to prevent confusion in complying with the HCR requirements.

6. Sample type for stream flow rate at Outfall 028 was corrected from “grab” to “instantaneous” to reflect the current flow measurement method using a weir.

7. Sample type for "Flow as a percentage of stream flow" at Outfall 028 was corrected from "grab" to "calculate" since this parameter is a calculated value.

8. Quarterly monitoring for Arsenic at Outfall 028 during first year of permit was added. (See section N.2 of fact sheet for details).

9. Quarterly monitoring for Manganese at Outfall 009 during first year of permit was added. (See section N.2 of fact sheet for details).

10. Quarterly monitoring for Thallium at Outfalls 009 and 028 during first year of permit was added. (See section N.2 of fact sheet for details).

11. Monitoring frequency for effluent flow, upstream flow, and percentage of upstream flow at Outfall 028 was changed from once/week to five/week with a footnote added clarifying that these parameters are to be measured daily during a normal five day working week, excluding state and federal holidays, to be consistent with the Hurricane Creek flow sample frequency and to prevent confusion in complying with the HCR requirements.

6. RECEIVING STREAM SEGMENT AND DISCHARGE LOCATION

The outfalls are located at the following coordinates based on data submitted on Form 1 by the permittee using NAD27 datum set:

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 – an 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 receiving streams with USGS Hydrologic Unit Code (H.U.C.) of 8040203 and reach # 006 (Hurricane Creek) and 010 (Holly Creek) are Waters of the State classified for primary contact recreation, 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 entire length of the Saline River is listed on the Nationwide Rivers Inventory (A National Park Service listing of river segments in the U.S. 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 is permitted to discharge to an unnamed tributary which flows to Reach 006 of Hurricane Creek. Reach 006 of Hurricane Creek is not listed on the 2016 303(d) list. The effluent from this outfall travels a considerable distance (approximately 41 miles) in Hurricane Creek before entering Reach 006 of the Saline River which is listed on the 2016 303(d) list for Mercury in category 4a (impaired waters which have a completed TMDL). A TMDL has been established for Mercury, but the TMDL does not assign a wasteload allocation (WLA) to this facility. Therefore, no additional permitting action for Outfall 008 is necessary concerning 303(d) list considerations.

Outfall 009 discharges to Holly Creek. Holly Creek is not listed on the 2016 303(d) list. The effluent travels approximately 2.9 miles in Holly Creek to Reach #010 of the Saline River which is on the 2016 303(d) list for TDS in category 1B (non-impaired stream with completed TMDL). The TMDL assigns a TDS wasteload allocation for outfall 009. A mass limit as a function of Saline River flow is included in the permit and is consistent with the implementation approach in the final TMDL report. (See section 7.B of this fact sheet for a more detailed discussion).

Outfall 028 is permitted to discharge directly to Reach 006 of Hurricane Creek. The effluent from this outfall travels a considerable distance (approximately 41 miles) in Hurricane Creek before entering Reach 006 of the Saline River. Hurricane Creek is not listed on the 2016 303(d) list. Reach 006 of the Saline River is listed on the 2016 303(d) list for Mercury in category 4a (impaired waters which have a completed TMDL). A TMDL has been established for Mercury, but the TMDL does not assign a wasteload allocation (WLA) to Outfall 028. Therefore, no additional permitting action for Outfall 028 is necessary concerning 303(d) list considerations. However, a TMDL has been established for the Saline River Basin for TDS which establishes a wasteload allocation for TDS (expressed as concentration) at Outfall 028. Therefore, this wasteload allocation was included in the permit at Outfall 028 to be consistent with the TMDL.

B. Applicable Total Maximum Daily Load (TMDL) Reports

<u>Outfall 028</u>

A TMDL for Total Dissolved Solids (TDS) for the Saline River Basin, Arkansas was finalized on August 24, 2011. The TMDL sets a TDS effluent concentration of 1,738 mg/L for Outfall 028. Based on the TMDL, this concentration was determined by a mass balance analysis, and effluent concentrations for Outfall 028 were adjusted so that the

stream reach would meet the water quality criteria, after mixing, in that reach. The hydrologically controlled release (HCR) conditions applicable to Outfall 028 were taken into account in this mass balance analysis. In accordance with 40 CFR 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 Outfall 028. 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 and 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. This TMDL was developed using the load duration curve methodology. This method illustrates allowable loading at a wide range of stream flow conditions. The load duration curve shows the calculation of the TMDL at any flow rather than at a single critical flow. The official TMDL number is reported as a single number, but the load duration curve is provided to demonstrate the value of the acceptable load at any flow.

For Outfall 009, the official single value wasteload allocation (WLA) established in the TMDL is 81,451 lb/day of TDS. This single value established in the TMDL represents the wasteload allocation 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 flow data from 34 years of flow data collected at USGS station number 07363000 which is located in Saline River at Benton, Arkansas. Outfall 009 discharges to Holly Creek then travels approximately 2.9 miles before confluence with Reach 010 of the Saline River.

WLA and Water Quality Protection at Critical Flow:

As shown by the load duration curve presented in the TMDL (Figure F-3 of Appendix F), assimilative capacity of the Saline River is dependent on the flow rate in the river. As the flow rate in the Saline River decreases, the assimilative capacity decreases. Assimilative capacity of the Saline River increases as the river flow increases. In order to maintain the water quality standard for TDS in the Saline River, the TDS load permitted to be discharged at Outfall 009 was developed using a Hydrograph Controlled Release (HCR) approach. This approach is necessary because during times when the Saline River flow is lower than average, the single value WLA given in the TMDL (81,451 lb/day) would not be protective of the Saline River water quality standard for TDS.

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 concentration necessary to meet Holly Creek WQS of 1600 mg/l), this would result in a downstream concentration in the Saline

River of over 1200 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 at 87 mg/L (90th percentile of observed stream data from OUA0026 1990-2011).

IWC (mg/l) = (upstream load + effluent load) / (downstream flow x 8.34)

IWC (mg/l) = (1.72 MGD x 8.34 x 87 mg/l) + (81451 lb/day) / ((6.1 MGD + 1.72 MGD) x 8.34)

IWC (mg/l) = 1268 mg/l (over 10 times higher than WQS of 120 mg/l)

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

HCR Approach For Protection of Saline River Over Entire Range of Stream Flows:

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 standard for TDS in the Saline River over the entire range of stream flows.

To develop a mass limit dependent on Saline River flow, a daily water balance for the treated water holding ponds that discharge at Outfall 009 was developed using 40 years of Saline River daily flow data collected at the USGS Station in Benton for 1950 to 1979 and 2000 to 2011 (USGS did not collect flow data from 1980 to 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 coming into and going out of 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 allowable value of 81,451 lb/day from the TMDL. This yielded 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 standard for 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 measured from 1990 to 2011 (21 years of data) 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 standard.

Downstream load = Upstream load + Effluent load
(IWC)(downstream flow)(8.34) = Upstream load + Effluent load

The mass balance equation can then be expressed as follows:

IWC (mg/l) = (upstream load + effluent load) / (downstream flow x 8.34) (1)

Where,
Upstream flow = 100 cfs = 64.63 MGD (arbitrary value chosen for this demonstration)
Upstream concentration = 87 mg/l (90^{th} percentile of 21 years of data)
Upstream load = Upstream flow x Upstream concentration x 8.34
64.63 MGD x 87 mg/l x 8.34 = 46,894 lb/day
Effluent load = 171.5 lb/day/cfs x Upstream flow = 171.5 x 100 cfs = 17,150 lb/day
Downstream load = 46,894 lb/day + 17,150 lb/day = 64,044 lb/day

Using equation (1) shown above:

IWC = (46,894 lb/day + 17,150 lb/day) / (64.63 MGD x 8.34)

IWC = 118.8 mg/l (less than WQS of 120 mg/l)

Note: This calculation 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 calculations conservatively show 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 will be expressed as a daily maximum permit limit in order to comply with Saline River TDS WQS on a short term basis, as well as comply with the TMDL assigned WLA on a long term basis.

TMDL Implementation Plan for Outfall 009

The facility will measure the TDS concentration from Outfall 009 once per week and measure the effluent flow on a continuous basis. The facility 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. If using the Shaw Bridge gage, 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 5 day work week based on the previous weekly TDS effluent concentration and the daily flow rate of Saline River. Once the facility 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 facility shall calculate the TDS lb/day per cfs value that is discharged each day during each calendar month and attach these daily values to the appropriate monthly DMR. The TDS lb/day per cfs value reported on each month's DMR shall be the highest daily maximum value measured during the calendar month. 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 U.S. Fish and Wildlife Service (USF&WS). The draft permit and Fact Sheet were sent to the USF&WS for their review with no comments received.

In a letter on the previous draft permit public noticed on July 15, 2008, the Department of Arkansas Heritage 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
Ptychobranchus 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, ADEQ 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 Antidegradation Policy and all other applicable water quality standards found in APC&EC Regulation No. 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 (September 2014 through August 2016):

Outfall 008: No discharge
Outfall 009: 17.8 MGD
Outfall 028: 4.7 MGD

B. Type of Treatment:

Outfalls 008, 009, and 028: neutralization with sulfuric acid, carbon dioxide, and/or hydrated lime and precipitation with 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 115 is greater 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 Reg. 6.202.

9. **ACTIVITY**

Under the Standard Industrial Classification (SIC) code of 1099 or North American Industry Classification System (NAICS) code of 212299, the applicant's activities are the operation of bauxite mines, reclamation of former mines and the maintenance of the closed Reynolds Metals Company bauxite residue disposal areas.

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 Arkansas Department of Environmental Quality has determined to issue a final permit for the discharge described in the application. Permit requirements are based on federal regulations (40 CFR Parts 122, 124, and Subchapter N), the National Pretreatment Regulation in 40 CFR Part 403 and regulations 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 final 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 CFR Part 124.7.

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

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

Table 1
Outfall 008 Comparison of TBEL vs WQBEL vs Previous Permit

Parameter	Water Quality-Based		Technology-Based		Previous Permit		Permit Limit	
	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 WQBEL vs Previous Permit

Parameter	Water Quality-Based		Technology-Based		Previous Permit		Permit Limit	
	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	17.7 µg/l	35.5 µg/l	N/A	N/A	17.0 µg/l	Report	17.7 µg/l	35.5 µg/l
Thallium[1]	N/A	N/A	Report[1]	Report[1]	N/A	N/A	Report[1]	Report[1]
Manganese[1]	N/A	N/A	Report[1]	Report[1]	N/A	N/A	Report[1]	Report[1]
Chlorides	N/A	N/A	Report	Report	Report	Report	Report	Report
Sulfates	N/A	N/A	Report	Report	Report	Report	Report	Report
TDS	Report	171.5 lb/day/cfs	N/A	Report	Report	Report	Report	171.5 lb/day/cfs
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 (*P. promelas*)	Report		N/A		Report		Report	
Chronic WET Limits (*P. promelas* and *C. dubia*)	Not < 100%[2] Not < 80%[3]		N/A		N/A		Not < 100%[2] Not < 80%[3]	

[1] Reporting requirement for this parameter is only for first year of permit.
[2] Lethal limit.
[3] Sub-lethal limit.

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

Parameter	Water Quality-Based		Technology-Based		Previous Permit		Permit Limit	
	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 [3]	11.2 µg/l [3]	N/A	N/A	HCR	HCR	HCR	HCR
Thallium[1]	N/A	N/A	Report[1]	Report[1]	N/A	N/A	Report[1]	Report[1]
Arsenic[1]	N/A	N/A	Report[1]	Report[1]	N/A	N/A	Report[1]	Report[1]
Chlorides	N/A	N/A	Report	Report	Report	Report	Report	Report
Sulfates	N/A	N/A	Report	Report	Report	Report	Report	Report
TDS	1,738	N/A	Report	Report	Report	Report	1,738	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 (*C. dubia*)	Not < 62% [2]		N/A		N/A		Not < 62% [2]	

[1] Reporting requirement for this parameter is only for first year of permit.
[2] Lethal and Sub-lethal limit.
[3] Water quality-based limits without considering HCR condition.

B. **Justification for Limitations and Conditions of the final permit:**

Table 4
Justification of Limits/Monitoring

Parameter	Water Quality or Technology	Justification
TSS	Technology	40 CFR 440.24 (Outfalls 008, 009, 028)
Aluminum	Technology	40 CFR 440.24 (Outfalls 008, 009, 028)
Iron	Technology	40 CFR 440.24 (Outfalls 008, 009, 028)
pH	Technology	40 CFR 440.24 (Outfalls 008, 009, 028)
Selenium	Water Quality	Reg. 2, Appendix A, EIP for Holly Creek adopted by APC&EC on July 22, 2011 and approved by EPA on November 24, 2014 (Outfall 009) Reg. 2.508 (Outfall 028)
Chlorides (Outfall 009)	Technology	Since the receiving stream's dissolved minerals criteria were amended by a Use Attainability Analysis (UAA), the facility is required to monitor and report its effluent dissolved minerals concentrations in accordance with the CPP. No limits are included at this time based on no reasonable potential being shown. See Section 13.C.8 of this fact sheet for the reasonable potential analysis.
TDS (Outfalls 009 and 028)	Water Quality	Final TMDL Report dated August, 2011 entitled "TMDLs for Total Dissolved Solids for the Saline River Basin, Arkansas". See Section 7.B of this fact sheet for detailed discussion.
Chronic WET Limits (Outfalls 009 and 028)	Water Quality	40 CFR 122.44(d)(1)(v) Reg. 2.409
Arsenic (Outfall 028)	N/A	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)	N/A	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.
Thallium (Outfalls 009 and 028)	N/A	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.

C. **Anti-backsliding**

The final permit is consistent with the requirements to meet Anti-backsliding provisions of the Clean Water Act (CWA), Section 402(o) [40 CFR 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 CFR 122.44 (l)(2)(i).

The final permit meets or exceeds the requirements of the previous permit with the exception of revised Selenium limitations for Outfall 009. The limits were revised based on new information associated with development of an environmental improvement project which was officially approved on July 22, 2011 by APC&EC under Minute Order No. 11-19 and approved by EPA on November 24, 2014. The revision of the selenium limits at Outfall 009 is not considered backsliding, pursuant to 40 CFR 122.44(l)(B)(1), since new information is available which was not available at the time of previous permit issuance.

D. **Limits Calculations**

1. Mass limits:

   In accordance with 40 CFR 122.45(f)(1), all pollutants limited in permits shall have limitations expressed in terms of mass if feasible. 40 CFR 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 in the permit for Outfall 008 because the flow rate from this outfall can be highly variable depending on the amount of rainfall.

   Variable mass limits for TDS were 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 in the permit 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, 028 are based on 40 CFR Part 440.24.

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

   Daily maximum limits for TDS mass per unit of streamflow in 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 given for 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 ADEQ 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. The 208 Plan is proposed to be revised to add this facility to the 208 Plan with a daily maximum TDS mass limit of 171.5 lb/day per cfs of Saline River flow at Outfall 009, and a monthly average TDS concentration limit of 1,738 mg/l at Outfall 028. These limits are consistent with the wasteload allocations set forth in the final TMDL report dated August 2011 entitled "TMDLs for Total Dissolved Solids for the Saline River Basin, Arkansas".

F. Applicable Effluent Limitations Guidelines

Discharges from facilities of this type are covered by Federal effluent limitations guidelines promulgated under 40 CFR 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 has leased land to a third-party that will mine bauxite. Water from this mining will enter the permittee's treatment system. Because of these new leases, the BADT standard found under the New Source Performance Standards applies to this facility. The following table lists the effluent limitation guideline limits for TSS, Iron, Aluminum, and pH. The BADT (NSPS)-based limits are included in the permit for all outfalls.

Table 5
Comparison of Technology-Based Standards

Parameter	BPT 40 CFR 440.22		BAT 40 CFR 440.23		(NSPS) BADT 40 CFR 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 more 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	$0 < Ce \leq 8$ µg/l	111%
2	$8 < Ce \leq 10$ µg/l	67%
3	$10 < Ce \leq 12$ µg/l	48%
4	$12 < Ce \leq 16$ µg/l	30%
5	$16 < Ce \leq 25$ µg/l	17%

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 Regulation No. 2.404's mixing zone requirements and the Continuing Planning Process.

$QbCb + QeCe = QdCd$

where,

Qb = background flow = 67% of upstream flow (mixing zone allocation)
Qe = effluent flow
Qd = downstream flow = Qb + Qe
Cb = upstream concentration = 0 µg/l
Ce = effluent concentration
Cd = downstream concentration after mixing = chronic WQS for Selenium = 5 µg/l

Tier 1 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 the above equation and solving for Qe as follows:

$Qe = QdCd - QbCb / Ce$
$Qe = (Qb+Qe)(Cd) - (QbCb) / Ce$
$Qe = (0.67+Qe)(5) - (0.67)(0) / 8$
$8Qe = 3.35 + 5Qe$
$3Qe = 3.35$
$Qe = 1.11$ or 111%

This shows that at effluent concentrations up to 8 µg/l, the effluent flow (Qe) can be up to 111% of streamflow.

Tier 2 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:

Qe = QdCd – QbCb / Ce
Qe = (Qb+Qe)(Cd) – (QbCb) / Ce
Qe = (0.67+Qe)(5) – (0.67)(0) / 10
10Qe = 3.35 + 5Qe
5Qe = 3.35
Qe = 0.67 or 67%

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 3 calculations

Assume upstream flow is 1 cfs and effluent concentration is 12 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:

Qe = QdCd – QbCb / Ce
Qe = (Qb+Qe)(Cd) – (QbCb) / Ce
Qe = (0.67+Qe)(5) – (0.67)(0) / 12
12Qe = 3.35 + 5Qe
7Qe = 3.35
Qe = 0.48 or 48%

This shows that at effluent concentrations greater than 10 µg/l and up to 12 µg/l, the effluent flow (Qe) can be up to 48% of streamflow.

Tier 4 calculations

Assume upstream flow is 1 cfs and effluent concentration is 16 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:

Qe = QdCd – QbCb / Ce
Qe = (Qb+Qe)(Cd) – (QbCb) / Ce
Qe = (0.67+Qe)(5) – (0.67)(0) / 16
16Qe = 3.35 + 5Qe
11Qe = 3.35
Qe = 0.3 or 30%

This shows that at effluent concentrations greater than 12 and up to 16 µg/l, the effluent flow (Qe) can be up to 30% of streamflow.

Tier 5 calculations

Assume upstream flow is 1 cfs and effluent concentration is 25 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:

Qe = QdCd – QbCb / Ce
Qe = (Qb+Qe)(Cd) – (QbCb) / Ce
Qe = (0.67+Qe)(5) – (0.67)(0) / 25
25Qe = 3.35 + 5Qe
20Qe = 3.35
Qe = 0.17 or 17%

This shows that at effluent concentrations greater than 16 µg/l and up to 25 µg/l, the effluent flow (Qe) can be up to 17% of streamflow.

H. SPECIAL CONDITION FOR OUTFALL 008

A priority pollutant scan is required to be submitted with the application for permit reissuance pursuant to 40 CFR 122.21(g)(7)(v). However, there was no Priority Pollutant Scan (PPS) performed at this outfall for the renewal application since this outfall has not discharged in over ten years. Therefore, in accordance with Part II.6 of this permit, the permittee shall conduct a 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 of the permit to include additional limits based upon the analysis of the PPS.

I. METALS MINIMUM QUANTIFICATION LEVELS

Part II.4 of this permit has language regarding the minimum quantification level (MQL) for the metal parameters. The MQL for Iron and Manganese are those listed in Table 4, 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"). The MQL for Aluminum, Selenium, Arsenic, and Thallium are those values shown in Table 4 of a letter dated February 8, 2008 from EPA Region 6 containing revised MQL values.

K. 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. In accordance with the CPP, since the receiving stream's dissolved minerals criteria were amended by a Use Attainability Analysis (UAA), the facility is required to monitor and report its effluent dissolved minerals concentrations. Therefore, Chloride monitoring and reporting requirements are being continued 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 = (Cd x Qd) + (Cb x Qb) / (Qd + Qb)

where,
Cd = highest Chloride value reported Jan 2013 to Dec 2017 = 28 mg/L
Cb = background Chloride concentration = 5 mg/L (Gulf Coastal Plains Ecoregion)
Qd = highest monthly average flow Jan 2016 – Dec 2017 = 17.8 MGD = 27.59 cfs
Qb = 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	ft3/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 = (28 x 27.59) + (5 x 0.0286) / (27.59 + 0.0286)
IWC = 27.98 mg/L

Since 27.98 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. However, in accordance with the CPP, since the receiving stream's dissolved minerals criteria were amended by a Use Attainability Analysis (UAA), the facility is required to monitor and report its effluent dissolved minerals concentrations. Therefore, Chloride monitoring and reporting requirements are being continued at Outfall 009.

Next, the highest reported monthly average Chloride value reported Jan 2013 to Dec 2017 of 28 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 Reg. 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 = (Cd x Qd) + (Cb x Qb) / (Qd + Qb)

where,

Cd = Chloride effluent value = 28 mg/L
Cb = background Chloride concentration = 5 mg/L (Gulf Coastal Plains Ecoregion)
Qd = highest monthly average flow Jan 2016 – Dec 2017 = 17.8 MGD = 27.59 cfs
Qb = 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	ft3/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 = (28 x 27.59) + (5 x 57.2) / (27.59 + 57.2)
IWC = 12.5 mg/L

Since IWC (12.5 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 = (Cd x Qd) + (Cb x Qb) / (Qd + Qb)

where,
Cd = highest monthly average effluent concentration Jan 2013 – Dec 2017 = 26 mg/L
Cb = background Chloride concentration = 5 mg/L (Gulf Coastal Plains Ecoregion)
Qb = background flow
Qd = discharge flow = 1.11 x Qb (HCR limits flow to 111% of Qb at worst case tier)

Using substitution, the IWC equation becomes:

IWC = (Cd x 1.11Qb) + (Cb x Qb) / (1.11Qb + Qb)
IWC = (Cd x 1.11Qb) + (Cb x Qb) / 2.11Qb
IWC = 0.526Cd + 0.474Cb
IWC = (0.526)(26) + (0.474)(5)
IWC = 16 mg/L

Since 16 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. However, in accordance with the CPP, since the receiving stream's dissolved minerals criteria were amended by a Use Attainability Analysis (UAA), the facility is required to monitor and report its effluent dissolved minerals concentrations. Therefore, Chloride monitoring and reporting requirements are being continued at Outfall 028.

L. 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. In accordance with the CPP, since the receiving stream's dissolved minerals criteria were amended by a Use Attainability Analysis (UAA), the facility is required to monitor and report its effluent dissolved minerals concentrations. Therefore, 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 = (Cd x Qd) + (Cb x Qb) / (Qd + Qb)

where,

Cd = highest monthly average effluent concentration Jan 2013 – Dec 2017 = 740 mg/L
Cb = background Sulfate concentration = 13 mg/L (Gulf Coastal Plains Ecoregion)
Qd = highest monthly average flow Jan 2016 – Dec 2017 = 17.8 MGD = 27.59 cfs
Qb = background flow consistent with January 1990 UAA = 0 cfs

IWC = (740 x 27.59) + (13 x 0) / (27.59 + 0)
IWC = 740 mg/L

Since 740 mg/L is less than 860 mg/L, no reasonable potential is shown to exceed water quality standards for Sulfate. However, in accordance with the CPP, since the receiving stream's dissolved minerals criteria were amended by a Use Attainability Analysis (UAA), the facility is required to monitor and report its effluent dissolved minerals concentrations. Therefore, 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 x Qd) + (Cb x Qb) / (Qd + Qb)

where,
Cd = highest monthly average Sulfate value reported Jan 2013 – Dec 2017 = 670 mg/L
Cb = background Sulfate concentration = 13 mg/L (Gulf Coastal Plains Ecoregion)
Qb = background flow
Qd = discharge flow = 1.11 x Qb (HCR limits flow to 111% of Qb at worst case tier)

Using substitution, the IWC equation becomes:

IWC = (Cd x 1.11Qb) + (Cb x Qb) / (1.11Qb + Qb)
IWC = (Cd x 1.11Qb) + (Cb x Qb) / 2.11Qb
IWC = 0.526Cd + 0.474Cb
IWC = (0.526)(670) + (0.474)(13)
IWC = 359 mg/L

Since 359 mg/L is less than 730 mg/L, no reasonable potential is shown to exceed water quality standards for Sulfate. However, in accordance with the CPP, since the receiving stream's dissolved minerals criteria were amended by a Use Attainability Analysis (UAA), the facility is required to monitor and report its effluent dissolved minerals concentrations. Therefore, Sulfate monitoring and reporting requirements are being continued at Outfall 028.

M. 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. In accordance with the CPP, since the receiving stream's dissolved minerals criteria were amended by a Use Attainability Analysis (UAA), the facility is required to monitor and report its effluent dissolved minerals concentrations. Therefore, 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

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 TDS is 1,600 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.

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

where,

Cd = highest monthly average effluent concentration Jan 2013–Dec 2017 = 1600 mg/L
Cb = background TDS concentration = 67 mg/L (Gulf Coastal Plains Ecoregion)
Qd = highest monthly average flow Jan 2016 – Dec 2017 = 17.8 MGD = 27.59 cfs
Qb = background flow consistent with January 1990 UAA = 0 cfs

$$IWC = (1600 \times 27.59) + (67 \times 0) / (27.59 + 0)$$
$$IWC = 1600 \text{ mg/L}$$

Since the IWC does not exceed 1600 mg/L, no reasonable potential is shown to exceed water quality standards for TDS. However, in accordance with the CPP, since the receiving stream's dissolved minerals criteria were amended by a Use Attainability Analysis (UAA), the facility is required to monitor and report its effluent dissolved

minerals concentrations. Therefore, TDS monitoring and reporting requirements for concentration are being continued at Outfall 009. In addition, a mass limit of 171.5 lbs/day per cfs of Saline River flow was added to comply with the wasteload allocation assigned to this outfall in the final TMDL report dated August 2011. See section 7.B of this fact sheet for more details on the derivation of this permit limit.

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 was added to this outfall.

N. Evaluation of Priority Pollutants and Non-Priority Pollutants

ADEQ 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 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), Regulation No. 2 (Reg. 2.508) and criteria obtained from EPA's "National Recommended Water Quality Criteria".

Under Federal Regulation 40 CFR Part 122.44(d), as adopted by Regulation No. 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 that posed reasonable potential 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 CFR Part 122.45(c).

The following items were used in calculations:

Table 7
Items Used in Priority Pollutant Scan Evaluation

Parameter	Value	Source
Outfall 009		
Discharge Flow = Q	17.8 MGD = 27.5 cfs	Highest monthly average flow rate reported over the past two years (Jan 2016 – Dec 2017)
7Q10 Background Flow	0 cfs	USGS StreamStats 3.0
LTA Background Flow	0.12 cfs	Calculated from harmonic mean flow of 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).
TSS	5.5 mg/l	Recommended value from CPP for Gulf Coastal Ecoregion
Hardness as CaCo3	31.0 mg/l	Recommended value from CPP for Gulf Coastal Ecoregion
pH	8.0 s.u.	Since 7Q10 of Holly Creek is zero, the average pH reported at Outfall 009 was used in PPS evaluation.
Outfall 028		
Discharge Flow = Q	0.72 MGD = 1.11 cfs	Based on Tier 1 of HCR which allows effluent flow up to 111% 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 cfs	Arbitrary value picked to calculate discharge flow above based on Tier 1 of HCR.
TSS	5.5 mg/l	Recommended value from CPP for Gulf Coastal Ecoregion

Table 7 Items Used in Priority Pollutant Scan Evaluation		
Parameter	Value	Source
Hardness as CaCo3	31.0 mg/l	Recommended value from CPP for Gulf Coastal Ecoregion
pH	7.15 s.u.	Average pH value measured in Hurricane Creek at station OUA0031

The following pollutants were reported above detection levels:

Table 8 Reported Pollutants in Application		
Pollutant	Concentration Reported, µg/l	MQL, µg/l
Outfall 009		
Chromium, Total Rec.	11 (Form PPS, 1 sample)	10
Copper, Total Rec.	9 (Highest value of 20 values submitted with Form PPS)	0.5
Nickel, Total Rec.	9.4 (Form PPS, 1 sample)	0.5
Selenium, Total Rec.	19 (Highest of 105 values reported on DMRs from Oct 2008 to Aug 2016)	5
Thallium, Total Rec.	4.6 (Form PPS, 1 sample)	0.5
Aluminum, Total	1,400 (Form 2C, Highest of 107 samples)	2.5
Barium, Total Rec.	3 (Form 2C, 1 sample)	2
Boron, Total Rec.	260 (Form 2C, 1 sample)	5
Iron, Total Rec.	620 (Form 2C, Highest of 107 samples)	20
Magnesium, Total Rec.	4,000 (Form 2C, 1 sample)	30
Molybdenum, Total Rec.	110 (Form 2C, 1 sample)	8
Manganese, Total Rec.	680 (Form 2C, 1 sample)	2
Outfall 028		
Arsenic, Total Rec.	3.8 (Form PPS, 1 sample)	0.5
Cadmium, Total Rec.	0.79 (Form PPS, 1 sample)	0.5
Chromium, Total Rec.	15 (Form PPS, 1 sample	10

Table 8 Reported Pollutants in Application		
Pollutant	Concentration Reported, µg/l	MQL, µg/l
Copper, Total Rec.	6.4 (Form PPS, 1 sample)	0.5
Nickel, Total Rec.	4.2 (Form PPS, 1 sample)	0.5
Selenium, Total Rec.	8 (highest actual reported under Tier 1)	5
	10 (highest actual reported under Tier 2)	
	12 (highest actual reported under Tier 3)	
	16 (highest actual reported under Tier 4)	
	23 (highest actual reported under Tier 5)	
Thallium, Total Rec.	2.7 (Form PPS, 1 sample)	0.5
Aluminum, Total	1,000 (Form 2C, Highest of 114 samples)	2.5
Barium, Total Rec.	6.6 (Form 2C, 1 sample)	2
Boron, Total Rec.	270 (Form 2C, 1 sample)	5
Iron, Total Rec.	840 (Form 2C, Highest of 114 samples)	20
Magnesium, Total Rec.	3,500 (Form 2C, 1 sample)	30
Molybdenum, Total Rec.	140 (Form 2C, 1 sample)	8
Manganese, Total Rec.	23 (Form 2C, 1 sample)	2

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 Department's website at the following weblinks:

Outfall 009 PPS Evaluation

https://www.adeq.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/AR0000582_pps%20outfall%20009_20161101.pdf

Outfall 028 PPS Evaluation

https://www.adeq.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/AR0000582_pps%20outfall%20028_20161101.pdf

1. **Aquatic Toxicity Evaluation**

a. Acute Criteria Evaluation (Outfall 009)

Table 9
Acute Evaluation for Outfall 009

Pollutant	Concentration Reported (C_e) µg/l	C_e x 2.13[1]	Instream Waste Concentration (IWC)	Criteria [2]	Reasonable Potential (Yes/No)
			Acute, µg/l	Acute, µg/l	
Chromium, Total Rec.	11.0	23.43	23.43	1006.35	No
Copper, Total Rec.	9.0 [3]	9.0 [4]	9.0	14.79	No
Nickel, Total Rec.	9.4	20.02	20.02	1061.45	No
Selenium, Total Rec.	19.0 [5]	19.0 [4]	19.0	20.0	No
Thallium, Total Rec.	4.6	9.8	9.8	[6]	No
Aluminum, Total	No reasonable potential analysis performed for this parameter since the permit already contains a limit.				
Barium, Total Rec.	3.0	6.39	6.39	[6]	No
Boron, Total Rec.	260	553.8	553.8	[6]	No
Iron, Total Rec.	No reasonable potential analysis performed for this parameter since the permit already contains a limit.				
Magnesium, Total Rec.	4000	8520	8520	[6]	No
Molybdenum, Total Rec.	110	234.3	234.3	[6]	No
Manganese, Total Rec.	680	1448.4	1448.4	[6]	No

[1] Statistical ratio used to estimate the 95th percentile using a single effluent concentration or the geometric mean of a dataset.
[2] Criteria is from Reg. 2.508 unless otherwise specified.
[3] Highest of 20 values reported.
[4] Statistical ratio of 2.13 not used since dataset consist of 20 or more values.
[5] Highest of 105 values reported.
[6] No criteria available at this time.

b. Chronic Criteria Evaluation (Outfall 009)

Table 10
Chronic Evaluation for Outfall 009

Pollutant	Concentration Reported (C_e) µg/l	C_e x 2.13[1]	Instream Waste Concentration (IWC)	Criteria [2]	Reasonable Potential (Yes/No)
			Chronic, µg/l	Chronic, µg/l	
Chromium, Total Rec.	11.0	23.43	23.43	326.45	No
Copper, Total Rec.	9.0 [3]	9.0 [4]	9.0	10.93	No
Nickel, Total Rec.	9.4	20.02	20.02	117.88	No
Selenium, Total Rec.	19.0 [5]	19.0 [4]	19.0	17.0 [7]	**Yes**
Thallium, Total Rec.	4.6	9.8	9.8	[6]	No
Aluminum, Total	No reasonable potential analysis performed for this parameter since the permit already contains a limit.				
Barium, Total Rec.	3.0	6.39	6.39	[6]	No
Boron, Total Rec.	260	553.8	553.8	[6]	No
Iron, Total Rec.	No reasonable potential analysis performed for this parameter since the permit already contains a limit.				
Magnesium, Total Rec.	4000	8520	8520	[6]	No
Molybdenum, Total Rec.	110	234.3	234.3	[6]	No
Manganese, Total Rec.	680	1448.4	1448.4	[6]	No

[1] Statistical ratio used to estimate the 95th percentile using a single effluent concentration or the geometric mean of a dataset.
[2] Criteria is from Reg. 2.508 unless otherwise specified.
[3] Highest of 20 values reported.
[4] Statistical ratio of 2.13 not used since dataset consist of 20 or more values.
[5] Highest of 105 values reported.
[6] No criteria available at this time.
[7] Selenium Chronic Water Quality Standard for Holly Creek was amended through an Environmental Improvement Project (EIP) by APC&EC Minute Order No. 11-19 promulgated on July 22, 2011 and EPA approved on November 24, 2014 for a period of time not to exceed 15 years from effective date. The effective date was the EPA approval date. Therefore, the chronic WQS for Selenium for Holly Creek established in the EIP (17 µg/L) is applicable through November 24, 2029.

c. Acute Criteria Evaluation (Outfall 028)

Table 11
Acute Evaluation for Outfall 028

Pollutant	Concentration Reported (C_e) µg/l	C_e x 2.13[1]	Instream Waste Concentration (IWC) [4]	Criteria [2]	Reasonable Potential (Yes/No)
			Acute, µg/l	Acute, µg/l	
Arsenic, Total Rec.	3.8	8.09	6.24	340	No
Cadmium, Total Rec.	0.79	1.68	1.30	4.37	No
Chromium, Total Rec.	15	31.95	24.64	1,006.35	No
Copper, Total Rec.	6.4	13.63	10.51	14.79	No
Nickel, Total Rec.	4.2	8.95	6.90	1,061.45	No
Selenium, Total Rec.	No reasonable potential analysis performed for this parameter since Selenium loading is already limited in the permit by tiered HCR flow restrictions based on the Selenium effluent concentration.				
Thallium, Total Rec.	2.7	5.75	4.44	N/A [3]	No
Aluminum, Total	No reasonable potential analysis performed for this parameter since the permit already contains a limit.				
Barium, Total Rec.	6.6	14.06	10.84	N/A [3]	No
Boron, Total Rec.	270	575.1	443.53	N/A [3]	No
Iron, Total Rec.	No reasonable potential analysis performed for this parameter since the permit already contains a limit.				
Magnesium, Total Rec.	3,500	7,455	5,749.41	N/A [3]	No
Molybdenum, Total Rec.	140	298.2	229.98	N/A [3]	No
Manganese, Total Rec.	23	48.99	37.78	N/A [3]	No

[1] Statistical ratio used to estimate the 95th percentile using a single effluent concentration or the geometric mean of a dataset.
[2] Water Quality Standard is from Reg. 2.508 unless otherwise specified.
[3] No criteria available at this time.
[4] All IWCs were calculated using the worst case HCR flow tier in the permit (111% of stream flow).

d. Chronic Criteria Evaluation (Outfall 028)

Table 12
Chronic Evaluation for Outfall 028

Pollutant	Concentration Reported (C_e) µg/l	C_e x 2.13[1]	Instream Waste Concentration (IWC) [5]	Criteria [2]	Reasonable Potential (Yes/No)
			Chronic, µg/l	Chronic, µg/l	
Arsenic, Total Rec.	3.8	8.09	5.05	150 [3]	No
Cadmium, Total Rec.	0.79	1.68	1.05	1.82	No
Chromium, Total Rec.	15	31.95	19.94	326.45	No
Copper, Total Rec.	6.4	13.63	8.51	10.93	No
Nickel, Total Rec.	4.2	8.95	5.58	117.88	No
Selenium, Total Rec.	No reasonable potential analysis performed for this parameter since Selenium loading is already limited in the permit by tiered HCR flow restrictions based on the Selenium effluent concentration.				
Thallium, Total Rec.	2.7	5.75	3.59	N/A [4]	No
Aluminum, Total	No reasonable potential analysis performed for this parameter since the permit already contains a limit.				
Barium, Total Rec.	6.6	14.06	8.77	N/A [4]	No
Boron, Total Rec.	270	575.1	358.92	N/A [4]	No
Iron, Total Rec.	No reasonable potential analysis performed for this parameter since the permit already contains a limit.				
Magnesium, Total Rec.	3,500	7,455	4,652.68	N/A [4]	No
Molybdenum, Total Rec.	140	298.2	186.11	N/A [4]	No
Manganese, Total Rec.	23	48.99	30.57	N/A [4]	No

[1] Statistical ratio used to estimate the 95th percentile using a single effluent concentration or the geometric mean of a dataset.
[2] Water Quality Standard is from Reg. 2.508 unless otherwise specified.
[3] From EPA National Recommended Water Quality Criteria.
[4] No criteria available at this time.
[5] All IWCs were calculated using the worst case HCR flow tier in the permit (111% of stream flow).

2. **Human Health (Bioaccumulation) Evaluation**

a. Human Health Evaluation (Outfall 009)

Table 13
Bioaccumulation Evaluation for Outfall 009

Pollutant	Concentration Reported (C_e) µg/l	C_e x 2.13[1]	Instream Waste Concentration (IWC) µg/l	Criteria [2] µg/l	Reasonable Potential (Yes/No)
Chromium, Total Rec.	11.0	23.43	23.33	N/A[6]	No
Copper, Total Rec.	9.0 [3]	9.0 [4]	8.96	13,000[7]	No
Nickel, Total Rec.	9.4	20.02	19.94	4,600[7]	No
Selenium, Total Rec.	19.0 [5]	19.0 [4]	18.92	4,200[7]	No
Thallium, Total Rec.	4.6	9.8	9.76	0.47[7]	**Yes**
Aluminum, Total	No reasonable potential analysis performed for this parameter since the permit already contains a limit.				
Barium, Total Rec.	3	6.39	6.36	1,000[7]	No
Boron, Total Rec.	260	553.8	551.39	N/A[6]	No
Iron, Total Rec.	No reasonable potential analysis performed for this parameter since the permit already contains a limit.				
Magnesium, Total Rec.	4000	8520	8,482.98	N/A[6]	No
Molybdenum, Total Rec.	110	234.3	333.28	N/A[6]	No
Manganese, Total Rec.	680	1,448.4	1,442.11	100[7]	**Yes**

[1] Statistical ratio used to estimate the 95th percentile using a single effluent concentration or the geometric mean of a dataset.
[2] Human Health Criteria is from Reg. 2.508 unless otherwise specified, and is for consumption of organism only.
[3] Highest of 20 values reported.
[4] Statistical ratio of 2.13 not used since dataset consist of 20 or more values.
[5] Highest of 105 values reported.
[6] No criteria available at this time.
[7] From EPA National Recommended Water Quality Criteria.

b. Human Health Evaluation (Outfall 028)

Table 14
Bioaccumulation Evaluation for Outfall 028

Pollutant	Concentration Reported (C_e) µg/l	C_e x 2.13[1]	Instream Waste Concentration (IWC) µg/l	Criteria[2] µg/l	Reasonable Potential (Yes/No)
Arsenic, Total Rec.	3.8	8.09	4.26	1.4[6]	**Yes**
Cadmium, Total Rec.	0.79	1.68	0.89	N/A[5]	No
Chromium, Total Rec.	15	31.95	16.83	N/A[5]	No
Copper, Total Rec.	6.4	13.63	7.18	13,000[6]	No
Nickel, Total Rec.	4.2	8.95	4.71	4,600[6]	No
Selenium, Total Rec.	17[4]	17[3]	8.95	4,200[6]	No
Thallium, Total Rec.	2.7	5.75	3.03	0.47[6]	**Yes**
Aluminum, Total	No reasonable potential analysis performed for this parameter since the permit already contains a limit.				
Barium, Total Rec.	6.6	14.06	7.40	1,000[6]	No
Boron, Total Rec.	270	575.1	302.85	N/A[5]	No
Iron, Total Rec.	No reasonable potential analysis performed for this parameter since the permit already contains a limit.				
Magnesium, Total Rec.	3,500	7,455	3,925.84	N/A[5]	No
Molybdenum, Total Rec.	140	298.2	157.03	N/A[5]	No
Manganese, Total Rec.	23	48.99	25.80	100[6]	No

[1] Statistical ratio used to estimate the 95th percentile using a single effluent concentration or the geometric mean of a dataset.
[2] Human Health Criteria is from Reg. 2.508 unless otherwise specified, and is for consumption of organism only.
[3] Statistical ratio of 2.13 not used since dataset consist of 20 or more values.
[4] Highest of 114 values reported.
[5] No criteria found.
[6] From EPA National Recommended Water Quality Criteria.

As shown in Table 10, the calculated IWCs for Selenium at Outfall 009 demonstrated reasonable potential to exceed the referenced Arkansas Water Quality Criteria. Therefore, limits for Selenium at Outfall 009 were calculated in the manner described in Appendix D of the CPP and are included in the permit as shown in the following table.

Table 15 Final Limits		
Substance	Monthly Average µg/l	Daily Maximum µg/l
Selenium (Outfall 009)	17.7	35.5
Selenium (Outfall 028)	Selenium was already limited in the previous permit using tiered HCR flow restrictions based on measured Selenium effluent concentration. This permit revises the ranges of the tiers based on the latest measured effluent values. The calculation showing these tier values meet water quality are shown in section 11.G. of this fact sheet.	

As shown in Tables 13 and 14, the calculated IWC for Thallium and Manganese at Outfall 009, and for Thallium and Arsenic at Outfall 028 showed reasonable potential to exceed the EPA National Recommended Water Quality Criterion. 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 Reg. 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.

12. **WHOLE EFFLUENT TOXICITY.**

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, ADEQ is required under 40 CFR Part 122.44(d)(1), adopted by reference in Regulation 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 CFR Part 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 CFR Part 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 water body, at the appropriate instream critical dilution. Pursuant to 40 CFR 122.44(d)(1)(v), ADEQ 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 final permit must establish both monthly average and 7-day minimum effluent limitations for lethality and sub-lethality following regulations promulgated by 40 CFR 122.44(d)(1)(v). These effluent limitations for lethality and sub-lethality (7-day NOEC) are applied at outfalls 009 and 028 effective three years after the effective date of the permit. During the first three years of the permit term, the final permit requires monitoring and reporting only for lethality and sub-lethality with no limitations being established.

The daily average lethality and 7-day minimum lethality (7-day NOEC) value shall not be less than 100% (Critical Dilution) effluent for outfall 009. The daily average sub-lethality and 7-day minimum sub-lethality (7-day NOEC) shall not be less than 80% effluent for outfall 009.

The daily average lethality and 7-day minimum lethality (7-day NOEC) value shall not be less than 62% (Critical Dilution) effluent for outfall 028. The daily average sub-lethality and 7-day minimum sub-lethality (7-day NOEC) shall not be less than 62% effluent for outfall 028.

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 the 7Q10 for both the outfall 009 receiving stream and the outfall 028 receiving stream is less than 100 cfs (ft^3/sec) and the dilution ratio is less than 100:1 for both outfalls, chronic WET testing requirements will be included in the permit for both outfalls 009 and 028.

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

Outfall 008:

Critical dilution (CD) = (Qd/(Qd + Qb)) X 100

Qd = Average flow (estimated value if discharge were to occur) = 3.7 MGD = 5.7 cfs
7Q10 = 0 Cfs
Qb = Background flow = (0.67) X 7Q10 = 0 cfs
CD = (5.7) / (5.7 + 0) X 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 **Attachment I** of the CPP). The low-flow effluent concentration (critical dilution) is defined as **100%** effluent.

Outfall 009:

Critical dilution (CD) = (Qd/(Qd + Qb)) X 100

Qd = Highest Average Monthly Flow from past two years = 17.8 MGD = 27.6 cfs
7Q10 = 0 Cfs
Qb = Background flow = (0.67) X 7Q10 = 0 cfs
CD = (27.6) / (27.6 + 0) X 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%, 80%, and **100%** (See **Attachment I** of the CPP). The low-flow effluent concentration (critical dilution) is defined as **100%** effluent.

Outfall 028:

Based on discharge flow of 111% of upstream flow (worst-case scenario from outfall tiers):

Critical dilution (CD) = (Qd/(Qd + Qb)) X 100

Qd = Discharge flow = 1.11 * Qb
7Q10 = 0 Cfs
Qb = Background flow to be multiplied by 0.67
CD = (1.11 * Qb) / [(1.11 * Qb) + (0.67 * Qb)] X 100
CD = (1.11) / [(1.11 + 0.67)] X 100 = 62%

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 **Attachment I** of the CPP). The low-flow effluent concentration (critical dilution) is defined as **62%** 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 CFR Part 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 Department shows toxicity in the permittee's discharge. Modification or revocation of this permit is subject to the provisions of 40 CFR 122.62, as adopted by reference in ADEQ Regulation No. 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 Outfalls 008, 009, and 028:

Permit Number:	AR0000582	AFIN:	63-00487	Outfall Number:	008
Date of Review:	11/22/2016	Reviewer:	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:	TRE activities in 1991.				
Frequency recommendation by species					
Pimephales promelas (Fathead minnow):		once per quarter			
Ceriodaphnia dubia (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

P. promelas - monitoring
C. dubia - monitoring

Permit Number:	AR0000582	AFIN:	63-00487	Outfall Number:	009
Date of Review:	10/25/2017	Reviewer:	M. Barnett		
Facility Name:	Reynolds Metals Company - Bauxite Operations				
Previous Dilution series:	32, 42, 56, 75, 100	Proposed Dilution Series:	32, 42, 56, 80, 100		
Previous Critical Dilution:	100	Proposed Critical Dilution:	100		
Previous TRE activities:	TRE plan was received in March 2011 and the final report was received in May 2013.				

Frequency recommendation by species

Pimephales promelas (Fathead minnow):	once per quarter
Ceriodaphnia dubia (water flea):	once per quarter

TEST DATA SUMMARY

	Vertebrate (*Pimephales promelas*)		Invertebrate (*Ceriodaphnia dubia*)	
TEST DATE	Lethal NOEC	Sub-Lethal NOEC	Lethal NOEC	Sub-Lethal NOEC
12/31/2012	100	100	100	100
3/31/2013	100	100	100	100
6/30/2013	100	100	100	100
12/31/2013	100	100	100	**75**
3/31/2014	100	100	100	**0**
6/30/2014	100	100	100	**32**
12/31/2014	100	100	100	100
3/30/2015	100	**75**	100	**56**
6/30/2015	100	100	100	100
9/30/2015	100	100	100	100
12/31/2015	**75**	**75**	100	100
1/31/2016	100	100	100	100
2/29/2016	100	100		
3/31/2016	100	100		
6/30/2016	100	100	100	100
9/30/2016	100	100	100	100
12/31/2016	100	100	100	100
3/31/2017	100	100	100	100
6/30/2017	100	100	100	100

Failures noted in BOLD

REASONABLE POTENTIAL CALCULATIONS

	Vertebrate Lethal	Vertebrate Sub-lethal	Invertebrate Lethal	Invertebrate Sub-Lethal
Min NOEC Observed	75	75	100	31
TU at Min Observed	1.33	1.33	1.00	3.23
Count	19	19	17	17
Failure Count	1	2	0	4
Mean	1.018	1.035	1.000	1.322
Std. Dev.	0.076	0.105	0.000	0.726
CV	0.1	0.1	0	0.5
RPMF	1.1	1.1	0	1.4
Reasonable Potential	1.467	1.467	0.000	4.516
100/Critical dilution	1.000	1.000	1.000	1.000
Does Reasonable Potential Exist	Yes	Yes	No	Yes

PERMIT ACTION

P. promelas Chronic - Limit 51714 - not less than 100% lethal - not less than 80% sub-lethal - 3 year compliance schedule
C. dubia Chronic- Limit 51710 - not less than 100% lethal - not less than 80% sub-lethal - 3 year compliance schedule

OUTFALL 009

Reasonable potential exists for *P. promelas* lethality and sub-lethality, and *C. dubia* sub-lethality. Additionally, according to EPA Region 6, chronic toxicity limits are to be inclusive of both toxicity endpoints (lethality and sub-lethality). The permit includes a 3 year compliance schedule for the *P. promelas* and *C. dubia* chronic toxicity limits.

The permittee shall submit progress reports addressing the progress towards attaining the final *P. promelas* and *C. dubia* chronic toxicity limits according to the following schedule:

ACTIVITY	DUE DATE
1st Progress Report	Twelve (12) months after effective date
2nd Progress Report	Twenty-four (24) months after effective date
Achieve Final Limits	Thirty-six (36) months after effective date
Final Progress Report	Thirty-seven (37) months after effective date

Compliance with final chronic toxicity limits for *P. promelas* and *C. dubia* is required thirty-six (36) months after the effective date of the permit.

The permittee has the option to undertake any study deemed necessary to meet the final limitations during the interim period. Any additional treatment must be approved and construction approval granted prior to final installation.

According to EPA Region 6 WET Permitting Strategy (May, 2005) due to the potential difficulty of resolving toxicity and/or identifying toxicants responsible for sub-lethal effects in effluent concentrations greater than 75% effluent, sub-lethal limits will be implemented at the 80% effluent level at this time.

Permit Number:	AR0000582	AFIN:	63-00487	Outfall Number:	028
Date of Review:	10/25/2017	Reviewer:	M. Barnett		
Facility Name:	Reynolds Metals Company - Bauxite Operations				
Previous Dilution series:	26, 35, 47, 62, 100	Proposed Dilution Series:	26, 35, 47, 62, 83		
Previous Critical Dilution:	62	Proposed Critical Dilution:	62		
Previous TRE activities:	TRE plan was received in August 2011 and the final report was received in October 2013.				

Frequency recommendation by species

Pimephales promelas (Fathead minnow):	once per quarter
Ceriodaphnia dubia (water flea):	once per quarter

TEST DATA SUMMARY

	Vertebrate (*Pimephales promelas*)		Invertebrate (*Ceriodaphnia dubia*)	
TEST DATE	Lethal NOEC	Sub-Lethal NOEC	Lethal NOEC	Sub-Lethal NOEC
9/30/2012	100	100	100	**47**
12/31/2012	100	100	100	100
3/31/2013	100	100	100	100
6/30/2013	100	100	100	100
9/30/2013	100	100	100	**0**
12/31/2013	100	100	100	**0**
3/31/2014	100	100	100	100
6/30/2014	100	100	100	100
12/31/2014	100	100	100	100
3/30/2015	100	100	100	100
6/30/2015	100	100	100	100
9/30/2015	100	100	100	100
12/31/2015	100	100	100	100
3/31/2016	100	100	100	100
6/30/2016	100	100	100	100
9/30/2016	100	100	100	100
12/31/2016	100	100	100	100
3/31/2017	100	100	100	100
6/30/2017	100	100	100	100
9/30/2017	100	100	100	100

Failures noted in BOLD

REASONABLE POTENTIAL CALCULATIONS

	Vertebrate Lethal	Vertebrate Sub-lethal	Invertebrate Lethal	Invertebrate Sub-Lethal
Min NOEC Observed	100	100	100	31
TU at Min Observed	1.00	1.00	1.00	3.23
Count	20	20	20	20
Failure Count	0	0	0	3
Mean	1.000	1.000	1.000	1.279
Std. Dev.	0.000	0.000	0.000	0.712
CV	0	0	0	0.6
RPMF	0	0	0	1.4
Reasonable Potential	0.000	0.000	0.000	2.800
100/Critical dilution	1.613	1.613	1.613	1.613
Does Reasonable Potential Exist	No	No	No	Yes

PERMIT ACTION

P. promelas Chronic - monitoring
C. dubia Chronic- Limit 51710 - not less than 62% lethal - not less than 62% sub-lethal - 3 year compliance schedule

OUTFALL 028

Reasonable potential exists for *C. dubia* sub-lethality. Additionally, according to EPA Region 6, chronic toxicity limits are to be inclusive of both toxicity endpoints (lethality and sub-lethality). The permit includes a 3 year compliance schedule for the *C. dubia* chronic toxicity limits.

The permittee shall submit progress reports addressing the progress towards attaining the final *C. dubia* chronic toxicity limits according to the following schedule:

ACTIVITY	DUE DATE
1st Progress Report	Twelve (12) months after effective date
2nd Progress Report	Twenty-four (24) months after effective date
Achieve Final Limits	Thirty-six (36) months after effective date
Final Progress Report	Thirty-seven (37) months after effective date

Compliance with final chronic toxicity limits for *C. dubia* is required thirty-six (36) months after the effective date of the permit.

The permittee has the option to undertake any study deemed necessary to meet the final limitations during the interim period. Any additional treatment must be approved and construction approval granted prior to final installation.

13. **STORMWATER REQUIREMENTS**

The federal regulations at 40 CFR 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. Since a portion of the stormwater runoff from the site is discharged via outfalls 008, 009, and 028, requirements for Best Management Practices (BMP) 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 CFR Part 122.48(b)] and to ensure compliance with permit limitations [40 CFR Part 122.44(i)(l)].

Requirements for sample type and sampling frequency have been based on the current discharge permit. All samples shall be taken within the first day of discharge. The purpose of this requirement is to ensure that the minimum required sampling frequency is met during each monitoring period. Since the discharge from all outfalls is strongly dependent on rain events, this requirement is necessary so that in the event a discharge only occurs once during the monitoring period, sampling will be accomplished at the minimum frequency required by the permit during the monitoring period.

Table 16
Sample Type and Sample Frequency Comparison
Outfall 008

Parameter	Previous Permit		Final 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	24-hr composite	once/quarter	composite[1]

[1] Composite sample for WET shall consist of a minimum of 12 subsamples gathered at equal time intervals during a 24-hour period.

Table 17
Sample Type and Sample Frequency Comparison
Outfall 009

Parameter	Previous Permit		Final Permit	
	Frequency of Sample	Sample Type	Frequency of Sample	Sample Type
Effluent Flow	continuous	record	five/week [4]	instantaneous
Saline River Flow	n/a	n/a	five/week [4]	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
Thallium[1]	n/a	n/a	once/quarter[1]	grab[1]
Manganese[2]	n/a	n/a	once/quarter[2]	grab[2]
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	24-hr composite	once/quarter	composite[3]

[1] Thallium monitoring for first year of permit only.
[2] Manganese monitoring for first year of permit only.
[3] Composite sample for WET shall consist of a minimum of 12 subsamples gathered at equal time intervals during a 24-hour period.
[4] Daily during a normal five day working week, excluding state and federal holidays.

Table 18
Sample Type and Sample Frequency Comparison
Outfall 028

Parameter	Previous Permit		Final Permit	
	Frequency of Sample	Sample Type	Frequency of Sample	Sample Type
Effluent Flow	once/week	instantaneous	five/week [4]	instantaneous
Upstream Flow	once/week	grab	five/week [4]	instantaneous
Effluent flow as percentage of upstream flow	once/week	calculate	five/week [4]	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[1]
Thallium[2]	n/a	n/a	once/quarter[2]	grab[2]
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	24-hr composite	once/quarter	composite[3]

[1] Arsenic monitoring for first year of permit only.
[2] Thallium monitoring for first year of permit only.
[3] Composite sample for WET shall consist of a minimum of 12 subsamples gathered at equal time intervals during a 24-hour period.
[4] Daily during a normal five day working week, excluding state and federal holidays.

15. **PERMIT COMPLIANCE.**

A schedule of compliance is not being included in this permit for the new Chloride limits at Outfall 009. A review of data from October 2008 to August 2016 (79 Chloride values reported) indicates only one exceedance of the new limit. Therefore, the Department has determined that the Chloride concentrations being discharged are currently in consistent compliance with the new limit.

A Schedule of Compliance has been included in this permit for new Whole Effluent Toxicity limits at Outfalls 009 and 028. Compliance with all permit requirements is required in accordance with the schedule provided in Part IB of the permit. The Department has chosen to exercise its discretion provided for in Reg. 2.104 to allow a three year compliance schedule for the new WET limits at Outfalls 009 and 028 in order to give the facility sufficient time to evaluate possible treatment technologies to reduce toxicity that will enable the facility to comply with the WET limits at Outfall 009 and 028 on a consistent basis.

A Schedule of Compliance has been included in this permit for new Total Dissolved Solids limits at Outfalls 009 and 028. Compliance with the limit is required in accordance with the schedule provided in Part IB of the permit. The Department has chosen to exercise its discretion provided for in Reg. 2.104 to allow a three year compliance schedule for the new TDS limit at Outfalls 009 and 028 in order to give the facility sufficient time to evaluate whether consistent compliance with this limit is consistently being achieved.

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 draft the permit:

A. Application No. AR0000582 received March 31, 2011.
B. APCEC Regulation No. 2.
C. APCEC Regulation No. 6.
D. 40 CFR Parts 122, 125, and 440.
E. Discharge permit file AR0000582.
F. Discharge Monitoring Reports (DMRs).
G. “Arkansas List of Impaired Waterbodies 2016 (303D List)”, ADEQ.
H. USGS StreamStats web-based program.
I. Continuing Planning Process (CPP).
J. Technical Support Document For Water Quality-based Toxic Control.
K. Region 6 Implementation Guidance for Arkansas Water Quality Standards promulgated at 40 CFR Part 131.36.
L. Table 4 of letter dated February 8, 2008 from EPA Region 6 containing revised MQL values.

M. E-mail dated October 25, 2017 from Mary Barnett to Shane Byrum containing WET records and recommendations for WET limits with compliance schedule.
N. Inspection report dated May 26, 2010.
O. Site visit report for visit performed on February 22, 2012.
P. Site visit notes dated February 22, 2012.
Q. Calculations dated November 22, 2016 of TMDL limit for TDS meeting water quality standard at outfall 028 worst case HCR tier.
R. Selenium permit limit calculation dated November 27, 2017 for outfall 009 based on revised WQS under EIP.
S. Priority pollutant scan evaluations dated November 11, 2016 for outfalls 009 and 028.
T. Monthly average DMR data for Outfalls 009 and 028 for minerals from October 2008 to August 2016.
U. Final Document dated August 11, 2011 entitled, "TMDLs for Total Dissolved Solids for the Saline River Basin, Arkansas", prepared by Tetra Tech, Inc.
V. Letter dated March 30, 2012 with attached water balance spreadsheet from Robyn Gross (Reynolds Metals Company) to Shane Byrum (ADEQ) concerning proposed HCR approach for complying with the TDS TMDL at Outfall 009.
W. E-mail correspondence from EPA to ADEQ dated April 28, 2014 stating an HCR approach for implementation of the TMDL at Outfall 009 is acceptable method and would not require a TMDL revision.
X. Permit rating worksheet dated November 8, 2011.
Y. DMR data reported for minerals from outfalls 009 and 028 from October 2008 to August 2016.
Z. Minute Order No. 11-19, Docket No. 10-006-R containing revised Selenium chronic water quality standard for Holly Creek set forth in an Environmental Improvement Project (EIP) adopted by APC&EC on July 22, 2011, approved by EPA on November 24, 2014, and expiration of November 24, 2029.
AA. Letter dated August 27, 2018 from Reynolds Metals Company to ADEQ containing comments on the draft permit.
BB. Letter dated August 3, 2018 from the Department of Arkansas Heritage to ADEQ containing comments on the draft permit.

18. PUBLIC NOTICE

The draft permit was submitted for public comment on July 28, 2018. The last day of the comment period was thirty (30) days after the publication date. A summary of the comments that the ADEQ received during the public comment period can be found beginning on the next page of this document. The response to comments and any substantial changes from the draft permit are included. A copy of the draft permit and public notice were sent via email to the Corps of Engineers, the Regional Director of the U.S. Fish and Wildlife Service, the Department of Arkansas Heritage, the EPA, and the Arkansas Department of Health.

19. PERMIT FEE

In accordance with Reg. No. 9.403(A)(1), the initial and annual fee for the permit is $15,000.

20. POINT OF CONTACT

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RESPONSE TO COMMENTS
FINAL PERMITTING DECISION

Permit No.: AR0000582

Applicant: Reynolds Metals Company (RMC)

Prepared by: Shane Byrum

The following are responses to comments received regarding the draft permit number above and are developed in accordance with regulations promulgated at 40 C.F.R. §124.17 as incorporated in APCEC Regulation 6.104(A)(5), APC&EC Regulation No. 8 Administrative Procedures, and A.C.A. §8-4-203(e)(2).

Introduction

The above permit was submitted for public comment on July 28, 2018. The public comment period ended on August 27, 2018.

This document contains a summary of the comments that the ADEQ received during the public comment period. A summary of the changes to the NPDES Permit can be found on the last page of this document.

The following people or organizations sent comments to the ADEQ during the public notice. A total of 6 comments were raised by 2 separate commenters.

	Commenter	Number of Comments Raised
1.	Reynolds Metals Company (RMC)	5
2.	Department of Arkansas Heritage (DAH)	1

Comment 1 RMC commented: The Outfall 008 treatment system and flume system are being closed as per the Outfall 008 Closure Plan approved by ADEQ on May 17, 2017. As part of the Closure Plan, RMC has decommissioned the flume structure and flow monitoring equipment. RMC understands the reason for the Outfall 008 permit conditions, but RMC does not have the ability to discharge nor will RMC be able to continuously record the flow. RMC expects to have the Outfall 008 closure completed by the end of 2018. RMC will visually inspect the Outfall 008 system and report no discharge on the monthly DMRs until the Outfall 008 closure is complete and Outfall 008 has been removed from the permit.

Response: ADEQ acknowledges this comment. RMC should report "no discharge" for Outfall 008 on the monthly DMRs until such time as the permit is modified to remove this outfall. As stated in the closure plan approval letter dated May 17, 2017, following completion of closure activities, a certification should be submitted stating the ponds and outfall were closed in accordance with the approved closure plan. The closure certification should also include a request to remove Outfall 008 from the permit by a minor modification in accordance with 40 CFR 122.63(e)(2).

Comment 2 RMC commented: The Outfall 009 flow monitoring frequency is listed as once/day with no reference to once/day during a normal five (5) day working week which should match the HCR operating conditions. RMC requests that the following footnote be added to the Outfall 009 Section A effluent limitations tables: "The daily 009 effluent flow shall be recorded once/day during a normal five (5) day working week, excluding state and federal holidays." Outfall 009 effluent and Saline River flows are required for the 009 HCR system compliance and these flow monitoring frequencies need to correspond. Additionally, the RMC site does not routinely staff the site during weekends throughout the year; monitoring Outfall 009 effluent flow on weekends and holidays would be difficult to perform and would be inconsistent with the HCR operating conditions for Outfall 009 in Part II.8 of the permit.

Response: The monitoring frequency for effluent flow and Saline River flow associated with Outfall 009 was revised from once/day to five/week to indicate that flow measurements are not required all seven days of the week. The following footnote was also included for clarification and consistency with the HCR operating conditions in Part II.8 of the permit: "The effluent flow and Saline River flow shall be determined and recorded on a daily basis 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) or USGS Station 07363054 (Saline River at Shaw Bridge). See Part II.8 for calculation procedures for the HCR operating conditions."

Comment 3 RMC commented: Outfall 028 and upstream flow measurement frequencies are listed as once/week, yet the Part II.7 condition states that the Outfall 028 discharge shall be adjusted daily during a normal 5-day working week (excluding holidays). For consistency, RMC would suggest changing the flow monitoring requirement to once/day (5-day work week).

Response: The monitoring frequency for effluent flow and Saline River flow associated with Outfall 028 was revised from once/day to five/week to indicate that flow measurements are not required all seven days of the week. The following footnote was also included for clarification and consistency with the HCR operating conditions in Part II.7 of the permit: "The effluent flow, upstream flow, and effluent flow percentage of upstream flow shall be determined and recorded on a daily basis during a normal five day working week excluding state and federal holidays."

Comment 4 RMC commented: Table 2 of Section 11.A of the Fact Sheet indicates that a monthly concentration limit of 1,600 mg/L for TDS is included in the permit for Outfall 009. This is not consistent with the permit limits for Outfall 009 included in Part I.A of the permit. RMC requests that Table 2 of Section 11.A of the Fact Sheet be revised accordingly.

Response: The comment is correct in that the draft permit contained a report only requirement in Part IA of the permit for TDS at Outfall 009, but contained a concentration limit in Section 11.A of the Fact Sheet. To resolve this inconsistency, a reasonable potential analysis was performed in response to this comment which indicates no reasonable potential to exceed the TDS water quality standard of 1,600 mg/L. Therefore, Table 2 of Section 11.A of the Fact Sheet was revised to replace the concentration limit for TDS of 1,600 mg/L with report only at Outfall 009. This reasonable potential analysis was added to Section 11.M of the Fact Sheet.

Comment 5 RMC commented: The following typographical corrections were requested. Globally change all references from Alcoa to Reynolds Metals Company. Part II.10.A.iv outline number should be "iv" and not "v".

Response: These requested revisions have been made.

Comment 6 DAH commented: The Saline River has been recognized on the state's Registry of Natural and Scenic Rivers and on the Nationwide Rivers Inventory. The following species of conservation concern are known to occur in the Saline River at or within five miles downstream of Outfall 009. This information may be appropriate to include in the receiving stream and endangered species sections of the Fact Sheet:

Cyprogenia sp. Cf aberti, Ouachita Fanshell – state concern
Lampsilis powelli, Arkansas Fatmucket – federal concern (threatened)
Notropis perpallidus, peppered shiner – state concern
Ptychobranchus occidentalis, Ouachita Kidneyshell – state concern
Villosa lienosa, little spectaclecase – state concern

Response: 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, ADEQ has determined that the final permit limits will serve to help protect the species of concern identified above. These identified species of conservation concern are included in the endangered species section of the Fact Sheet. In addition, the Saline River designations as an Extraordinary Resource Water (ESW), a Natural and Scenic Waterway (NSW) from the Grant-Saline county line to mouth, and the listing on the Nationwide Rivers Inventory, were added to the receiving stream description section of the Fact Sheet.

Summary of Changes from Draft Permit to Final Permit Based on Comments Received			
Part	Draft	Final	Comment #
I.A	Outfall 009 effluent flow and Saline River flow monitoring frequency listed at once/day.	Outfall 009 effluent flow and Saline River flow monitoring frequency changed to five/week to be consistent with the HCR requirements in Part II.8 (daily flow measurements during normal five day work week, excluding state and federal holidays).	2
I.A	Once/day monitoring frequency for Outfall 028 effluent flow, upstream flow, and effluent flow as a percentage of upstream flow.	Monitoring frequency changed to five/week to be consistent with the HCR requirements in Part II.7 (daily flow measurements during normal five day work week, excluding state and federal holidays).	3
Table 2 of Fact Sheet	Includes a monthly average concentration limit of 1,600 mg/L for TDS at Outfall 009.	Monthly average concentration limit for TDS at Outfall 009 was revised to report only to be consistent with effluent limit table in Part I.A of permit.	4
Throughout	Alcoa appears throughout	Alcoa changed to Reynolds Metals Company throughout	5
II.10.A.	Outline number was “v”.	Outline number corrected to “iv”.	5
Section 6 of Fact Sheet	Holly Creek and Hurricane creek designated uses were listed.	Additional designations for Saline River were added.	6
Section 7 of Fact Sheet	List of species of conservation concern in the Saline River were listed in the draft.	Additional species of conservation concern in the Saline River identified by Dept. of Arkansas Heritage were added.	6