

**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 (Act 472 of 1949, as amended, 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
PO Box 290
Bauxite, AR 72011

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"; Longitude: 92° 30' 19"

to receiving waters named:

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

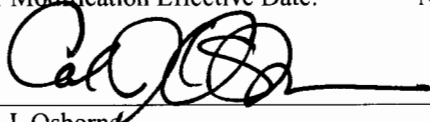
Outfall 008: Latitude: 34° 33' 01"; Longitude: 92° 28' 06"

Outfall 009: Latitude: 34° 32' 07"; Longitude: 92° 32' 04"

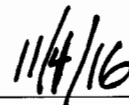
Outfall 028: Latitude: 34° 34' 18"; Longitude: 92° 29' 14"

Discharge shall be in accordance with effluent limitations, monitoring requirements, and other conditions set forth in Parts I, II, III, and IV hereof.

Issue Date: September 30, 2008
Effective Date: October 1, 2008
Expiration Date: September 30, 2011
Minor Modification Effective Date: November 1, 2016



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



Minor Modification Date

**PART I
PERMIT REQUIREMENTS**

SECTION A. 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 from a treatment system consisting of neutralization with sulfuric acid, carbon dioxide, and/or hydrated lime and precipitation with bentonite and/or polymer.

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max	Monthly Avg.	Daily Max		
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
Total Dissolved Solids (TDS)	N/A	N/A	Report	Report	once/week	grab
Chlorides	N/A	N/A	Report	Report	once/week	grab
Sulfates	N/A	N/A	Report	Report	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
pH	N/A	N/A	<u>Minimum</u> 6.0 s.u.	<u>Maximum</u> 9.0 s.u.	continuous	record
Chronic Biomonitoring ³	N/A	N/A	N/A	N/A	once/quarter	24-hr composite
<u>Pimephales promelas (Chronic)</u> ³ Pass/Fail Lethality (7-day NOEC) TLP6C Pass/Fail Growth (7-day NOEC)TGP6C Survival (7-day NOEC) TOP6C Coefficient of Variation TQP6C Growth (7-day NOEC) TPP6C			<u>7-Day Average</u> Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report % Report %		once/quarter once/quarter once/quarter once/quarter	24-hr composite 24-hr composite 24-hr composite 24-hr composite
<u>Ceriodaphnia dubia (Chronic)</u> ³ Pass/Fail Lethality (7-day NOEC) TLP3B Pass/Fail production (7-day NOEC)TGP3B Survival (7-day NOEC) TOP3B Coefficient of Variation TQP3B Reproduction (7-day NOEC) TPP3B			<u>7-Day Average</u> Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report % Report % Report %		once/quarter once/quarter once/quarter once/quarter	24-hr composite 24-hr composite 24-hr composite 24-hr composite

1 Report monthly average and daily maximum as MGD.
2 See Condition No. 3 of Part II.
3 See Condition No. 4 of Part II (Biomonitoring Requirements).

There shall be no discharge of distinctly visible solids, scum, or foam of a persistent nature, nor shall there be any formation of slime, bottom deposits, or sludge banks. There shall be no visible sheen due to the presence of oil (Sheen means an iridescent appearance on the surface of the water).

Samples taken in compliance with the monitoring requirements specified above shall be taken from at the following monitoring coordinates Latitude: 34° 33' 01"; Longitude: 92° 28' 06", downstream of the last treatment process.

Within 30 days of the first discharge from Outfall 008, the permittee must submit a Priority Pollutant Scan to the Department. Upstream samples and/or modeling may be needed to determine selenium limits since Outfall 008 is downstream of Outfall 028.

All samples must be taken within the first day of discharge.

SECTION A. 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 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 from a treatment system consisting of neutralization with sulfuric acid, carbon dioxide, and/or hydrated lime and precipitation with bentonite and/or polymer.

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max	Monthly Avg.	Daily Max		
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
Total Dissolved Solids (TDS)	N/A	N/A	Report	Report	once/week	grab
Chlorides	N/A	N/A	Report	Report	once/week	grab
Sulfates	N/A	N/A	Report	Report	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	17.0 µg/l	Report, µg/l	once/week	grab
Total Recoverable Selenium at the Highway 35 crossing of Holly Creek ^{2,4}	N/A	N/A	Report, µg/l	Report, µg/l	once/week	grab
pH	N/A	N/A	<u>Minimum</u> 6.0 s.u.	<u>Maximum</u> 9.0 s.u.	continuous	record
Chronic Biomonitoring ³	N/A	N/A	N/A	N/A	once/quarter	24-hr composite
<u>Pimephales promelas (Chronic)</u> ³ Pass/Fail Lethality (7-day NOEC) TLP6C Pass/Fail Growth (7-day NOEC)TGP6C Survival (7-day NOEC) TOP6C Coefficient of Variation TQP6C Growth (7-day NOEC) TPP6C			<u>7-Day Average</u> Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report % Report % Report %		once/quarter once/quarter once/quarter once/quarter once/quarter	24-hr composite 24-hr composite 24-hr composite 24-hr composite 24-hr composite
<u>Ceriodaphnia dubia (Chronic)</u> ³ Pass/Fail Lethality (7-day NOEC) TLP3B Pass/Fail production (7-day NOEC)TGP3B Survival (7-day NOEC) TOP3B Coefficient of Variation TQP3B Reproduction (7-day NOEC) TPP3B			<u>7-Day Average</u> Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report % Report % Report %		once/quarter once/quarter once/quarter once/quarter once/quarter	24-hr composite 24-hr composite 24-hr composite 24-hr composite 24-hr composite

- 1 Report monthly average and daily maximum as MGD.
- 2 See Condition No. 3 of Part II.
- 3 See Condition No. 4 of Part II (Biomonitoring Requirements).
- 4 Sample only needs to be collected during weeks when Outfall 009 is discharging.

There shall be no discharge of distinctly visible solids, scum, or foam of a persistent nature, nor shall there be any formation of slime, bottom deposits, or sludge banks. There shall be no visible sheen due to the presence of oil (Sheen means an iridescent appearance on the surface of the water).

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following monitoring coordinates:
Latitude: 34° 32' 07"; Longitude: 92° 32' 04", downstream of the last treatment process.

All samples must be taken within the first day of discharge.

SECTION A. 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 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 from a treatment system consisting of neutralization with sulfuric acid, carbon dioxide, and/or hydrated lime and precipitation with bentonite and/or polymer.

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max	Monthly Avg.	Daily Max		
Total Suspended Solids (TSS)	N/A	N/A	20.0	30.0	once/week	grab
Total Dissolved Solids (TDS)	N/A	N/A	Report	Report	once/week	grab
Chlorides	N/A	N/A	Report	Report	once/week	Grab
Sulfates	N/A	N/A	Report	Report	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
pH	N/A	N/A	<u>Minimum</u> 6.0 s.u.	<u>Maximum</u> 9.0 s.u.	once/week	grab
Chronic Biomonitoring ³	N/A	N/A	N/A	N/A	once/quarter	24-hr composite
<u>Pimephales promelas (Chronic)</u> ³ Pass/Fail Lethality (7-day NOEC) TLP6C Pass/Fail Growth (7-day NOEC)TGP6C Survival (7-day NOEC) TOP6C Coefficient of Variation TQP6C Growth (7-day NOEC) TPP6C			<u>7-Day Average</u> Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report % Report % Report %		once/quarter once/quarter once/quarter once/quarter once/quarter	24-hr composite 24-hr composite 24-hr composite 24-hr composite 24-hr composite
<u>Ceriodaphnia dubia (Chronic)</u> ³ Pass/Fail Lethality (7-day NOEC) TLP3B Pass/Fail production (7-day NOEC)TGP3B Survival (7-day NOEC) TOP3B Coefficient of Variation TQP3B Reproduction (7-day NOEC) TPP3B			<u>7-Day Average</u> Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report % Report % Report %		once/quarter once/quarter once/quarter once/quarter once/quarter	24-hr composite 24-hr composite 24-hr composite 24-hr composite 24-hr composite

Outfall 028: Selenium Tier 1

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max	Monthly Avg.	Daily Max		
FOR SELENIUM CONCENTRATIONS (Ce) OF Ce ≤ 8 µg/l						
Flow	N/A	N/A	Report	Report	once/week	instantaneous
Stream Flow	N/A	N/A	Report	Report	once/week	grab
Flow as a percentage of stream flow ⁴	N/A	N/A	N/A	111%	once/week	grab
Total Recoverable Selenium ²	N/A	N/A	N/A	8.0 µg/l	once/week	grab

Outfall 028: Selenium Tier 2

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max	Monthly Avg.	Daily Max		
FOR SELENIUM CONCENTRATIONS (Ce) OF $8 < Ce \leq 10 \mu\text{g/l}$						
Flow	N/A	N/A	Report	Report	once/week	instantaneous
Stream Flow	N/A	N/A	Report	Report	once/week	grab
Flow as a percentage of stream flow ⁴	N/A	N/A	N/A	67%	once/week	grab
Total Recoverable Selenium ²	N/A	N/A	N/A	10.0 $\mu\text{g/l}$	once/week	grab

Outfall 028: Selenium Tier 3

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max	Monthly Avg.	Daily Max		
FOR SELENIUM CONCENTRATIONS (Ce) OF $10 < Ce \leq 12 \mu\text{g/l}$						
Flow	N/A	N/A	Report	Report	once/week	instantaneous
Stream Flow	N/A	N/A	Report	Report	once/week	grab
Flow as a percentage of stream flow ⁴	N/A	N/A	N/A	48%	once/week	grab
Total Recoverable Selenium ²	N/A	N/A	N/A	12.0 $\mu\text{g/l}$	once/week	grab

Outfall 028: Selenium Tier 4

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max	Monthly Avg.	Daily Max		
FOR SELENIUM CONCENTRATIONS (Ce) OF $12 < Ce \leq 16 \mu\text{g/l}$						
Flow	N/A	N/A	Report	Report	once/week	instantaneous
Stream Flow	N/A	N/A	Report	Report	once/week	grab
Flow as a percentage of stream flow ⁴	N/A	N/A	N/A	30%	once/week	grab
Total Recoverable Selenium ²	N/A	N/A	N/A	16.0 $\mu\text{g/l}$	once/week	grab

Outfall 028: Selenium Tier 5

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max	Monthly Avg.	Daily Max		
FOR SELENIUM CONCENTRATIONS (Ce) OF $16 < Ce \leq 25 \mu\text{g/l}$						
Flow	N/A	N/A	Report	Report	once/week	instantaneous
Stream Flow	N/A	N/A	Report	Report	once/week	grab
Flow as a percentage of stream flow ⁴	N/A	N/A	N/A	17%	once/week	grab
Total Recoverable Selenium ²	N/A	N/A	N/A	25.0 $\mu\text{g/l}$	once/week	grab

- 1 Report monthly average and daily maximum as MGD.
- 2 See Condition No. 3 of Part II.
- 3 See Condition No. 4 of Part II (Biomonitoring Requirements).
- 4 See Condition No. 5 of Part II (HCR)

There shall be no discharge of distinctly visible solids, scum, or foam of a persistent nature, nor shall there be any formation of slime, bottom deposits, or sludge banks. There shall be no visible sheen due to the presence of oil (Sheen means an iridescent appearance on the surface of the water).

Samples taken in compliance with the monitoring requirements specified above shall be taken from the following monitoring coordinates:
Latitude: 34° 34' 18"; Longitude: 92° 29' 14", downstream of the final treatment process.

All samples must be taken within the first day of discharge.

SECTION B. PERMIT COMPLIANCE

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

Compliance is required on the effective date of the permit for all conditions.

Special conditions for Outfall 009:

The permittee shall submit an Environmental Improvement Project (EIP) as outlined in Regulation No. 2, Appendix B. The work plan for the EIP shall be submitted on or before October 15, 2008. ADEQ will approve or comment upon the Work Plan within two (2) months of its submittal to ADEQ. In the event that ADEQ fails to approve or comment upon the Work Plan, the Work Plan is deemed approved and the permittee shall proceed with its Notice of Intent as outlined in Regulation No. 2, Appendix B. Following approval of the EIP by ADEQ, the permittee shall file a petition for third party rulemaking with the Commission seeking a modification of the water quality standards for selenium for Holly Creek. If the Commission approves the modification, the renewal of this permit shall contain selenium limitations based upon that approval. If the Commission denies the requested modification, the renewal of this permit shall contain selenium limitations based upon state and federal criteria.

Monitoring of Holly Creek will continue throughout the term of this permit, but the monitoring/reporting requirement will not automatically continue into subsequent permits. The sampling location is at the Highway 35 bridge crossing of Holly Creek.

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 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 ADEQ Water Division for use of the alternate method or instrument.
- 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 and;
- The method and/or instrument is in compliance with 40 CFR Part 136 or approved by the Director. The permittee may use any EPA approved method based on 40 CFR Part 136 provided the MQL for the chosen method is equal to or less than what has been specified in chart below:

Pollutant	MQL ($\mu\text{g/l}$)
Aluminum	2.5
Iron	20
Selenium	5

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 minimum quantification level (MQL) shall be determined in accordance with the following calculation:

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

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. 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. Whole Effluent Toxicity Testing (7-Day Chronic Noec Freshwater)

A. Scope And Methodology

(1) The permittee shall test the effluent for toxicity in accordance with the provisions in this section.

APPLICABLE TO FINAL OUTFALLS: **008, 009 and 028**

CRITICAL DILUTION (%): Outfall 008: 100%
 Outfall 009: 100%
 Outfall 028: 62%

EFFLUENT DILUTION SERIES (%):

Outfall 008: 32%, 42%, 56%, 75%, and 100%
Outfall 009: 32%, 42%, 56%, 75%, and 100%
Outfall 028: 26%, 35%, 47%, 62%, and 100%

COMPOSITE SAMPLE TYPE: Defined at Part I

TEST SPECIES/METHODS: 40 CFR Part 136

Ceriodaphnia dubia (water flea) - chronic static renewal survival and reproduction test, Method 1002.0, EPA/600/4-91/002 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/600/4-91/002, 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.

- (2) The NOEC (No Observed Effect Concentration) is defined as the greatest effluent dilution at and below which lethality 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.
- (3) 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.
- (4) Test failure is defined as a demonstration of statistically significant sub-lethal or lethal effects to a test species at or below the effluent critical dilution.

B. Persistent Lethality

The requirements of this subsection apply only when a toxicity test demonstrates significant lethal effects at or below the critical dilution. Significant lethal effects are herein defined as a statistically significant difference at the 95% confidence level between the survival of the appropriate test organism in a specified effluent dilution and the control (0% effluent).

(1) Part I Testing Frequency Other Than Monthly

- (a) The permittee shall conduct a total of two (2) additional tests for any species that demonstrates significant lethal effects at or below the critical dilution. The two additional tests shall be conducted monthly during the next two consecutive months. The permittee shall not substitute either of the two additional tests in lieu of routine toxicity testing. The full report shall be prepared for each test required by this section in accordance with procedures outlined in Item E of this section and submitted with the period DMR to the permitting authority for review.
- (b) If one or both of the two additional tests demonstrates significant lethal effects at or below the critical dilution, the permittee shall initiate Toxicity Reduction Evaluation (TRE) requirements as specified in Item 7 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 persistent significant sub-lethal effects or intermittent lethal effects at or below the critical dilution, or for failure to perform the required retests. Monthly retesting is not required if the permittee is performing a TRE.
- (c) If one or both of the two additional tests demonstrates significant lethal effects at or below the critical dilution, the permittee shall henceforth increase the frequency of testing for this species to once per quarter for the life of the permit.

- (d) The provisions of Item B(1)(a) of this condition are suspended upon submittal of the TRE Action Plan.

(2) Part I Testing Frequency of Monthly

The permittee shall initiate the Toxicity Reduction Evaluation (TRE) requirements as specified in Item 7 of this section when any two of three consecutive monthly toxicity tests exhibit significant lethal effects at or below the critical dilution. A TRE may be also be required due to a demonstration of persistent significant sub-lethal effects or intermittent lethal effects at or below the critical dilution, or for failure to perform the required retests.

C. Sub-Lethal Failures

If a statistically significant sub-lethal effect is demonstrated at or below the critical dilution during any quarterly test, the permittee shall conduct two additional tests. The additional tests shall be conducted monthly during the next two consecutive months. The permittee shall not substitute either of the two additional in lieu of routine toxicity testing.

If during the first four quarters, statistically significant sub-lethal effects are exhibited, quarterly testing will be required for that species until the effluent passes both the lethal and sub-lethal tests endpoints for the affected species, for four consecutive quarters. After passing four consecutive quarters for the affected species the permittee may request a reduction in testing frequency. Monthly retesting is not required if the permittee is performing a TRE.

D. Required Toxicity Testing Conditions

(1) 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 nonlethal 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) Test failure may not be construed or reported as invalid due to a coefficient of variation value of greater than 40%. A repeat test shall be conducted within the required reporting period of any test determined to be invalid.
- (h) PMSD range of 13 - 47 for water flea reproduction.
- (i) PMSD range of 12 – 30 for fathead minnow growth.

(2) 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/600/4-91/002 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/600/4-91/002 or the most recent update thereof.
- (c) If the conditions of Test Acceptability are met in Item 4.a 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 an NOEC of not less than the critical dilution for the DMR reporting requirements found in Item E below.

(3) 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:

- i. Toxicity tests conducted on effluent discharges to receiving water classified as intermittent streams; and
 - ii. 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 D.1), 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:
- i. A synthetic dilution water control which fulfills the test acceptance requirements of Item 3.a was run concurrently with the receiving water control;
 - ii. The test indicating receiving water toxicity has been carried out to completion (i.e., 7 days);
 - iii. The permittee includes all test results indicating receiving water toxicity with the full report and information required by Item E below; and
 - iv. 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.

(4) Samples and Composites

- (a) The permittee shall collect a minimum of three flow-weighted composite samples from the outfall(s) listed at Item A(1) above.
- (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 are representative of any periodic episode of chlorination, biocide usage or other potentially toxic substance discharged on an intermittent basis.
- (c) 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 6 degrees Centigrade during collection, shipping, and/or storage.
- (d) 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 collect an effluent

composite sample volume during the period of discharge that is sufficient to complete the required toxicity tests with daily renewal of effluent. 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 E of this section.

- (e) 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(1) above for the day the sample was collected. The permittee shall perform the toxicity test on the flow-weighted composite of the outfall samples.
- (f) 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.

E. Reporting

- (1) 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/600/4-91/002, 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 to the Department. For any test which fails, is considered invalid or which is terminated early for any reason, the full report must be submitted for review.
- (2) A valid test for each species must be reported on the DMR during each reporting period specified in Part I of this permit unless the permittee is performing a TRE which may increase the frequency of testing and reporting. Only ONE set of biomonitoring data for each species is to be recorded on the DMR for each reporting period. The data submitted should reflect the LOWEST survival results for each species during the reporting period. 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 ADEQ review.
- (3) The permittee shall submit the results of each valid toxicity test on DMR for that reporting period in accordance with Part III.D.4 of this permit, as follows below. Submit retest information clearly marked as such with the following DMR. Only results of valid tests are to be reported on the DMR.

(a) *Pimephales promelas* (fathead minnow)

- i. If the NOEC for survival is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TLP6C.
- ii. If the NOEC for growth is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TGP6C.
- iii. Report the NOEC value for survival, Parameter No. TOP6C.
- iv. Report the NOEC value for growth, Parameter No. TPP6C.
- v. Report the highest (critical dilution or control) Coefficient of Variation, Parameter No. TQP6C.

(b) *Ceriodaphnia dubia*

- i. If the NOEC for survival is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TLP3B.
- ii. If the NOEC for reproduction is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TGP3B.
- iii. Report the NOEC value for survival, Parameter No. TOP3B.
- iv. Report the NOEC value for reproduction, Parameter No. TPP3B.
- v. Report the higher (critical dilution or control) Coefficient of Variation, Parameter No. TQP3B.

F. Monitoring Frequency Reduction

- (1) The permittee may apply for a testing frequency reduction upon the successful completion of the first four consecutive quarters of testing for one or both test species, with no lethal or sub-lethal effects demonstrated at or below the critical dilution without a major modification. 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*). **Monitoring reduction for Outfall 009 may not be requested this permit term.**
- (2) Certification: The permittee must certify in writing that no test failures have occurred and that all tests meet all test acceptability criteria in Item D(1). 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

Department will issue a letter of confirmation of the monitoring frequency reduction. A copy of the letter will be forwarded to the Permit Compliance System section to update the permit reporting requirements.

- (3) This monitoring frequency reduction applies only until the expiration date of this permit, at which time the monitoring frequency for both test species reverts to once per quarter until the permit is re-issued.

G. Toxicity Reduction Evaluation (TRE)

- (1) Within ninety (90) days of confirming lethality in the retests, 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 TRE Action Plan shall lead to the successful elimination of effluent toxicity at the critical dilution and include the following:

(a) Specific Activities

The plan shall detail the specific approach the permittee intends to utilize in conducting the TRE. The approach may include toxicity characterizations, 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 (800) 553-6847, 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;

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;

- (c) Quality Assurance Plan (e.g., QA/QC implementation, corrective actions, etc.); and
(d) Project Organization (e.g., project staff, project manager, consulting services, etc.).

- (2) 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.
- (3) 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 lethality at the critical dilution.
- (4) The permittee shall submit a Final Report on Toxicity Reduction Evaluation Activities no later than twenty-eight (28) months from confirming lethality 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 lethality at the critical dilution. The report will also provide a specific corrective action schedule for implementing the selected control mechanism.

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).

5. 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 Federal holidays.

The Outfall 028 HCR flow, based on selenium concentrations, shall be adjusted at the next routine adjustment time (but no later than the next business day) after Alcoa 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.

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; or
- b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts; or
- c. A change in any conditions that requires either a temporary or permanent reduction or elimination of the authorized discharge; or
- 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 APCEC Regulation No. 9 (Permit fees) as required by Part III.A.10. 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 APCEC 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 APCEC 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 on “Bypassing” (Part III.B.4.a.), and “Upsets” (Part III.B.5.b), nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance. Any false or materially misleading representation or concealment of information required to be reported by the provisions of this permit or applicable state and federal statutes or regulations which defeats the regulatory purposes of the permit may subject the permittee to criminal enforcement pursuant to the Arkansas Water and Air Pollution Control Act (Act 472 of 1949, as amended).

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. Permit Fees

The permittee shall comply with all applicable permit fee requirements for wastewater discharge permits as described in APCEC 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 APCEC Regulation No. 6 and the provisions of APCEC 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 insure 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

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 II.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; and
 - (c) The permittee submitted notices as required by Part III.B.4.b.
- (2) The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed above in Part III.B.4.c.(1).

5. Upset Conditions

- a. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Part III.B.5.b. of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.
- b. Conditions necessary for demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - (1) An upset occurred and that the permittee can identify the specific cause(s) of the upset;

- (2) The permitted facility was at the time being properly operated.
 - (3) The permittee submitted notice of the upset as required by Part III.D.6.; and
 - (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

Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of waste waters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering the waters of the State. Written approval must be obtained from the ADEQ for land application only.

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 discharges shall be monitored.

2. Flow Measurement

Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to insure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated, and maintained to insure 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.

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 insure accuracy of measurements and shall

insure 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 insure 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

Monitoring results must be reported on a Discharge Monitoring Report (DMR) form (EPA No. 3320-1). Permittees are required to use preprinted DMR forms provided by ADEQ, unless specific written authorization to use other reporting forms is obtained from ADEQ. Monitoring results obtained during the previous calendar month shall be summarized and reported on a DMR form postmarked no later than the 25th day of the month following the completed reporting period to begin on the effective date of the permit. Duplicate copies of DMR forms signed and certified as required by Part III.D.11. and all other reports required by Part III.D., shall be submitted to the Director at the following address:

Permits Enforcement Branch
Water Division
Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, AR 72118-5317

If permittee uses outside laboratory facilities for sampling and/or analysis, the name and address of the contract laboratory shall be included on the DMR.

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 individuals(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; and
- 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, and
- 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 and provide plans and specification to the Director for review and approval prior to any planned physical alterations or additions to the permitted facility. Notice is required only when:

- a. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR Part 122.29(b).
- b. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under 40 CFR Part 122.42 (a)(1).

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; and
 - (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 and
 - (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 Water Division 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 Water Division of the ADEQ.

7. Other Noncompliance

The permittee shall report all instances of noncompliance not reported under Parts II.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 permittee shall notify the Director as soon as he/she knows or has reason to believe:

- a. That any activity has occurred or will occur which would result in the discharge on a routine or frequent basis of any toxic pollutant 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); or
- 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 APCEC 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:

- (i) 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; or
 - (ii) 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; or
 - (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:
 - (i) The chief executive officer of the agency, or
 - (ii) 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); and
 - (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 APCEC 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 (Act 472 of 1949, as amended).

PART IV DEFINITIONS

All definitions contained in Section 502 of the Clean Water Act 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. **“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.
4. **“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 (APCEC) Regulation No. 2, as amended.
5. **“Bypass”** means the intentional diversion of waste streams from any portion of a treatment facility.
6. **“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.
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.
Concentration Calculations: For pollutants with limitations expressed in other units of measurement, determination of concentration made using a composite sample shall be the concentration of the composite sample. When grab samples are used, the “daily discharge” determination of concentration shall be the arithmetic average (weighted by flow value) of all the samples collected during that sampling day by using the following formula: where C= daily concentration, F=daily flow and n=number of daily samples
$$\frac{C_1F_1 + C_2F_2 + \dots + C_nF_n}{F_1 + F_2 + \dots + F_n}$$
7. **“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) report the monthly average (see 30-day average below).
8. **“Daily Maximum”** discharge limitation means the highest allowable “daily discharge” during the calendar month. The daily average for Fecal Coliform Bacteria (FCB) is the

- geometric mean of the values of all effluent samples collected during the day in colonies per 100 ml.
9. **“Department”** means the Arkansas Department of Environmental Quality (ADEQ).
 10. **“Director”** means the Administrator of the U.S. Environmental Protection Agency and/or the Director of the Arkansas Department of Environmental Quality.
 11. **“Grab sample”** means an individual sample collected in less than 15 minutes in conjunction with an instantaneous flow measurement.
 12. **“Industrial User”** means a nondomestic discharger, as identified in 40 CFR Part 403, introducing pollutants to a POTW.
 13. **“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.
 14. **“POTW”** means a Publicly Owned Treatment Works.
 15. **“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.
 16. **“APCEC”** means the Arkansas Pollution Control and Ecology Commission.
 17. **“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.
 18. **“7-day average”** discharge limitation, other than for Fecal Coliform Bacteria (FCB), is the highest allowable arithmetic mean of the values for all effluent samples collected during the calendar week. The 7-day average for Fecal Coliform Bacteria (FCB) is the geometric mean of the values of all effluent samples collected during the calendar week in colonies/100 ml. The Discharge Monitoring Report should report the highest 7-day average obtained during the calendar month. For reporting purposes, the 7-day average values should be reported as occurring in the month in which the Saturday of the calendar week falls in.
 19. **“30-day average”**, other than for Fecal Coliform Bacteria (FCB), is the arithmetic mean of the daily values for all effluent samples collected during 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. The 30-day average for Fecal Coliform Bacteria (FCB) is the geometric mean of the values for all effluent samples collected during a calendar month. For Fecal Coliform Bacteria (FCB), report the monthly average as a 30-day geometric mean in colonies per 100 ml.
 20. **“24-hour composite sample”** consists of a minimum of 12 effluent portions collected at equal time intervals over the 24-hour period and combined proportional to flow or a sample collected at frequent intervals proportional to flow over the 24-hour period.
 21. **“12-hour composite sample”** consists of 12 effluent portions, collected no closer together than one hour and composited according to flow. The daily sampling intervals shall include the highest flow periods.

22. **“6-hour composite sample”** consists of six effluent portions collected no closer together than one hour (with the first portion collected no earlier than 10:00 a.m.) and composited according to flow.
23. **“3-hour composite sample”** consists of three effluent portions collected no closer together than one hour (with the first portion collected no earlier than 10:00 a.m.) and composited according to flow.
24. **“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.
25. **“Upset”** means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. Any upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventive maintenance, or careless or improper operations.
26. **“For Fecal Coliform Bacteria (FCB)”**, a sample consists of one effluent grab portion collected during a 24-hour period at peak loads. For Fecal Coliform Bacteria (FCB) report the monthly average as a 30-day geometric mean in colonies per 100 ml.
27. **“Dissolved oxygen limit”**, shall be defined as follows:
 - a. When limited in the permit as a monthly average minimum, 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.
28. **The term “MGD”** shall mean million gallons per day.
29. **The term “mg/l”** shall mean milligrams per liter or parts per million (ppm).
30. **The term “µg/l”** shall mean micrograms per liter or parts per billion (ppb).
31. **The term “cfs”** shall mean cubic feet per second.
32. **The term “ppm”** shall mean parts per million.
33. **The term “s.u.”** shall mean standard units.
34. **The term “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.
35. **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.

MONTHLY:

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

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; or

(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.

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.

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.

36. **The term “Weekday”** means Monday – Friday.

Final Fact Sheet

For renewal of discharge Permit Number AR0000582 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:

Alcoa Inc.
201 Isabella Street
Pittsburgh, PA 15212

The facility address is:

Alcoa Inc.
1401 Bauxite Cut-off Road
Bauxite, AR, AR 72011

3. PREPARED BY.

The permit was prepared by:

Nicholas Willis
Staff Engineer
Permits Branch, Water Division
(501) 682-0619
E-Mail: willis@adeq.state.ar.us

4. DATE PREPARED.

The permit was prepared on 05/09/2008

5. PREVIOUS PERMIT ACTIVITY.

Effective Date: 5/31/2005
Expiration Date: 6/30/2008

The permittee submitted a permit renewal application on 12/20/2007. The current discharge permit is being reissued for a 3-year term in accordance with regulations promulgated at 40 CFR Part 122.46(a).

A draft permit was prepared and the public was given notice of the draft permit on July 15, 2008. Alcoa and The Department of Arkansas Heritage submitted comments during the comment period. After review of these comments, it was determined the changes required public notice. No comments were received on the second draft permit. The following comments were received by Nicholas Willis, ADEQ engineer, on August 7, 2008 on the first draft permit. The following comments were received and are responded to below:

Comments from Alcoa

1. Alcoa requests that the permit condition for collecting a selenium sample in Holly Creek at Highway 35 be clarified by stating that it will be collected only during weeks in which Outfall 009 is discharging.

Department Response: Staff agrees and this has been changed in the permit conditions.

2. Alcoa requests modification to the Effluent Limitations and Monitoring Requirements of Section 1A of the footnote from, "All samples must be taken at first discharge." to "All samples must be taken within the first day of intentional discharge."

Department Response: Staff partially agrees. Not all outfalls are operated year-round and the beginning of a discharge may not be representative of the discharge. However, all discharges must be monitored, intentional or not. The wording has been changed to, "All samples must be taken within the first day of discharge."

3. The average flow for Outfall 009 is 13.3 MGD, based on the highest monthly average flow during the last two years (November 2005-November 2007). On Pages 14 and 18 of the Fact Sheet, the average flow for Outfall 009 is incorrectly listed as 17.4 MGD and should be changed to 13.3 MGD. We do not believe this affects any limits or critical dilutions.

Department Response: Staff agrees upon further review of Discharge Monitoring Report data. This has been corrected and does not have any impact on limits or critical dilutions.

4. We request that ADEQ modify Outfall 009's selenium permit limit by changing the daily maximum limit to 16.8 µg/L to a "report only" requirement and adding a monthly average permit limit value of 17.0 µg/L for the following reasons:

- 4.1 It has been well established that the reproductive impairment of fish due to selenium exposure (which is the primary toxic effect of selenium in freshwater systems) occurs almost exclusively through dietary exposure (Lemly, 2002). Selenium concentrations in the diet are, in turn, the result of dietary accumulation among various components of the food web. Because it is made up of

populations of species with a diverse array of feeding habits, longevity and generation time, the food web integrates selenium concentrations over a time scale such that day-to-day variations in water-borne concentrations are not closely linked to variations in tissue concentrations. That is, the level of dietary accumulation in both the food web and fish is the result of longer term exposures than are indicated by daily extremes (maximum or minimum). Therefore, daily maximum concentrations are less meaningful than longer term average concentrations as an indication of selenium exposure.

4.2 The difficulty of accurately analyzing selenium at these low levels is becoming more apparent as we research the site specific selenium problems. An example that helps demonstrate the difficulty in analyzing selenium at this site is when Alcoa performed a site specific Method Detection Limit (MDL) study (presented in the Selenium Treatability Report, December, 2007) that resulted in a site specific MDL that ranged from 11.25 µg/L to 13.4 µg/L depending upon the nominal false positive and negative rate. With the outfall selenium concentrations typically near the potential site specific MDL, it is likely that inaccurate results will be reported. Utilizing an average or mean value for compliance helps address this analytical issue in addition to the biological issue discussed.

4.3 The analytical precision of selenium at the levels seen in the effluent is also highly variable. As an example; Alcoa recently split a set of process water samples from the treatment system (not at the NPDES outfall) with three Arkansas certified laboratories with selenium results of <2.0 µg/L, 14 µg/L, and 17 µg/L. A monthly average permit limit for selenium versus a maximum value takes into consideration the analytical difficulties associated with monitoring the effluent. The average value also better represents the actual selenium level discharged based on the recent split sampling evaluations referenced above and previously discussed with the ADEQ water division staff.

4.4 The selenium value of 16.8 µg/L was based on a 95th percentile of historical selenium concentrations at the Outfall 009 from April 2006 to March 2008. The proposed monthly average value of 17.0 µg/L is calculated with the same method, but using the most recent two years of DMR data.

Department Response: The Department concurs for the reasons listed above. In addition the Environmental Improvement Project required by this permit should reduce these values over time.

5. Alcoa is not equipped to electronically record pH readings every minute throughout each month to comply with the new continuous pH monitoring permit condition on Page 12 of Part II, Section 6. We request that we be able to use the existing outfall monitoring equipment to record instantaneous pH readings on a pen circular flow chart at Outfall 008 and 009.

Department Response: The Department concurs seeing no environmental impact from this request. pH monitoring requirements have been changed.

6. Pg. 22 of the Fact Sheet states that "...based on the frequency of sublethal failures for *C. dubia*, WET testing frequency reduction may not be requested during this permit cycle." Previous permits have stated that WET testing frequency reduction can be requested after 4 consecutive non-toxic quarterly tests without reference to toxicity history before the consecutive non-toxic tests. In the case of the Alcoa permit, the Department seems to have chosen some other, unspecified, period of time for evaluating WET frequency reduction. Outfall 009 has shown no lethal or sublethal toxicity to *Pimphales promelas* in the last 8 tests and none to *Ceriodaphnia dubia* in the last 7 tests. If the outfall were to remain non-toxic for the next 4 tests after permit renewal there would be a total of 12 and 11 consecutive non-toxic tests. This would be well in excess of the 4 consecutive non-toxic tests normally required for WET frequency reduction. Therefore Alcoa respectfully requests that it be allowed to request WET frequency reduction upon the completion of 4 consecutive non-toxic WET tests as part of this permit renewal.

Department Response: Prior to January of 2008, ADEQ had not yet begun implementing the Reasonable Potential Calculation Approach specified by the EPA.

During the current permit renewal process, a Reasonable Potential Calculation was performed for Alcoa (AR0000582) Outfall 009. EPA's Reasonable Potential Calculator found there to be reasonable potential for lethal and sub-lethal toxicity for *P. promelas* and reasonable potential for sub-lethal toxicity for *C. dubia*.

ADEQ does not agree with the necessity of WET limits for these parameters. Based on the fact that both *P. promelas* and *C. dubia* lethal and sublethal testing have experienced failures less than 20% of the time during the past 5 years.

ADEQ agrees that not allowing a WET testing frequency reduction for *C. dubia* for the life of the permit is not necessary. However, based on the frequency of sublethal failures (18%) for *C. dubia*, WET testing frequency reduction may not be requested until the completion of the third year of the permit, which coincides with the expiration of the permit. Therefore, no frequency reduction may be requested.

P. promelas WET testing frequency may still be requested upon the successful completion of the first four consecutive quarters of testing, with no lethal or sub-lethal effects demonstrated at or below the critical dilution without a major modification.

ADEQ will reevaluate the reasonable potential at the next permit renewal.

Comments from The Department of Arkansas Heritage

The Department of Arkansas Heritage also made the following comment on the first draft permit:

Staff members of the Arkansas Natural Heritage Commission have reviewed the draft renewal of a permit authorizing discharge into Hurricane Creek and thence the Saline River from outfalls located at 34°33'01" latitude, and 92°28'08" longitude (Outfall 008), and 34°34'18" latitude, and 92°29'14" longitude (028) and discharge into Holly Creek and thence the Saline River from an outfall 34°32'07" latitude, and 92°32'04" longitude (Outfall 009) for Alcoa, Inc. The following species of conservation concern are known to occur in the Saline River five miles downstream of outfall 009:

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

The Saline River is also listed on the state's Registry of Natural and Scenic Rivers and on the Nationwide Rivers Inventory. We are providing this information for your use in the preparation and review of this permit. The information may be appropriate to include in the section of the permit which addresses the receiving stream and endangered species. This letter is intended to make the Department and applicant aware that sensitive resources may occur in the area. It is not intended as an objection to the issuance of the permit.

The opportunity to comment is appreciated.

Department response: The Department acknowledges these comments.

6. 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. Parts II, III and IV have been revised.
2. The Chemical Plant Clear Lake Water, Storm Lake process and stormwater have been removed from the permit for all outfalls. This discharge is covered under NPDES permit numbers AR0050270 and ARR00A196.
3. The process flow diagram submitted with the application was changed by Alcoa and reviewed by ADEQ to reflect the addition of "Section 13" and "Berta" mining operations leased and run by SEMCOA.

4. The hydrograph controlled release (HCR) parameters for selenium at Outfall 028 was changed to allow more operational flexibility while protecting the in-stream water quality standards of Hurricane Creek.
5. The characterization of the wastes being treated was changed to reflect active mining occurring at the site.
6. Monitoring and reporting for TDS, chlorides and sulfates have been added for all outfalls.
7. A requirement for an “Advanced Industrial” wastewater treatment operator has been added in accordance with APC&EC Regulation No. 3.
8. The scheduling of sampling and operation of Outfall 028’s hydrograph controlled release has been changed upon the request of Alcoa.
9. Selenium limits have been added for Outfall 009.
10. TSS limits at all outfalls now have a decimal point to reflect new source performance standards (i.e. monthly average was 20 mg/l and is now 20.0 mg/l)

7. RECEIVING STREAM SEGMENT AND DISCHARGE LOCATION.

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

Outfall 008: Latitude: 34° 33’ 01” ; Longitude: 92° 28’ 06”

Outfall 009: Latitude: 34° 32’ 07” ; Longitude: 92° 32’ 04”

Outfall 028: Latitude: 34° 34’ 18” ; Longitude: 92° 29’ 14”

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 Rive 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 # 008 (Hurricane Creek) and 010 (Saline River) are Waters of the State classified for primary contact recreation, raw water source for public, industrial, and agricultural water supplies, propagation of desirable species of fish and other aquatic life, and other compatible uses.

8. 303(d) LIST AND ENDANGERED SPECIES CONSIDERATIONS.

a. 303(d) List:

Reach #010 of the Saline River which receives the flow from Outfall 009 is on the 2006 303(d) list for siltation, total dissolved solids and sulfates. Reach #006 of the Saline River, downstream of all discharges, is listed on the 2006 303(d) list for total dissolved solids and beryllium.

HUC-reach 08040204-006 and HUC-reaches 08040203-006, -007, -008, -009, and -010 are all included in a draft TMDL. The pollutants included in this draft TMDL are chlorides, sulfates and total dissolved solids. Monitoring and reporting requirements for these three pollutants have been added based upon a reasonable potential, the 303(d) list and the draft TMDL.

b. Endangered Species:

No comments on the application were received from the U.S. Fish and Wildlife Service (USF&WS). The second draft permit and Fact Sheet was sent to the USF&WS for their review.

9. OUTFALL AND TREATMENT PROCESS DESCRIPTION.

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

Average Flow for Outfall 008: No discharge has occurred from Outfall 008 in the past two years. If discharge were to occur, an estimated flow of 3.7 MGD is expected.

Average Flow for Outfall 009: 13.3 MGD, based on the highest monthly average flow during the last two years (November 2005-November 2007).

Average Flow for Outfall 028: 3.0 MGD, based on the average flow at stated by the permittee in Form 2C. The DMR submittals on the hydrograph-controlled release for this outfall do not allow for accurate flow tracking by ADEQ.

Due to the strong influence of weather on these outfalls, there is high variability in flowrates at all outfalls.

Type of Treatment: neutralization with sulfuric acid, carbon dioxide, and/or hydrated lime and precipitation with bentonite and/or polymer.

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.

10. APPLICANT 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 Alcoa and Reynolds Metals bauxite residue disposal areas.

11. SLUDGE PRACTICES.

Any sludge generated will be disposed of in an inactive mine pit or re-dissolved in water to be treated. The permittee shall, at all time, handle and dispose of sludge 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.

12. PERMIT CONDITIONS.

The Arkansas Department of Environmental Quality has made a determination to issue a permit for the discharge described in the application. Permit requirements are based on federal regulations (40 CFR Parts 122, 124, and Subchapter N) and regulations promulgated pursuant to the Arkansas Water and Air Pollution Control Act (Act 472 of 1949, as amended, Ark. Code Ann. 8-4-101 et. seq.).

a. Final Effluent Limitations

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.

1. Conventional and Toxic Pollutants, Outfall 008

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max	Monthly Avg.	Daily Max		
Flow	N/A	N/A	Report	Report	continuous	record
Total Suspended Solids (TSS)	N/A	N/A	20.0	30.0	once/week	grab
Total Dissolved Solids (TDS)	N/A	N/A	Report	Report	once/week	grab
Chlorides	N/A	N/A	Report	Report	once/week	Grab
Sulfates	N/A	N/A	Report	Report	once/week	grab
Aluminum, Total	N/A	N/A	1.0	2.0	once/week	grab
Iron, Total	N/A	N/A	0.5	1.0	once/week	grab
Total Recoverable Selenium	N/A	N/A	Report, µg/l	Report, µg/l	once/week	grab
pH	N/A	N/A	<u>Minimum</u> 6.0 s.u.	<u>Maximum</u> 9.0 s.u.	continuous	record
Chronic Biomonitoring	N/A	N/A	N/A	N/A	once/quarter	24-hr composite
<u>Pimephales promelas (Chronic)</u> Pass/Fail Lethality (7-day NOEC) TLP6C Pass/Fail Growth (7-day NOEC)TGP6C Survival (7-day NOEC) TOP6C Coefficient of Variation TQP6C Growth (7-day NOEC) TPP6C			<u>7-Day Average</u> Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report % Report % Report %		once/quarter once/quarter once/quarter once/quarter once/quarter	24-hr composite 24-hr composite 24-hr composite 24-hr composite 24-hr composite
<u>Ceriodaphnia dubia (Chronic)</u> Pass/Fail Lethality (7-day NOEC) TLP3B Pass/Fail production (7-day NOEC)TGP3B Survival (7-day NOEC) TOP3B Coefficient of Variation TQP3B Reproduction (7-day NOEC) TPP3B			<u>7-Day Average</u> Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report % Report % Report %		once/quarter once/quarter once/quarter once/quarter once/quarter	24-hr composite 24-hr composite 24-hr composite 24-hr composite 24-hr composite

2. **Solids, Foam, and Free Oil:** There shall be no discharge of distinctly visible solids, scum, or foam of a persistent nature, nor shall there be any formation of slime, bottom deposits, or sludge banks. There shall be no visible sheen due to the presence of oil (Sheen means an iridescent appearance on the surface of the water).

b. Final Effluent Limitations

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.

1. Conventional and Toxic Pollutants, Outfall 009

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max	Monthly Avg.	Daily Max		
Flow	N/A	N/A	Report	Report	continuous	record
Total Suspended Solids (TSS)	N/A	N/A	20.0	30.0	once/week	grab
Total Dissolved Solids (TDS)	N/A	N/A	Report	Report	once/week	grab
Chlorides	N/A	N/A	Report	Report	once/week	Grab
Sulfates	N/A	N/A	Report	Report	once/week	grab
Aluminum, Total	N/A	N/A	1.0	2.0	once/week	grab
Iron, Total	N/A	N/A	0.5	1.0	once/week	grab
Total Recoverable Selenium	N/A	N/A	17.0 µg/l	Report, µg/l	once/week	grab
Total Recoverable Selenium at the Highway 35 crossing of Holly Creek	N/A	N/A	Report, µg/l	Report, µg/l	once/week	grab
pH	N/A	N/A	<u>Minimum</u> 6.0 s.u.	<u>Maximum</u> 9.0 s.u.	once/week	grab
Chronic Biomonitoring	N/A	N/A	N/A	N/A	once/quarter	24-hr composite
<u>Pimephales promelas (Chronic)</u> Pass/Fail Lethality (7-day NOEC) TLP6C Pass/Fail Growth (7-day NOEC)TGP6C Survival (7-day NOEC) TOP6C Coefficient of Variation TQP6C Growth (7-day NOEC) TPP6C			<u>7-Day Average</u> Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report % Report % Report %		once/quarter once/quarter once/quarter once/quarter once/quarter	24-hr composite 24-hr composite 24-hr composite 24-hr composite 24-hr composite
<u>Ceriodaphnia dubia (Chronic)</u> Pass/Fail Lethality (7-day NOEC) TLP3B Pass/Fail production (7-day NOEC)TGP3B Survival (7-day NOEC) TOP3B Coefficient of Variation TQP3B Reproduction (7-day NOEC) TPP3B			<u>7-Day Average</u> Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report % Report % Report %		once/quarter once/quarter once/quarter once/quarter once/quarter	24-hr composite 24-hr composite 24-hr composite 24-hr composite 24-hr composite

2. **Solids, Foam, and Free Oil:** There shall be no discharge of distinctly visible solids, scum, or foam of a persistent nature, nor shall there be any formation of slime, bottom deposits, or sludge banks. There shall be no visible sheen due to

the presence of oil (Sheen means an iridescent appearance on the surface of the water).

c. Final Effluent Limitations

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.

1. Conventional and Toxic Pollutants, Outfall 028

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max	Monthly Avg.	Daily Max		
Total Suspended Solids (TSS)	N/A	N/A	20.0	30.0	once/week	grab
Total Dissolved Solids (TDS)	N/A	N/A	Report	Report	once/week	grab
Sulfates	N/A	N/A	Report	Report	once/week	grab
Aluminum, Total	N/A	N/A	1.0	2.0	once/week	grab
Iron, Total	N/A	N/A	0.5	1.0	once/week	grab
pH	N/A	N/A	<u>Minimum</u> 6.0 s.u.	<u>Maximum</u> 9.0 s.u.	once/week	grab
Chronic Biomonitoring	N/A	N/A	N/A	N/A	once/quarter	24-hr composite
<u>Pimephales promelas (Chronic)</u> Pass/Fail Lethality (7-day NOEC) TLP6C Pass/Fail Growth (7-day NOEC)TGP6C Survival (7-day NOEC) TOP6C Coefficient of Variation TQP6C Growth (7-day NOEC) TPP6C			<u>7-Day Average</u> Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report % Report % Report %		once/quarter once/quarter once/quarter once/quarter once/quarter	24-hr composite 24-hr composite 24-hr composite 24-hr composite 24-hr composite
<u>Ceriodaphnia dubia (Chronic)</u> Pass/Fail Lethality (7-day NOEC) TLP3B Pass/Fail production (7-day NOEC)TGP3B Survival (7-day NOEC) TOP3B Coefficient of Variation TQP3B Reproduction (7-day NOEC) TPP3B			<u>7-Day Average</u> Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report % Report % Report %		once/quarter once/quarter once/quarter once/quarter once/quarter	24-hr composite 24-hr composite 24-hr composite 24-hr composite 24-hr composite

Outfall 028: Selenium Tier 1

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

Outfall 028: Selenium Tier 2

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

Outfall 028: Selenium Tier 3

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max	Monthly Avg.	Daily Max		
FOR SELENIUM CONCENTRATIONS (Ce) OF $10 < C_e \leq 12 \mu\text{g/l}$						
Flow	N/A	N/A	Report	Report	once/week	grab
Stream Flow	N/A	N/A	Report	Report	once/week	grab
Flow as a percentage of stream flow	N/A	N/A	N/A	48%	once/week	grab
Total Recoverable Selenium	N/A	N/A	N/A	12.0 $\mu\text{g/l}$	once/week	grab

Outfall 028: Selenium Tier 4

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max	Monthly Avg.	Daily Max		
FOR SELENIUM CONCENTRATIONS (Ce) OF $12 < Ce \leq 16 \mu\text{g/l}$						
Flow	N/A	N/A	Report	Report	once/week	grab
Stream Flow	N/A	N/A	Report	Report	once/week	grab
Flow as a percentage of stream flow	N/A	N/A	N/A	30%	once/week	grab
Total Recoverable Selenium	N/A	N/A	N/A	16.0 $\mu\text{g/l}$	once/week	grab

Outfall 028: Selenium Tier 5

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max	Monthly Avg.	Daily Max		
FOR SELENIUM CONCENTRATIONS (Ce) OF $16 < Ce \leq 25 \mu\text{g/l}$						
Flow	N/A	N/A	Report	Report	once/week	grab
Stream Flow	N/A	N/A	Report	Report	once/week	grab
Flow as a percentage of stream flow	N/A	N/A	N/A	17%	once/week	grab
Total Recoverable Selenium	N/A	N/A	N/A	25.0 $\mu\text{g/l}$	once/week	grab

- Solids, Foam, and Free Oil:** There shall be no discharge of distinctly visible solids, scum, or foam of a persistent nature, nor shall there be any formation of slime, bottom deposits, or sludge banks. There shall be no visible sheen due to the presence of oil (Sheen means an iridescent appearance on the surface of the water).

13. BASIS FOR PERMIT CONDITIONS.

The following is an explanation of the derivation of the conditions of the permit and the reasons for them or, in the case of notices of intent to deny or terminate, reasons suggesting the decisions as required under 40 CFR Part 124.7 (48 FR 1413, April 1, 1983).

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

Following regulations promulgated at 40 CFR Part 122.44 (1) (2) (ii), 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. Alcoa has recently leased land to a third-party that will mine bauxite. Water from this mining will enter Alcoa's treatment system. Because of these new leases, the BADT standard applies.

Comparison of best practicable control technology (BPT), best available technology economically achievable (BAT) and New Source Performance Standards (NSPS) best available demonstrated technology (BADT) for the Aluminum Ore Subcategory from 40 CFR 440.22, 40 CFR 440.23 and 40 CFR 440.24, respectively.

Parameter	BPT-Based		BAT-Based		BADT-Based	
	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	30	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.	

Outfalls 008, 009 and 028 Effluent Limitation Guidelines based state-water quality (Regulation No. 2) or on Best Available Demonstrated Technology (BADT) in accordance with 40 CFR 440.22

Parameter	Water Quality-Based		Technology-Based		Previous Permit		Final Permit	
	Monthly Avg. mg/l	Daily Max. mg/l	Monthly Avg. mg/l	Daily Max. mg/l	Monthly Avg. mg/l	Daily Max. mg/l	Monthly Avg. mg/l	Daily Max. mg/l
TSS	N/A	N/A	20.0	30.0	20	30	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 Outfall 009	5.6 µg/l	11.2 µg/l	N/A	N/A	Report	Report	17.0 µg/l	Report
Selenium Outfall 028	5.6 µg/l	11.2 µg/l	N/A	N/A	HCR	HCR	HCR	HCR
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.	

*See Sections 13 and 15 of the of the Fact Sheet

Parameter	Water Quality or Technology	Justification
TSS	Technology	40 CFR 440.24
Aluminum	Technology	40 CFR 440.24
Iron	Technology	40 CFR 440.24
pH	Technology and Water Quality	40 CFR 440.24 and Section 2.504 of Regulation No. 2
Selenium	Water Quality	Section 2.508 of Regulation No. 2

a. **Anti-backsliding**

The 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 40 CFR 122.44 (l)(2)(i).

The permit maintains the requirements of the previous permit for certain parameters and makes more stringent limits for other parameters.

b. **Limits Calculations**

i. Daily Maximum Limits:

$$\text{Daily Maximum limits} = \text{Monthly average limits} \times 1.5$$

ii. Process wastewater (Outfalls 008, 009 and 028)

The effluent limitation guidelines (ELG) for this type of facility do not have production-based limits. The ELGs for this type of facility are expressed in milligrams per liter of water discharged. Because the discharge will have process water from new mines, the technology-based limits and monitoring requirements are based on the most stringent limit (BADT) in compliance with 40 CFR Parts 440.22, 440.23, 440.24 and 40 CFR Part 122.44(l).

iii. Outfall 028 Hydrograph Controlled Release (HCR)

Alcoa made a formal request to alter their tiers covering selenium discharge from Outfall 028 from their previous permit.

The tiers from the expiring permit are shown below:

Selenium Concentration Range	Maximum Flow, as a % of Upstream Flow
$0 < C_e \leq 12 \mu\text{g/l}$	48%
$12 < C_e \leq 14 \mu\text{g/l}$	37%
$14 < C_e \leq 16 \mu\text{g/l}$	30%
$16 < C_e \leq 18 \mu\text{g/l}$	26%
$18 < C_e \leq 30 \mu\text{g/l}$	13%

The revised tiers are shown below:

Selenium Concentration Range	Maximum Flow, as a % of Upstream Flow
$0 < C_e \leq 8 \mu\text{g/l}$	111%
$8 < C_e \leq 10 \mu\text{g/l}$	67%
$10 < C_e \leq 12 \mu\text{g/l}$	48%
$12 < C_e \leq 16 \mu\text{g/l}$	30%
$16 < C_e \leq 25 \mu\text{g/l}$	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.

Assume:

$$\frac{2/3 * Q_b * (C_{wqs} - C_b)}{C_e - C_{wqs}} = Q_e$$

where:

- Q_b = Background flow
- Q_e = Effluent Flow
- 2/3*Q_b = Mixing Zone Allocation
- C_b = Upstream Selenium Concentration = 0 μg/l
- C_e = Effluent Concentration
- C_{wqs} = Chronic WQS for Selenium = 5 μg/l

Using an arbitrary Q_b of 5000 gallons/minute and a C_e of 10 μg/l, an example calculation will be completed below.

$$\frac{2/3 * (5000 \text{ gpm}) * (5 \mu\text{g/l} - 0 \mu\text{g/l})}{10 \mu\text{g/l} - 5 \mu\text{g/l}} = 3333 \text{ gpm}$$

This shows that at concentrations up to 10 μg/l, the Q_e can be (3333 gpm)/(5000 gpm) or 67% of the total stream flow.

The revisions to the tiers are protective of the water quality standard for selenium within Hurricane Creek and allow more operational flexibility for Alcoa. Outfall 028 was added with the last permit. The original HCR was based on estimates by Alcoa as to what their selenium concentrations would be. Alcoa requested a revision to the tiers because their original projection for the selenium concentration was higher than what the operational data has shown. By allowing a higher percentage of streamflow to be discharged when the discharge has lower selenium concentrations, Alcoa has more operational flexibility.

c. **Stormwater runoff**

Effluent limitations guidelines have not been promulgated for discharges of this sort. Therefore under the authority of Section 402 (a) (1) of the Clean Water Act and State laws, the State has developed a permit on a case-by-case basis. Stormwater pollution prevention plan requirements are included for the entire site under permit numbers ARR00C423 (industrial operations) and ARR152404 (construction/remediation operations).

A. **Toxics Pollutants**

(1) Post Third Round Policy and Strategy

Section 101 of the Clean Water Act (CWA) states that "...it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited..." To insure that the CWA's prohibitions on toxic discharges are met, EPA has issued a "Policy for the Development of Water Quality-Based Permit Limitations by 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. The Regional policy and strategy are designed to insure 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 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.

(2) Implementation

The State of Arkansas is currently implementing EPA's Post Third-Round Policy in conformance with the EPA Regional strategy. The 5-year discharge permits contain technology-based effluent limitations reflecting the best controls available. Where these technology-based permit limits do not protect water quality or the designated uses, or where there are no applicable technology-based limits, additional water quality-based effluent limitations and/or conditions are included in the discharge permits. State narrative and numerical water quality standards from Regulation No. 2 are used in conjunction with EPA criteria and other available toxicity information to determine the adequacy of technology-based permit limits and the need for additional water quality-based controls.

(3) Priority Pollutant Scan

In accordance with the regional policy ADEQ has reviewed and evaluated the effluent in evaluating the potential toxicity of each analyzed pollutant:

- a. The results were evaluated and compared to EPA's Minimum Quantification Levels (MQLs) to determine the potential presence of a respective toxic pollutant. Those pollutants which are greater than or equal to the MQLs are determined to be reasonably present in the effluent and an evaluation of their potential toxicity is necessary.
- b. Those pollutants with one datum shown as "non-detect" (ND), providing the level of detection is equal to or lower than MQL are determined to be not potentially present in the effluent and eliminated from further evaluation.
- c. Those pollutants with a detectable value even if below the MQL are determined to be reasonably present in the effluent and an evaluation of their potential toxicity is necessary.
- d. For those pollutants with multiple data values and all values are determined to be non-detect, therefore no further evaluation is necessary. However, where data set includes some detectable concentrations and some values as ND, one-half of the detection level is used for those values below the level of detection to calculate the geometric mean of the data set.

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, Reg. No. 2 and with the aquatic toxicity, human health, and drinking water criteria obtained from the "Quality Criteria for Water, 1986 (Gold Book)". The following expression was used to calculate the pollutant instream waste concentration (IWC):

$$IWC = ((C_e \times Q_e) + (C_b \times Q_b)) / (Q_e + Q_b)$$

Where:

- IWC = instream concentration of pollutant after mixing with receiving stream ($\mu\text{g/l}$)
 C_e = pollutant concentration in effluent ($\mu\text{g/l}$)
 Q_e = effluent flow of facility (cfs)
 C_b = background concentration of pollutant in receiving stream ($\mu\text{g/l}$)
 Q_b = background flow of receiving stream (cfs)

The following values were used in the IWC calculations:

C_e = varies with pollutant. A single value from the Priority Pollutant Screen (PPS) submitted by the permittee as part of the discharge permit application or the geometric mean of a group of data points (less than 20 data points) is multiplied by a factor of 2.13. This factor is based on EPA's Region VI procedure (See attachment IV of Continuing Planning Process (CPP)) to extrapolate limited data sets to better evaluate the potential toxicity for higher effluent concentrations to exceed water quality standards. This procedure employs a statistical approach which yields an estimate of a selected upper percentile value (the 95th percentile) of an effluent data set which would be expected to exceed 95% of effluent concentrations in a discharge. If 20

or more data points during the last two years are available, do not multiply by 2.13, but instead use the maximum reported values.

$Q_e = 13.3$ MGD (Outfall 009) based on highest monthly average flow from the industry during the last two (2) years

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

$Q_b =$ (See below):

I. Aquatic Toxicity

Chronic Toxicity: Flow = 0 cfs, for comparison with chronic aquatic toxicity. This flow is 67 percent of the 7-day, 10-year low-flow (7Q10) for the receiving stream. The 7Q10 of 0 cfs is based on "Identification and Classification of Perennial Stream of Arkansas", Arkansas Geological Commission Map.

Acute Toxicity: Flow = 0 cfs, for comparison with acute aquatic toxicity. This flow is 33 percent of the 7Q10 for the receiving stream.

II. Bioaccumulation

Flow = 0 cfs, for comparison with bioaccumulation criteria. This flow is the long term average (LTA) of the receiving stream.

III. Drinking Water

Flow = 0 cfs, for comparison with drinking water criteria. This flow is the 7Q10 for the receiving stream.

The following values were used to determine limits for the pollutants:

Hardness = 31 mg/l, based on attachment VI of CPP.

pH = 7.11 s.u., based on compliance data from Arkansas Water Quality Inventory Report 305(b).

(4) Water Quality Standards for Metals and Cyanide

Standards for Chromium (VI), Mercury, Selenium, and Cyanide are expressed as a function of the pollutant's water-effect ratio (WER), while standards for cadmium, chromium (III), copper, lead, nickel, silver, and zinc are expressed as a function of the pollutant's water-effect ratio, and as a function of hardness.

The Water-effect ratio (WER) is assigned a value of 1.0 unless scientifically defensible study clearly demonstrates that a value less than 1.0 is necessary or a value greater than 1.0 is

sufficient to fully protect the designated uses of the receiving stream from the toxic effects of the pollutant.

The WER approach compares bioavailability and toxicity of a specific pollutant in receiving water and in laboratory test water. It involves running toxicity tests for at least two species, measuring LC50 for the pollutant using the local receiving water collected from the site where the criterion is being implemented, and laboratory toxicity testing water made comparable to the site water in terms of chemical hardness. The ratio between site water and lab water LC50 is used to adjust the national acute and chronic criteria to site specific values.

(5) Conversion of Dissolved Metals Criteria for Aquatic Life to Total Recoverable Metal

Metals criteria established in Regulation No. 2 for aquatic life protection are based on dissolved metals concentrations and hardness values (See Page 6 of Attachment 1). However, Federal Regulations cited at 40 CFR 122.45(c) require that effluent limitations for metals in discharge permits be expressed as total recoverable (See Pages 1 and 6 of Attachment 1). Therefore a dissolved to the total recoverable metal conversion must be implemented. This involves determining a linear partition coefficient for the metal of concern and using this coefficient to determine the fraction of metal dissolved, so that the dissolved metal ambient criteria may be translated to a total effluent limit. The formula for converting dissolved metals to total recoverable metals for streams and lakes are provided in Attachment V of CPP and Region 6 Implementation Guidance for Arkansas Water Quality Standards promulgated at 40 CFR Part 131.36.

(6) Comparison of the submitted information with the water quality standards and criteria

The following pollutants were determined to be present in the effluent as reported by the permittee.

Outfall 009

Pollutant	Concentration Reported, µg/l	MQL, µg/l
Selenium	16	5.0

At this time, there is no large-scale, economically viable option to treat selenium at this outfall. The receiving stream has a 7Q10 of 0 cfs, which prevents the operation of an HCR at this outfall. This permit has been written for a three-year term with a monthly average selenium concentration at Outfall 009 of 17.0 µg/l. This permit also requires the creation and submission of an Environmental Improvement Project proposal by ADEQ for the selenium issues at this facility. This is detailed in Part I of the permit. The permit limit for selenium ensures the concentrations of selenium entering Holly Creek do not increase from present levels. See Part 15 of the Fact Sheet for more information.

Permit Action

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 listed above have been derived in a manner consistent with the Technical Support Document (TSD) for Water Quality-based Toxics Control (EPA, March 1991), the State's implementations procedures, and 40 CFR Part 122.45(c).

The water quality standard-based limit for selenium is not able to be met at this time using current technology. The three-year permit term will allow for development of technology and best management practices to practically lower their discharge concentration while ensuring the concentration in the stream does not increase from current levels. See Part 15 of the Fact Sheet for more information.

14. SPECIAL CONDITION FOR OUTFALL 008

A special condition for Outfall 008 is that, “within 30 days of the first discharge from Outfall 008, the permittee must submit a Priority Pollutant Scan to the Department.” Outfall 008 has not had a discharge for several years. The quality of the wastewater will likely be similar in pollutants to what is discharged at Outfalls 009 and 028. The anticipated flow of Outfall 008 is greater than 1 mgd. Outfall 028 is a hydrograph-controlled release (HCR) and is upstream of the confluence of the Outfall 008 receiving tributary. The HCR will eliminate assimilative capacity in Hurricane Creek and Outfall 008 will likely be of significant volume, therefore the Department is requiring a PPS within 30 days after the first discharge at Outfall 008. The permit may be reopened upon the analysis of the PPS.

15. SPECIAL CONDITION FOR OUTFALL 009

The following special condition is part of the permit requirement for Outfall 009:

“The permittee shall submit an Environmental Improvement Project (EIP) as outlined in Regulation No. 2, Appendix B. The work plan for the EIP shall be submitted on or before October 15, 2008. ADEQ will approve or comment upon the Work Plan within two (2) months of its submittal to ADEQ. In the event that ADEQ fails to approve or comment upon the Work Plan, the Work Plan is deemed approved and the permittee shall proceed with its Notice of Intent as outlined in Regulation No. 2, Appendix B. Following approval of the EIP by ADEQ, permittee shall file a petition for third party rulemaking with the Commission seeking a modification of the water quality standards for selenium for Holly Creek. If the Commission approves the modification, the renewal of this permit shall contain selenium limitations based upon that approval. If the Commission denies the requested modification, the renewal of this permit shall contain selenium limitations based upon state and federal criteria.”

This language is the result of negotiations between ADEQ and Alcoa regarding the selenium discharge at Outfall 009. As mentioned in Part 13 of the Fact Sheet, there is not a currently-available, large-scale, economical treatment system for selenium. An EIP will give Alcoa time to develop and implement new technologies for selenium removal. Should an EIP not be enacted for any reason, the next permit will have selenium limits based upon the water quality standards for Holly Creek at the time of the renewal.

16. METALS LANGUAGE

Part II.3 of this permit has language regarding the minimum quantification levels (MQLs) for the metal parameters. The MQL for iron is continued from the previous permit. The MQLs for aluminum and selenium come from the October 30, 2007 document entitled "Region 6 Development of Minimum Quantification Levels." The remaining language is carried forward from the previous permit.

17. BIOMONITORING.

Section 101(a)(3) of the Clean Water Act states that ".....it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited." In addition, 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. Arkansas has established a narrative criteria which states "toxic materials shall not be present in receiving waters in such quantities as to be toxic to human, animal, plant or aquatic life or to interfere with the normal propagation, growth and survival of aquatic biota."

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

TOXICITY TESTS	FREQUENCY
Chronic Biomonitoring	Once/quarter

Requirements for measurement frequency are based on appendix D of CPP.

Since 7Q10 of all receiving streams is less than 100 cfs (ft³/sec) and dilution ratio is less than 100:1, chronic biomonitoring requirements will be included in the permit.

The calculations for dilution used for chronic biomonitoring are as follows:

Outfall 008:

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

$$Q_d = \text{Average flow (anticipated)} = 3.7 \text{ MGD} = 5.7 \text{ cfs}$$

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

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

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

Outfall 009:

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

Q_d = Highest Average Monthly Flow from past two years = 13.3 MGD = 20.6 cfs

7Q₁₀ = 0 Cfs

Q_b = Background flow = (0.67) X 7Q₁₀ = 0 cfs

$$CD = (20.6) / (20.6 + 0) X 100 = 100\%$$

Outfall 028:

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

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

Q_d = Discharge flow = 1.11 * Q_b

7Q₁₀ = 0 Cfs

Q_b = Background flow to be multiplied by 0.67

$$CD = (1.11 * Q_b) / (1.11 * Q_b + 0.67 * Q_b) X 100$$

$$CD = (1.11) / (1.11 + 0.67) X 100 = 62\%$$

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:

Outfall 008:

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:

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 028:

26%, 35%, 47%, 62%, and 100% (See **Attachment I** of the CPP). The low-flow effluent concentration (critical dilution) is defined as **62%** effluent. A 100% critical dilution series has been placed on this outfall. The justification for this is based upon the fact that in low-flow scenarios, Hurricane Creek's flow is predominately wastewater effluent from the City of Bryant. Outfall 028's discharge is based on a hydrograph controlled release. At low flow scenarios, Outfall 028's discharge is being assimilated by another discharge from the City of Bryant. This series will better detect problems with such a mixing than will the 84% from Attachment I of the CPP.

The requirement for chronic biomonitoring 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 indigenous to the geographic area of the facility; the use of these is consistent with the requirements of the State water quality standards. The biomonitoring 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/600/4-91/002, July 1994 and shall be submitted as an attachment to the Discharge Monitoring Report (DMR).

This permit may be reopened to require further biomonitoring studies, Toxicity Reduction Evaluation (TRE) and/or effluent limits if biomonitoring 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 testing submitted by the permittee during the term of the current permit at outfalls 009 and 028.

WHOLE EFFLUENT TOXICITY TESTING FREQUENCY RECOMMENDATION AND RATIONALE FOR ADDITIONAL REQUIREMENTS OUTFALL 008

Permit Number: **AR0000582**

Facility Name: **Alcoa**

Outfall: **008**

Previous Critical Dilution: **100%** Proposed Critical Dilution: **100%**

Date of Review: **5/13/08** Name of Reviewer: **Barnett**

Number of tests performed during previous 5 years by species:

***Pimephales promelas* (Fathead minnow): 1**

***Ceriodaphnia dubia* (water flea): 1**

Failed test dates during previous 5 years by species:

<i>Pimephales promelas</i> (Fathead minnow):	<u>Lethal</u> n/a	<u>Sublethal</u> n/a
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<i>Ceriodaphnia dubia</i> (water flea):	<u>Lethal</u> n/a	<u>Sublethal</u> n/a
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Previous TRE activities: **1991**

Frequency recommendation by species:

***Pimephales promelas* (Fathead minnow): four/year**

***Ceriodaphnia dubia* (water flea): four/year**

Additional requirements (including WET Limits) rationale/comments concerning permitting:

Rationale: According to the EPA Region 6 Post-Third Round Whole Effluent Toxicity Testing Frequencies: "All major dischargers, and those minor dischargers specifically identified by EPA or the State permitting authority (based on available information on a case-by case basis) as posing a significant unaddressed toxic risk, will be required to perform Whole Effluent Toxicity testing at a frequency of once per quarter for the vertebrate and invertebrate tests species for the first year of a new or reissued permit."

Reasonable Potential Calculation

N/A- Reasonable potential can not be calculated with less than 10 test data points.

**WHOLE EFFLUENT TOXICITY TESTING FREQUENCY RECOMMENDATION
AND RATIONALE FOR ADDITIONAL REQUIREMENTS OUTFALL 009**

Permit Number: **AR0000582**

Facility Name: **Alcoa**

Outfall: **009**

Previous Critical Dilution: **100%** Proposed Critical Dilution: **100%**

Date of Review: **5/13/08** Name of Reviewer: **Barnett**

Number of tests performed during previous 5 years by species:

***Pimephales promelas* (Fathead minnow): 15**

***Ceriodaphnia dubia* (water flea): 17**

Failed test dates during previous 5 years by species:

<i>Pimephales promelas</i> (Fathead minnow):	<u>Lethal</u> 06/05	<u>Sublethal</u> 06/05
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<i>Ceriodaphnia dubia</i> (water flea):	<u>Lethal</u>	<u>Sublethal</u> 09/03 03/05 03/06
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Previous TRE activities: **1991**

Frequency recommendation by species:

***Pimephales promelas* (Fathead minnow): four/year**

***Ceriodaphnia dubia* (water flea): four/year**

Additional requirements (including WET Limits) rationale/comments concerning permitting:

Rationale: According to the EPA Region 6 Post-Third Round Whole Effluent Toxicity Testing Frequencies: "All major dischargers, and those minor dischargers specifically identified by EPA or the State permitting authority (based on available information on a case-by case basis) as posing a significant unaddressed toxic risk, will be required to perform Whole Effluent Toxicity testing at a frequency of once per quarter for the vertebrate and invertebrate tests species for the first year of a new or reissued permit."

Reasonable Potential Calculation

Facility Name	Alcoa		Outfall Number	009
NPDES Permit Number	AR0000582			
Proposed Critical Dilution*	100			

*Critical Dilution in draft permit, do not use % sign.
 Enter data in yellow shaded cells only. Fifty percent should be entered as 50, not 50%.

Test Data

Date (mm/yyyy)	VERTEBRATE				INVERTEBRATE			
	Lethal NOEC	Sublethal NOEC	Lethal TU	Sublethal TU	Lethal NOEC	Sublethal NOEC	Lethal TU	Sublethal TU
Sep-03	100	100	1.00	1.00	100	30	1.00	3.33
Dec-03	100	100	1.00	1.00	100	100	1.00	1.00
Jun-04	100	100	1.00	1.00	100	100	1.00	1.00
Sep-04	100	100	1.00	1.00	100	100	1.00	1.00
Dec-04	100	100	1.00	1.00	100	100	1.00	1.00
Mar-05	100	100	1.00	1.00	100	30	1.00	3.33
Jun-05	30	30	3.33	3.33	100	100	1.00	1.00
Dec-05	100	100	1.00	1.00	100	100	1.00	1.00
Mar-06	100	100	1.00	1.00	100	75	1.00	1.33
Mar-06					100	100	1.00	1.00
Mar-06					100	100	1.00	1.00
Jun-06	100	100	1.00	1.00	100	100	1.00	1.00
Sep-06	100	100	1.00	1.00	100	100	1.00	1.00
Dec-06	100	100	1.00	1.00	100	100	1.00	1.00
Mar-07	100	100	1.00	1.00	100	100	1.00	1.00
Jun-07	100	100	1.00	1.00	100	100	1.00	1.00
Dec-07	100	100	1.00	1.00	100	100	1.00	1.00
	30	30	3.33	3.33	100	30	1.00	3.33

Count	15	15	17	17
Mean	95.333	95.333	100.000	90.294
Std. Dev.	18.074	18.074	0.000	23.483
CV	0.2	0.2	0	0.3
RPMF	1.2	1.2	#N/A	1.2

	1	Reasonable Potential Acceptance Criteria
Vertebrate Lethal	4.000	Reasonable Potential exists, Permit requires WET monitoring and WET limi
Vertebrate Sublethal	4.000	Reasonable Potential exists, Permit requires WET monitoring and WET limi
Invertebrate Lethal	#N/A	#N/A
Invertebrate Sublethal	4.000	Reasonable Potential exists, Permit requires WET monitoring and WET limi

* count = number of WET data points.

Although reasonable potential appears to exist, at this time, WET limits are not required for *P. promelas* lethal and sublethal or *C. dubia* sublethal.

Both *P. promelas* lethal and sublethal, and *C. dubia* lethal testing have experienced failures less than 15% of the time during the past 5 years.

However, based on the frequency of sublethal failures (18%) for *C. dubia*, WET testing frequency reduction may not be requested until the completion of the third year of the permit.

ADEQ will reevaluate the reasonable potential at the next permit renewal.

**WHOLE EFFLUENT TOXICITY TESTING FREQUENCY RECOMMENDATION
AND RATIONALE FOR ADDITIONAL REQUIREMENTS OUTFALL 028**

Permit Number: **AR0000582**

Facility Name: **Alcoa**

Outfall: **028**

Previous Critical Dilution: **50%**

Proposed Critical Dilution: **62%**

Date of Review: **5/13/08**

Name of Reviewer: **Barnett**

Number of tests performed during previous 5 years by species:

***Pimephales promelas* (Fathead minnow): 8**

***Ceriodaphnia dubia* (water flea): 9**

Failed test dates during previous 5 years by species:

***Pimephales promelas* (Fathead minnow):**

Lethal

Sublethal

n/a

06/06

***Ceriodaphnia dubia* (water flea):**

Lethal

Sublethal

n/a

n/a

Previous TRE activities: None

Frequency recommendation by species:

***Pimephales promelas* (Fathead minnow): four/year**

***Ceriodaphnia dubia* (water flea): four/year**

Additional requirements (including WET Limits) rationale/comments concerning permitting:

Rationale: According to the EPA Region 6 Post-Third Round Whole Effluent Toxicity Testing Frequencies: "All major dischargers, and those minor dischargers specifically identified by EPA or the State permitting authority (based on available information on a case-by case basis) as posing a significant unaddressed toxic risk, will be required to perform Whole Effluent Toxicity testing at a frequency of once per quarter for the vertebrate and invertebrate tests species for the first year of a new or reissued permit."

Reasonable Potential Calculation

N/A- Reasonable potential can not be calculated with less than 10 test data points.

18. SAMPLE TYPE AND FREQUENCY.

Requirements for sample type and sampling frequency have been based on the current discharge permit and best professional judgment of the permit writer.

FREQUENCIES APPLY TO ALL OUTFALLS EXCEPT WHERE NOTED:

Parameter	Previous Permit		Final Permit	
	Frequency of Sample	Sample Type	Frequency of Sample	Sample Type
Flow, Outfalls 008 & 009	continuous	record	continuous	record
Flow, Outfall 028	once/week	instantaneous	once/week	instantaneous
TSS	once/week	grab	once/week	grab
TDS	N/A	N/A	once/week	grab
Chlorides	N/A	N/A	once/week	grab
Sulfates	N/A	N/A	once/week	grab
Aluminum	once/week	grab	once/week	grab
Iron	once/week	grab	once/week	grab
Selenium	once/week	grab	once/week	grab
pH, Outfalls 008 & 009	continuous	record	continuous	record
pH, Outfall 028	once/week	grab	once/week	grab

19. PERMIT COMPLIANCE.

Compliance with final effluent limitations is required on the effective date of the permit.

20. 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.

21. SOURCES.

The following sources were used to draft the permit:

- A. Application No. AR0000582 received 12/20/2007.
- B. Arkansas Water Quality Management Plan (WQMP).
- C. APCEC Regulation No. 2, appendixes included.
- D. APCEC Regulation No. 6.
- E. 40 CFR Parts 122, 125, and 440.
- F. Discharge permit file AR0000582.
- G. Discharge Monitoring Reports (DMRs).
- H. "Arkansas Water Quality Inventory Report 2004 (305B)", ADEQ.
- I. Memo from Mo Shafii to Engineers dated March 28, 2005.
- J. "Identification and Classification of Perennial Streams of Arkansas", Arkansas Geological Commission.
- K. Continuing Planning Process (CPP).
- L. Technical Support Document For Water Quality-based Toxic Control.

- M. Region 6 Implementation Guidance for Arkansas Water Quality Standards promulgated at 40 CFR Part 131.36.
- N. Letter dated April 10, 2006 from Claudia V. Hosch, Chief, NPDES Permits, EPA Region 6, to Mo Shafii regarding MQL developments in Region 6.
- O. October 30, 2007 document entitled “Region 6 Development of Minimum Quantification Levels.”
- P. Memo from Mary Barnett. The memo contained a review, dated 5/13/2008, of the WET requirements in this permit
- Q. June 6, 2008 letter from Nathan Siria, FTN, to Nicholas Willis, ADEQ regarding CORMIX modeling results for Outfall 028.
- R. Notes from April 15, 2008 meeting between Alcoa representatives and ADEQ representatives.
- S. Notes from April 2, 2008 site visit by Nicholas Willis and Kim Fuller, ADEQ.
- T. “Aloca-Bauxite, Arkansas Selenium Treatment Report,” dated December 10, 2007, prepared by FTN and Associates, Ltd.
- U. “TMDLs for Chloride, Sulfate, and Total Dissolved Solids for the Saline River Basin, Arkansas” prepared by Tetra Tech, Inc. for EPA Region 6 Water Quality Protection Division. Dated March 21, 2008.
- V. Arkansas Code Annotated 8-5-901 to 8-5-905.
- W. Microsoft Terraserver imaging
- X. Google Earth imaging.
- Y. March 14, 2008 letter from Robyn L. Gross, Alcoa to Ms. Teresa Marks, Director, ADEQ.
- Z. May 8, 2008 email from Jane Hurley, Chemist, ADEQ to Nicholas Willis, permit writer.
- AA. May 7, 2008 email from Pat Keogh, Alcoa, to Nicholas Willis, ADEQ regarding Storm Lake.
- BB. April 23, 2008 email from Robyn L. Gross, Alcoa to Nicholas Willis, Sarah Clem and Mo Shafii, ADEQ, regarding follow-up to the April 15, 2008 meeting between Alcoa and ADEQ. Email included two spreadsheets regarding Outfall 009 selenium issues and a revision to the special language on Outfall 009’s selenium discharge.
- CC. April 2, 2008 email from Jamie Ewing, ADEQ Attorney, to Mo Shafii regarding the language for Outfall 009’s selenium discharge.
- DD. April 1, 2008 email from Sarah Clem, ADEQ Water Division, to Nicholas Willis, permit writer regarding Outfall 009’s selenium discharge.

22. POINT OF CONTACT

Nicholas Willis
Permits Branch, Water Division
Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, AR 72118-5317
Telephone: 501-682-0619
Email: willis@adeq.state.ar.us

Request for PDS Invoice	
Invoice Number <i>(assigned when invoice printed)</i>	PDS-

AFIN *	63-00487		
Name <i>(for confirmation only)</i>	Alcoa Inc.		
Invoice Type (pick one) *	Initial	Mod	Variance
			Interim Authority
Permit Number *	AR0000582		
Media Code *	W		
Fee Code or Pmt Type*			
Fee Description <i>(for confirmation only)</i>	NPDES Individual Permit		
Amount Due * <i>(whole dollar amount only)</i>			
Printed Comment <i>(600 characters maximum)</i>	This invoice is for Alcoa Inc. as a permit holder.		

<i>Note: The information below is for use by the requesting division if desired; it will not print on the invoice.</i>	
Engineer	Nick Willis
Paid? (yes/no)	
Check number	
Comments	Paid by _____ on _____

* Required data(See "g:\Misc\PDS User Guide.pdf" for descriptions and discussions of fee coc

Request submitted by:	Scott Waller	Date:	11/7/2016
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