Permit Number: AR0052582
AFIN: 47-00991

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

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

Big River Steel LLC

is authorized to discharge treated process wastewater, stormwater, and dust suppression/quenching water runoff from slag yard from a facility located as follows: 2027 East State Highway 198, Osceola, AR 72370, in Mississippi County.

Facility Coordinates: Latitude: 35° 39’ 14.43” N; Longitude: 89° 57’ 15.78” W

Discharge from Outfalls 001 and 002 is to receiving waters named:

the Mississippi River in Segment 6C of the Mississippi River Basin.

The outfalls are located at the following coordinates:

Outfall 001:	Latitude: 35° 39’ 05.0” N;	Longitude: 89° 54’ 47.0” W
Outfall 002:	Latitude: 35° 39’ 05.0” N;	Longitude: 89° 54’ 47.1” W

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

Effective Date: December 1, 2021

Major Modification Effective Date: May 1, 2025

Expiration Date: November 30, 2026

Digitally signed by Stacie R. Wassell
DN: cn=Stacie R. Wassell, o=Division of Environmental Quality, ou=Office of Water Quality, email=stacie.wassell@adeq.state.ar.us, c=US
Date: 2025.04.30 11:43:53 -05'00'

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

April 30, 2025
Major Modification Issue Date

PART I
PERMIT REQUIREMENTS

SECTION A1. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS: OUTFALL 001 - treated process wastewater from the following sources: RH degasser unit, continuous casting line, hot rolling mill, tube mill, alkaline cleaning operations, chromate reactor, galvanizing lines, pickling lines, skin pass mills, tandem cold mill, reversing cold mills, coating operations, vehicle wash pad, contact cooling water systems, and non-contact cooling water systems.

During the period beginning on the effective date and lasting until the date of expiration, the permittee is authorized to discharge from Outfall 001. Such discharges shall be limited and monitored by the permittee as specified below as well as Parts II and III. See Part IV for all definitions.

Effluent Characteristics	Discharge Limitations				Monitoring Requirements	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max.	Monthly Avg.	Daily Max.		
Flow	N/A	N/A	Report, MGD	Report, MGD	once/day	totalizing meter
Total Suspended Solids (TSS)	725.1	1,828	Report	Report	once/week	composite
Oil and Grease (O&G)	104.3	156.4	10	15	once/week	grab
Chromium (VI)[1]	0.13	0.40	Report[2]	Report[2]	once/week	composite
Chromium, Total Recoverable[1]	0.54	1.3	Report[2]	Report[2]	once/week	composite
Copper, Total Recoverable [1]	0.74	1.5	Report[2]	Report[2]	once/week	composite
Iron, Total Recoverable [1] (Net Increase Over Intake Water)	0.67	1.4	Report[2]	Report[2]	once/week	composite
Lead, Total Recoverable[1]	2.0	6.0	Report[2]	Report[2]	once/week	composite
Nickel, Total Recoverable[1]	0.28	0.84	Report[2]	Report[2]	once/week	composite
Zinc, Total Recoverable[1]	3.3	9.6	Report[2]	Report[2]	once/week	composite
Cyanide, Total Recoverable [1]	0.081	0.21	Report[2]	Report[2]	once/year[1]	grab[1]
Naphthalene[1]	0.047	0.094	Report[2]	Report[2]	once/week	grab
Tetrachloroethylene[1]	0.071	0.14	Report[2]	Report[2]	once/week	grab
pH	N/A	N/A	Minimum 6.0 s.u.	Maximum 9.0 s.u.	once/week	grab
Acute WET Testing[3,4]			Value			
***Pimephales promelas* (Acute)[3]**	N/A		Value			
Pass/Fail Lethality (48-Hr NOEC) TEM6C			Report (Pass=0/Fail=1)		once/quarter	composite
Survival (48-Hr NOEC) TOM6C			Report %		once/quarter	composite
Coefficient of Variation (48-Hr NOEC) TQM6C			Report %		once/quarter	composite
Pass/Fail Retest 1 (48-Hr NOEC) 22418			Report (Pass=0/Fail=1)		once/month[4]	composite
Pass/Fail Retest 2 (48-Hr NOEC) 22419			Report (Pass=0/Fail=1)		once/month[4]	composite
Pass/Fail Retest 3 (48-Hr NOEC) 51444			Report (Pass=0/Fail=1)		once/month[4]	composite
***Daphnia pulex* (Acute)[3]**			Value			
Pass/Fail Lethality (48-Hr NOEC) TEM3D			Report (Pass=0/Fail=1)		once/quarter	composite
Survival (48-Hr NOEC) TOM3D			Report %		once/quarter	composite
Coefficient of Variation (48-Hr NOEC) TQM3D			Report %		once/quarter	composite
Pass/Fail Retest 1 (48-Hr NOEC) 22415			Report (Pass=0/Fail=1)		once/month[4]	composite
Pass/Fail Retest 2 (48-Hr NOEC) 22416			Report (Pass=0/Fail=1)		once/month[4]	composite
Pass/Fail Retest 3 (48-Hr NOEC) 51443			Report (Pass=0/Fail=1)		once/month[4]	composite

1. See Part II.8 (Metals and Other Toxic Compounds Requirements). Site Specific MQLs Developed for Lead and Nickel. Iron monitoring required at the intake and effluent in Part II.10. In accordance with 40 C.F.R. § 465.03 (a), the periodic Cyanide monitoring requirement is waived as detailed in Part II.11.
2. Samples for metals and other toxic compounds shall be reported in units of micrograms per liter (µg/l).
3. See Part II.9 (WET Testing Requirements).

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

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

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge during the entire monitoring period. Samples shall be taken after sand filtration and prior to the pipeline to Outfall 001.

SECTION A2. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS: OUTFALL 002 - stormwater and dust suppression/quenching water runoff from slag yard.

During the period beginning on the effective date and lasting until the date of expiration, the permittee is authorized to discharge from Outfall 002. Such discharges shall be limited and monitored by the permittee as specified below as well as Parts II and III. See Part IV for all definitions.

Effluent Characteristics	**Discharge Limitations**				**Monitoring Requirements**	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max.	Monthly Avg.	Daily Max.		
Flow	N/A	N/A	Report, MGD	Report, MGD	two/week	calculated or totalizing meter[1, 2]
Total Suspended Solids (TSS)	N/A	N/A	100	150	once/quarter	grab
Oil and Grease (O&G)	N/A	N/A	10	15	once/quarter	grab
pH	N/A	N/A	Minimum 6.0 s.u.	Maximum 9.0 s.u.	once/month	grab

1. Flow is to be calculated based upon pump run times and the pump rating curve, until such time when a flow meter is installed and operational.
2. The permittee may install a flow meter with totalizer to measure the effluent flow. The permittee must notify the DEQ within 30 days of when the flow meter is installed and operational.

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

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge during the entire monitoring period. Samples shall be taken after the sedimentation pond and prior to the pipeline to Outfall 002.

SECTION B. PERMIT COMPLIANCE SCHEDULE

None

PART II
OTHER CONDITIONS

1. The operator of this wastewater treatment facility shall hold an Advanced Industrial license from the State of Arkansas in accordance with APC&EC Rule 3.

2. In accordance with 40 C.F.R. §§ 122.62(a)(2) and 124.5, this permit may be reopened for modification or revocation and/or reissuance to require additional monitoring and/or effluent limitations when new information is received that actual or potential exceedance of state water quality criteria and/or narrative criteria are determined to be the result of the permittee's discharge(s) to a relevant water body or a Total Maximum Daily Load (TMDL) is established or revised for the water body that was not available at the time of the permit issuance that would have justified the application of different permit conditions at the time of permit issuance.

3. Other Specified Monitoring Requirements

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

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

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

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

   For the vehicle wash pad, the facility should use only biodegradable, low-phosphate and low surfactant content, water-based cleaners. Whenever possible, avoid the use of halogenated compounds, aromatic hydrocarbons, chlorinated hydrocarbons, petroleum-based cleaners, and phenolics. Cleaning agents containing solvents and emulsifiers should be discouraged because they allow oil and grease to flow through the oil/water separator instead of being separated

from the effluent. Spills of fluids other than those associated with normal washing activities shall be cleaned up expeditiously and not allowed to enter the waste treatment system or waters of the state.

5. Monitoring Frequency Reduction

   This condition is not applicable to whole effluent toxicity testing (WET), and please see Part II.9 for WET monitoring frequency reduction requirements. With the exception of new pollutant parameters (Copper, Iron, and Cyanide), the permittee may request a one-time monitoring frequency reduction for pollutants listed in Part I, Section A, *Effluent Limitations and Monitoring Requirements*. Any request for a monitoring frequency reduction must be submitted in writing to DEQ, and signed by the Responsible Official, in accordance with Part III.D.11.A of the permit.

   The following requirements must be met before a review of the monitoring frequency reduction request will be performed:

   A. Compliance with the permit limits for at least the last two (2) years for the pollutants for which a request has been made for a monitoring frequency reduction;

   B. No operational or design changes have been made to the facility for at least the last two (2) years (or during period of review, if greater than two (2) years), and are not anticipated for the remaining term of this permit.

   If the above conditions are met, a detailed review of the DMR data will be performed for the pollutants for which a monitoring frequency reduction has been requested. Compliance with the limits does not guarantee a monitoring frequency reduction will be granted. Data must show that the average concentration of the pollutants in the discharge are less than 75% of the permit limits for a monitoring frequency reduction to be granted.

   If a monitoring frequency reduction is granted, the frequency can be reduced by no more than half the rate of the corresponding frequency listed in Part I, Section A, *Effluent Limitations and Monitoring Frequencies*. For example, a monitoring frequency of 4 per month will not be reduced to less than 2 per month. Additionally, the frequency will be no less frequent than monthly.

6. This facility must maintain stormwater permit coverage under the NPDES Industrial Stormwater General Permit ARR000000 in accordance with 40 C.F.R. §§ 122.26(a)(1)(ii) and 122.26(b)(14)(i).

7. There shall be no discharge of process wastewater pollutants resulting from the electric arc furnace steelmaking process to waters of the state, in accordance with 40 C.F.R. § 420.44(a).

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

Pollutant	MQL (µg/l)
Chromium (VI)[1]	10
Chromium, Total Recoverable	10
Copper, Total Recoverable	0.5
Iron, Total Recoverable[2]	100
Lead, Total Recoverable[3]	1.0
Nickel, Total Recoverable[3]	4.0
Zinc, Total Recoverable	20
Cyanide, Total Recoverable	10
Naphthalene	10
Tetrachloroethylene	10

[1] Chromium (VI) shall be expressed in the dissolved form, in accordance with 40 C.F.R. § 122.45(c)(3).
[2] EPA Method 200.7 published in Federal Register Vol. 77, No. 97, Page 29826, Table 4 date May 18, 2012.
[3] Site-specific MQLs of 1.0 µg/l for Lead and 4.0 µg/l for Nickel have been established at this facility.

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

$$MQL = 3.3 \times MDL$$

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

Site-specific MQLs for Lead and Nickel

The permittee has established the site-specific MQLs for Lead of 1.0 µg/l and Nickel of 4.0 µg/l in accordance with Appendix B of 40 C.F.R. Part 136.

As required by Appendix B of 40 C.F.R. Part 136, Sections II (3) and (4), the permittee must conduct ongoing data collection at least once per quarter and ongoing annual verification at least once every thirteen months. All records of the ongoing data collection and ongoing annual verification shall be made available to the Division on request. These records shall be retained for at least three (3) years in accordance with Part III.C.7 of this permit.

If the ongoing annual verification results in any change in the MQL, as specified in Appendix B of 40 C.F.R. Part 136, Section II(4)(f), the permittee shall notify the Division in writing

within fourteen (14) days of completion of the ongoing annual verification. Notification can be made to the Permits Branch of the Office of Water Quality at EE.WaterPermitApp@arkansas.gov or the following address:

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

9. WHOLE EFFLUENT TOXICITY TESTING (48-HOUR ACUTE NOEC)

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

A. SCOPE AND METHODOLOGY

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

Applicable To Final Outfall(S)	001
Reported On DMR As Final Outfall	001
Critical Dilution (%)	0.05
Effluent Dilution Series (%)	0.02, 0.03, 0.04, 0.05, 0.07
Testing Frequency	Once/Quarter
Sample Type	"Composite Sample (defined in Paragraph B.iii)"
Test Species/Methods	40 C.F.R. Part 136

Daphnia pulex acute static renewal 48-hour definitive toxicity test using EPA-821-R-02-012, or the latest update thereof.

Pimephales promelas (Fathead minnow) acute static renewal 48-hour definitive toxicity test using EPA-821-R-02-012, or the latest update thereof.

ii. The NOEC (No Observed Effect Concentration) is herein 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. Acute 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.

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

B. REQUIRED TEST CONDITIONS AND TEST ACCEPTABILITY CRITERIA

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

Condition/Criteria	***Daphnia pulex***	***Pimephales promelas***
# of replicates per concentration	4 (minimum)	2 (minimum)
# of organisms per replicate	5 (minimum)	10 (minimum)
# of organisms per concentration	20 (minimum)	20 (minimum)
# of test concentrations per effluent	5 and a control	5 and a control
Sample Holding Time *	36 hours for first use	36 hours for first use
Test Acceptability Criteria	≥90% survival of all control organisms.	≥90% survival of all control organisms.
Coefficient of Variation **	40% or less, unless significant effects are exhibited.	40% or less, unless significant effects are exhibited.

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

** Test failure may not be construed or reported as invalid due to a coefficient of variation value of greater than 40%.

i. Statistical Interpretation

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

ii. Dilution Water

a. Dilution water used in the toxicity tests will be receiving water collected as close

to the point of discharge as possible but unaffected by the discharge. The permittee shall substitute synthetic dilution water of similar pH, hardness, and alkalinity to the closest downstream perennial water for;

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

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

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

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

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

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

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

iii. Samples and Composites

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

b. The permittee shall collect a second sample (composite samples if possible) for use during the 24-hour renewal of each dilution concentration for each test. The permittee must collect the composite samples so that the maximum holding time for any effluent sample shall not exceed 36 hours for first use of the sample. The permittee must have initiated the toxicity test within 36 hours after the collection of the last portion of the first composite sample. Samples shall be chilled to 0-6 degrees Centigrade during collection, shipping, and storage. A holding time up to 72 hours is allowed upon notification to DEQ of the need for additional holding time.

c. The permittee must collect the composite samples such that the effluent samples are representative of the discharge duration, and of any periodic episode of chlorination, biocide usage, or other potentially toxic substance discharged on an

intermittent basis.

C. REPORTING

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

ii. A valid test for each species must be reported during each reporting period specified in PART I of this permit unless the permittee is performing a TRE which may increase the frequency of testing and reporting. One set of WET data for each species is to be recorded on the DMR for each reporting period. Additional results are reported under the retest codes below.

iii. The permittee shall submit the results of each valid toxicity test on DMR for that reporting period in accordance with Part I of this permit, as follows below. Submit retest information clearly marked as such with the following month's DMR. Use a no data indicator (NODI) code of 9 (not required), for months when WET retests are not required. Only results of valid tests are to be reported on the DMR.

Reporting Requirement	**Parameter STORET CODE**	
	Daphnia pulex	*Pimephales promelas*
Enter a "1" if the No Observed Effect Concentration (NOEC) for survival is less than the critical dilution, otherwise enter a "0."	TEM3D	TEM6C
Report the NOEC value for survival	TOM3D	TOM6C
Report the highest (critical dilution or control) Coefficient of Variation	TQM3D	TQM6C
(If required) Retest 1 – Enter a "1" if the NOEC for survival is less than the critical dilution, otherwise enter "0." (reported on quarterly DMR)*	22415	22418
(If required) Retest 2- Enter a "1" if the NOEC for survival is less than the critical dilution, otherwise enter "0." (reported on quarterly DMR)*	22416	22419

Reporting Requirement	Parameter STORET CODE	
	Daphnia pulex	*Pimephales promelas*
(If required) Retest 3- Enter a "1" if the NOEC for survival is less than the critical dilution, otherwise enter "0." (reported on quarterly DMR)*	51443	51444

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

iv. DMR parameters

Report the following parameters on the DMR:

Scheduled DMR: TEM6C, TOM6C, TQM6C, 22418, 22419, 51444, TEM3D, TOM3D, TQM3D, 22415, 22416, and 51443.

D. MONITORING FREQUENCY REDUCTION

i. The permittee may apply for a testing frequency reduction upon the successful completion of the first four consecutive quarters of testing for a test species, with no lethal effects demonstrated at or below the critical dilution. If granted, the monitoring frequency for that test species may be reduced to not less than once per year for the less sensitive species (usually the Fathead minnow) and not less than once per six months for the more sensitive test species (usually the *Daphnia pulex*).

ii. Certification - The permittee must certify in writing that no test failures have occurred and that all tests meet all test acceptability criteria above. In addition, the permittee must provide a list with each test performed including test initiation date, species, and NOECs. Upon review and acceptance of this information, the Division will issue a letter of confirmation of the monitoring frequency reduction. A copy of the letter will be forwarded to the Division's compliance section to update the permit reporting requirements.

iii. Failures - If any test demonstrates lethal effects at or below the critical dilution at any time during the life of this permit, three monthly retests are required. If a frequency reduction had been granted, the monitoring frequency for the affected test species reverts to once per quarter until the permit is re-issued.

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

v. For administratively continued facilities where permit renewal was held up by no fault of the permittee, the following language regarding WET testing frequency reduction applies after permit renewal:

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

a. The permittee tested quarterly upon the expiration date of that permit, and

b. The issuance of the renewed permit was not delayed by any fault of the permittee, and

c. No lethal effects are demonstrated at or below the critical dilution for the first four consecutive quarters of testing after the expiration date of the previous permit.

E. PERSISTENT TOXICITY

The requirements of this subsection apply only when a toxicity test demonstrates significant lethal effects at or below the critical dilution. Significant toxic effects are herein defined as a statistically significant difference at the 95% confidence level between the survival of the appropriate test organism in a specified effluent dilution and the control (0% effluent). If the initial WET test conducted fails, the permittee will conduct three retests. The purpose of retests is to determine the duration of a toxic event. A test that meets all test acceptability criteria and demonstrates significant toxic effects does not need additional confirmation. Such testing cannot confirm or disprove a previous test result. If any valid test demonstrates significant lethal effects to a test species at or below the critical dilution, the frequency of testing for this species is automatically increased to once per quarter with no option for frequency reduction.

i. Retest

The permittee shall conduct a total of three (3) additional tests for any species that demonstrates significant lethal effects at or below the critical dilution. The three additional tests shall be conducted monthly (one test per month) during the next three consecutive months. If testing on a quarterly basis, the permittee may substitute one of the additional tests in lieu of one routine toxicity test. A full report shall be prepared for each test required by this section in accordance with the reporting requirements previously outlined and available upon request from the Division.

ii. Requirement to Initiate a Toxicity Reduction Evaluation

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

F. TOXICITY REDUCTION EVALUATION (TRE)

A TRE is triggered following two test failures (a failure followed by one retest failure).

i. 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 to DEQ. The TRE Action Plan shall specify the approach and methodology to be used in performing the TRE. A TRE is an investigation intended to determine those actions necessary to achieve compliance with water quality based effluent limits by reducing an effluent's toxicity to an acceptable level. A TRE is defined as a step wise process which combines toxicity testing and analyses of the physical and chemical characteristics of a toxic effluent to identify the constituents causing effluent toxicity and/or treatment methods which will reduce the effluent toxicity. The TRE Action Plan shall lead to the successful elimination of effluent toxicity at the critical dilution and include the following:

a. Specific Activities. The plan shall detail the specific approach the permittee intends to utilize in conducting the TRE. The approach may include toxicity characterizations, a Toxicity Identification Evaluation (TIE) and confirmation activities, source evaluation, treatability studies, or alternative approaches. When the permittee conducts Toxicity Identification Evaluations to characterize the nature of the constituents causing toxicity, the permittee shall perform multiple characterizations and follow the procedures specified in the documents "Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures" (EPA 600/6-91/003) or alternate procedures. When the permittee conducts Toxicity Identification Evaluations and Confirmations, the permittee shall perform multiple identifications and follow the methods specified in the documents "Methods for Aquatic Toxicity Identification Evaluations, Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity" (EPA/600/R-92/080) and "Methods for Aquatic Toxicity Identification Evaluations, Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity" (EPA/600/R-92/081), as appropriate.

b. Sampling Plan (e.g., locations, methods, holding times, chain of custody, preservation, etc.). The effluent sample volume collected for all tests shall be adequate to perform the toxicity test, toxicity characterization, identification and confirmation procedures, and conduct chemical specific analyses when a probable toxicant has been identified. Where the permittee has identified or suspects specific pollutant(s) and/or source(s) of effluent toxicity, the permittee shall conduct, concurrent with toxicity testing, chemical specific analyses for the identified and/or suspected pollutant(s) and/or source(s) of effluent toxicity. Where toxicity was demonstrated within 24 hours of test initiation, each composite sample shall be analyzed independently. Otherwise, the permittee may substitute a composite

sample, comprised of equal portions of the individual composite samples, for the chemical specific analysis;

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

d. Project Organization (e.g., project staff, project manager, consulting services, etc.).

ii. The permittee shall initiate the TRE Action Plan within thirty (30) days of plan and schedule submittal.

iii. The permittee shall submit a quarterly TRE Activities Report to DEQ in the months of January, April, July, and October, containing information on toxicity reduction evaluation activities including:

a. Any data and/or substantiating documentation which identifies the pollutant(s) and/or source(s) of effluent toxicity;

b. Any studies/evaluations and results on the treatability of the facility's effluent toxicity; and

c. Any data which identifies effluent toxicity control mechanisms that will reduce effluent toxicity to the level necessary to meet no significant toxicity at the critical dilution.

d. Any results and interpretation of any chemical specific analysis, and for any characterization, identification, and confirmation tests performed during the quarter.

e. Any changes to the initial TRE plan and schedule that are believed necessary.

iv. Finalizing a TRE

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

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

v. Quarterly testing during the TRE is a minimum monitoring requirement. EPA recommends that permittees required to perform a TRE not rely on quarterly testing alone to ensure success in the TRE, and that additional screening tests be performed to capture toxic samples for identification of toxicants. Failure to identify the specific chemical compound causing toxicity test failure will normally result in a permit limit

for whole effluent toxicity limits per federal regulations at 40 C.F.R. § 122.44(d)(1)(v).

10. Iron is required to be monitored in both intake and effluent at a frequency of once/week. The calculation of the net increase over intake water (lbs per day) for Iron at Outfall 001 uses the following equations:

    Monthly Average Mass Loading (lbs/day) = [Monthly Average Effluent Concentration (mg/l) – Monthly Average Intake Concentration (mg/l)] × Flow (MGD) × 8.34

    Daily Maximum Mass Loading (lbs/day) = [Daily Maximum Effluent Concentration (mg/l) – Daily Maximum Intake Concentration (mg/l)] × Flow (MGD) × 8.34

11. The periodic analyses for cyanide are waived during this permit term based on 40 C.F.R. § 465.03(a) under the following conditions:

    A. The first wastewater sample taken in each calendar year has been analyzed and found to contain less than 0.07 mg/l cyanide.

    B. The owner or operator of the coil coating facility certifies in writing to the permit issuing authority that cyanide is not used in the coil coating process.

    This waiver is only valid for the term of this permit. The permittee must request this monitoring waiver when applying for a reissued permit. The monitoring waiver request must be accompanied by the cyanide sampling results and a signed statement, which certifies under penalty of law that the facility does not use any chemicals that contain cyanide. The signed certification shall include the statements specified in 40 C.F.R. § 122.22(d). It is prohibited to use chemicals which contain cyanide in the coating lines without prior approval from the Division.

PART III
STANDARD CONDITIONS

SECTION A – GENERAL CONDITIONS

1. **Duty to Comply**

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

2. **Penalties for Violations of Permit Conditions**

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

3. **Permit Actions**

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

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

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

4. **Toxic Pollutants**

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

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

5. **Civil and Criminal Liability**

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

6. **Oil and Hazardous Substance Liability**

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

7. **State Laws**

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

8. **Property Rights**

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

9. **Severability**

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

10. **Applicable Federal, State or Local Requirements**

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

11. **Permit Fees**

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

SECTION B – OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. **Proper Operation and Maintenance**

A. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

B. The permittee shall provide an adequate operating staff which is duly qualified to carryout operation, maintenance, and testing functions required to ensure compliance with the conditions of this permit.

2. **Need to Halt or Reduce not a Defense**

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

This requirement applies, for example, when the primary source of power for the treatment facility is reduced, is lost, or alternate power supply fails.

3. **Duty to Mitigate**

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

4. **Bypass of Treatment Facilities**

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

A. Bypass not exceeding limitation

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

B. Notice

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

C. Prohibition of bypass

1. Bypass is prohibited and the Director may take enforcement action against a permittee for bypass, unless:

(a) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
(b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if the permittee could have installed adequate backup equipment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
(c) The permittee submitted notices as required by Part III.B.4.B.

2. The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed above in Part III.B.4.C(1).

5. **Upset Conditions**

A. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Part III.B.5.B of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

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

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

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

6. **Removed Substances**

A. Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering waters of the state. The Permittee must comply with all applicable state and federal regulations governing the disposal of sludge, including but not limited to 40 C.F.R. Parts 257, 258, and 503.

B. Any changes to the permittee's disposal practices described in the Fact Sheet, as derived from the permit application, will require at least 180 days prior notice to the Director to allow time for additional permitting. Please note that the 180-day notification requirement may be waived if additional permitting is not required for the change.

7. **Power Failure**

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

SECTION C – MONITORING AND RECORDS

1. **Representative Sampling**

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge during the entire monitoring period. All samples shall be taken at the monitoring points specified in this permit and, unless otherwise specified, before

the effluent joins or is diluted by any other waste stream, body of water, or substance. Monitoring points shall not be changed without notification to and the approval of the Director. Intermittent discharge shall be monitored.

2. **Flow Measurement**

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

Calculated Flow Measurement

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

3. **Monitoring Procedures**

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

4. **Penalties for Tampering**

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

5. **Reporting of Monitoring Results**

40 C.F.R. §§ 127.11(a)(1) and 127.16(a) require that monitoring reports must be reported on a Discharge Monitoring Reports (DMR) and filed electronically. Signatory Authorities must

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

6. **Additional Monitoring by the Permittee**

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

7. **Retention of Records**

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

8. **Record Contents**

Records and monitoring information shall include:

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

9. **Inspection and Entry**

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

A. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit.
B. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit.

C. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit.
D. Sample, inspect, or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location.

SECTION D – REPORTING REQUIREMENTS

1. **Planned Changes**

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

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

2. **Anticipated Noncompliance**

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

3. **Transfers**

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

4. **Monitoring Reports**

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

5. **Compliance Schedule**

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

6. **Twenty-four Hour Report**

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

A. The permittee shall report any noncompliance which may endanger health or the environment within 24 hours from the time the permittee becomes aware of the circumstances to the Enforcement Branch of the Office of Water Quality of DEQ. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain the following information:

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

B. The following must be reported within 24 hours:

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

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

7. **Other Noncompliance**

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

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

The Director shall be notified as soon as the permittee knows or has reason to believe:

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

B. That any activity has occurred or will occur which would result in any discharge on a non-routine or infrequent basis of a toxic pollutant including those listed in 40 C.F.R. § 401.15

which is not limited in the permit, if that discharge will exceed the highest of the "notification levels" described in 40 C.F.R. § 122.42(a)(2).

9. **Duty to Provide Information**

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

10. **Duty to Reapply**

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

11. **Signatory Requirements**

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

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

1. For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

(a) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation.
(b) The manager of one or more manufacturing, production, or operation facilities, provided: the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

2. For a partnership or sole proprietorship: by a general partner or proprietor, respectively.

3. For a municipality, state, federal, or other public agency, by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a federal agency includes:

   (a) The chief executive officer of the agency.
   (b) A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.

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

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

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

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

12. **Availability of Reports**

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

13. **Penalties for Falsification of Reports**

The Arkansas Water and Air Pollution Control Act provides that any person who knowingly makes any false statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained under this permit shall be subject to

civil penalties specified in Part III.A.2 and/or criminal penalties under the authority of the Arkansas Water and Air Pollution Control Act (Ark. Code Ann. § 8-4-101 et seq.).

14. **Other Information**

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

PART IV
DEFINITIONS

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

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

B. **Concentration Calculations:** For pollutants with limitations expressed in other units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the day.

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

(RCRA), and including state regulations contained in any state sludge management plan prepared pursuant to subtitle D of the SWDA), the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

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

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

Final Fact Sheet

All changes to this Fact Sheet based upon the application to modify the permit are italicized.

This Fact Sheet is for information and justification of the permit requirements only. Please note that it is not enforceable. This permitting decision is for the *modification* of discharge Permit Number AR0052582 with Arkansas Department of Energy and Environment – Division of Environmental Quality (DEQ) Arkansas Facility Identification Number (AFIN) 47-00991 to discharge to waters of the state.

1. **PERMITTING AUTHORITY**

The issuing office is:

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

2. **APPLICANT**

The applicant's mailing address is:

Big River Steel LLC
P.O. Box 707
Osceola, AR 72370

The facility address is:

Big River Steel LLC
2027 East State Highway 198
Osceola, AR 72370

3. **PREPARED BY**

The permit was *modified* by:

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4. **PERMIT ACTIVITY**

Previous Permit Effective Date:	July 1, 2016
Previous Permit Minor Modification Date:	October 14, 2016
Previous Permit Major Modification Date:	September 1, 2020

Previous Permit Expiration Date: June 30, 2021

This is a modified permit. In accordance with 40 C.F.R. § 122.62, only the conditions subject to modification are reopened.

The permittee submitted a request dated October 26, 2023, for site specific Minimum Quantification Levels (MQLs) for Lead and Nickel due to background interference with the sample matrix in the wastewater effluent at Outfall 001. Therefore, Part II.8 is revised to include the site specific MQLs for Lead and Nickel developed by the permittee, as well as the requirement of ongoing data collection at least once per quarter and ongoing annual verification at least once every thirteen months in accordance with 40 C.F.R. § 136 Appendix B.II.(3) and (4).

The permittee submitted a permit modification application and state construction permit application on April 5, 2024, with additional information received by November 15, 2024. The purpose of the modification is to construct and operate a new Annealing and Coating Line (ACL) and *new Coil Coating Line (CCL) at this facility. The wastewater generated in the ACL and CCL will be processed in the facility's existing wastewater treatment plant with no change of design flow rate. The current technology-based mass effluent limits for Outfall 001 are being revised to incorporate the contributions from the new production lines.*

The current discharge permit is being modified for the remainder of the 5-year term in accordance with regulations promulgated at 40 C.F.R. § 122.46(a).

The permittee submitted requests to modify the permit in the application. The requests and the Division's responses are as follows:

Request #1 *New Production Lines*

Big River Steel LLC (BRS) plans to construct a new Annealing and Coating Line (ACL) and a new Coil Coating Line (CCL) at the Facility. However, three parameters (copper, cyanide, and iron) are regulated under the ELG Part 465 for Coil Coating but are not regulated under the ELG Part 420 for Iron and Steel Manufacturing. BRS's current NPDES permit does not include mass discharge limits for these constituents at Outfall 001. BRS proposes to establish effluent limits for these new parameters using the following approach: (1) the allowable mass discharges of copper, cyanide, and iron from the ACL and CCL coating operations will be based on the ELG Part 465 for Coil Coating, whereas (2) the contributions of these parameters from the existing "non-Part 465-regulated streams" will be based on wastewater sampling data collected at Outfall 001 in February through October 2024. The mass discharges of these pollutants from the ACL and CCL (ELG Part 465) and the non-regulated streams (ELG Part 420) will be added together to yield the proposed monthly average and daily maximum mass permit limits for copper, cyanide, and iron at Outfall 001.

Response: *The effluent limitations at Outfall 001 for the mass loadings of TSS, Chromium (VI), Total Recoverable Chromium, Total Recoverable Copper, Total Recoverable Iron, Total*

Recoverable Lead, Total Recoverable Zinc, and Total Recoverable Cyanide are being revised to accommodate addition of the proposed production lines. Please see Section 14 of this Fact Sheet for more information regarding the sampling frequency.

Request #2 *Establishment of an Intake Credit for Iron*

Pursuant to 40 C.F.R. Part 122.45(g), BRS respectfully requests that the DEQ grant an intake credit for iron that accounts for the background level of this constituent in the influent groundwater. The water used in BRS's steelmaking operations is obtained from four production wells, which withdraw water from the Wilcox Group Aquifer. Sample data collected between 2015 and 2024 show that the intake water contains significant background levels of iron, which is a newly regulated constituent for the Facility under ELG Part 465. The levels of iron in the influent groundwater are also highly variable.

The incoming groundwater is pre-treated (conditioned) prior to use in steel production. The effluent from the pre-treatment units, which contains the captured concentrated iron, is discharged to the WWTP for treatment along with the process wastewater influent. This concentrated and highly variable iron loading adds complexity and uncertainty in demonstrating compliance with the technology-based effluent limits for iron under ELG Part 465. The contribution of iron from the influent groundwater accounts for a significant portion of the level of iron discharged at Outfall 001.

BRS calculated the intake credit for iron using sample data collected between 2015 and 2024. The samples of the influent groundwater were analyzed using EPA-approved methods (200.7 or 200.8) by two types of laboratories. Certain samples were analyzed by commercial, DEQ-accredited, environmental labs. Other samples were analyzed using EPA-approved methods by an on-site, not DEQ-accredited, vendor laboratory used for process water monitoring and control. BRS respectfully requests that the DEQ accept the vendor laboratory data to increase the size of the dataset and thereby improve the statistical basis for the proposed intake credit.

Response: *In accordance with 40 C.F.R. § 122.45 (g)(1), technology-based effluent limitations or standards shall be adjusted to reflect credit for pollutants in the discharger's intake water if:*

(i) The applicable effluent limitations and standards contained in 40 C.F.R. subchapter N specifically provide that they shall be applied on a net basis; or

(ii) The discharger demonstrates that the control system it proposes or uses to meet applicable technology-based limitations and standards would, if properly installed and operated, meet the limitations and standards in the absence of pollutants in the intake waters.

40 C.F.R. §122.45(g)(4) provides that credit can be granted only if the discharge is to the same body of water as the intake, unless the Director makes a specific finding that no environmental degradation will result. The level of Iron in the intake water withdrawn from

wells is above or higher than the respective level in the receiving stream, the Mississippi River. Therefore, the most stringent water quality criterion of the receiving water is taken into consideration for determining reasonable potential of the adverse water quality impacts from the discharge. The facility shall not contribute any additional mass or increase the concentration of Iron to the point where it contributes to an excursion of water quality standards. DEQ has determined that there is no potential to cause or contribute to an excursion of water quality standards for iron at this time, and therefore is granting an intake credit for iron.

Request #3 *Monitoring Exemption for Cyanide*

The ELG contains an exemption (40 C.F.R. Part 465.03) from monitoring for this constituent. Periodic analyses for cyanide are not required when both of the following conditions are met: (1) the first wastewater sample taken in each calendar year has been analyzed and found to contain less than 0.07 milligrams per liter (mg/L) of cyanide; and (2) the owner or operator of the coil coating facility certifies in writing to the permit-issuing authority that cyanide is not used in the coil coating process. BRS intends to claim this exemption. We respectfully request that the modified NPDES permit include the necessary regulatory language.

Response: *Based on the Cyanide sampling data and certification letter in the application, the waiver request of periodic analyses for Cyanide is approved in accordance with 40 C.F.R. § 465.03. The Division will review the Cyanide data at the time of the next permit renewal in order to determine if additional action is necessary.*

Request #4 *Elimination of the Tier I Mass Permit Limits*

The current NPDES permit establishes two production-based sets of mass limits for the discharge of treated process wastewater effluent at Outfall 001: (1) Tier I limits (original Phase 1 Facility, preconstruction); and (2) Tier II limits (Phase 2 Facility, post-construction). The Tier I and Tier II permit limits were originally established in the modified NPDES permit issued in July 2020. This permit modification pertained to a major expansion of the production capacity of the Facility (Phase 2 project). Installation of the ACL and CCL were included as part of the overall project.

The production threshold that determines which set of effluent limits (Tier I or Tier II) is applicable during a given monthly reporting period is an average daily production rate of 11 million pounds per day of liquid steel. If the production output is less than 11 million pounds per day, then the Tier I mass effluent limits are applicable for that month. However, if the production output exceeds that threshold, then the Tier II mass limits are in effect.

Per the DEQ's suggestion, BRS proposes to eliminate the Tier I permit limits from the modified NPDES permit. The Tier II limits will be used going forward. The reasons for making this change are as follows: (1) the Phase 2 construction project, including installation of the ACL and CCL, is almost complete; and (2) the average daily production output has exceeded 11 million pounds per day (Tier II threshold) for the last 25

consecutive months (August 2022 through August 2024). Please note that the "Tier II" designation itself should be discontinued since there will no longer be two sets of limits.

Response: *As requested, the Tier I mass permit limits at Outfall 001 are removed since they are no longer applicable.*

DOCUMENT ABBREVIATIONS

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

APC&EC - Arkansas Pollution Control and Ecology Commission
BAT - best available technology economically achievable
BCT - best conventional pollutant control technology
BMP - best management practice
BOD_5 - five-day biochemical oxygen demand
BPJ - best professional judgment
BPT - best practicable control technology currently available
$CBOD_5$ - carbonaceous biochemical oxygen demand
CD - critical dilution
C.F.R. - Code of Federal Regulations
cfs - cubic feet per second
COD - chemical oxygen demand
COE - United States Corp of Engineers
CPP - continuing planning process
CWA - Clean Water Act
DMR - discharge monitoring report
DO - dissolved oxygen
ELG - effluent limitation guidelines
EPA - United States Environmental Protection Agency
ESA - Endangered Species Act
FCB - fecal coliform bacteria
gpm - gallons per minute
MGD - million gallons per day
MQL - minimum quantification level
NAICS - North American Industry Classification System
NH_3-N - ammonia nitrogen
$NO_3 + NO_2$-N - nitrate + nitrite nitrogen
NPDES - National Pollutant Discharge Elimination System
O&G - oil and grease
Rule 2 - APC&EC Rule 2
Rule 6 - APC&EC Rule 6
Rule 8 - APC&EC Rule 8
Rule 9 - APC&EC Rule 9
RP - reasonable potential
SIC - standard industrial classification
TDS - total dissolved solids

TMDL - total maximum daily load
TP - total phosphorus
TRC - total residual chlorine
TSS - total suspended solids
UAA - use attainability analysis
USF&WS - United States Fish and Wildlife Service
USGS - United States Geological Survey
WET - whole effluent toxicity
WQMP - water quality management plan
WQS - Water Quality standards
WWTP - wastewater treatment plant

Compliance and Enforcement History:

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

https://www.adeq.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/AR0052582_Enforcement%20Review_20240501.pdf

5. SIGNIFICANT CHANGES FROM THE PREVIOUSLY ISSUED PERMIT

This is a modified permit. Only the modified portions of the permit are open for comments pursuant to 40 C.F.R. § 122.62:

1. *The driving directions to the facility on the cover page were removed.*
2. *Tier I permit limits and requirements at Outfall 001 were removed because they were no longer applicable.*
3. *The mass limits at Outfall 001 were revised based on DEQ's rounding procedure and 40 C.F.R. Parts 420 and 465.*
4. *The Copper, Iron, and Cyanide limits were included in Part I.A1 due to the installation of new coil coating lines.*
5. *The monitoring frequency reduction in Part II.5 was revised to exclude Copper, Iron, and Cyanide because they were new parameters.*
6. *The MQL condition in Part II.8 was revised because the permittee has established the site-specific MQLs for Lead and Nickel.*
7. *The WET testing condition was revised in Part II.9 of the permit. See Section 12 of this Fact Sheet for more details.*
8. *Part II.10, transition condition, in the previous permit was removed because the facility has completed the improvements to the existing wastewater treatment system.*
9. *The Iron monitoring condition was included in Part II.10. See Sections 4 and 11.D of this Fact Sheet for more details.*
10. *The condition for Cyanide monitoring exemption was included in Part II.11. See Section 4 of this Fact Sheet for more details.*

The significant changes below were opened for public comment with the previous renewal of

this permit and are therefore not subject to public comment with this modification.

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

1. The mailing address was removed from the cover page.
2. The description of treated process wastewater was updated based on the renewal application.
3. Mass loading limitations and monitoring requirements in Part I.A2 for Outfall 001 were updated for Tier II due to the addition of production units. See Section 11.D of this Fact Sheet for more details.
4. The BMPs condition was revised in Part II.4 of the permit.
5. The monitoring frequency reduction condition was included in Part II.5.
6. The critical dilution and effluent dilution series of WET testing for Tier II were revised due to the change of design flow from 2.853 MGD to 1.25 MGD in Part II.9.
7. The requirement to report production data in Part II.10 of the previous permit was removed since it was provided in the renewal application.
8. The sludge disposal condition was revised in Part III.B.6 of the permit.
9. Part III.C.5 of the permit now requires that DMRs be submitted electronically via NetDMR.
10. The discharge of toxic substances condition was revised in Part III.D.8.

6. RECEIVING STREAM SEGMENT AND DISCHARGE LOCATION

The outfalls are located at the following coordinates based on the renewal application and confirmed with Google Earth using WGS84:

Outfall 001:	Latitude: 35° 39’ 05.0” N;	Longitude: 89° 54’ 47.0” W
Outfall 002:	Latitude: 35° 39’ 05.0” N;	Longitude: 89° 54’ 47.1” W

The receiving waters named:

Outfalls 001 and 002: the Mississippi River in Segment 6C of the Mississippi River Basin. The receiving stream with *Assessment Unit AR_08010100_010* is a water of the state classified for primary and secondary contact recreation, raw water source for domestic (public and private), industrial, and agricultural water supplies; propagation of desirable species of fish and other aquatic life; and other compatible uses.

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

A. 303(d) List

The receiving stream is not listed on Arkansas’s *2020* List of Impaired Waterbodies (303(d) List). Therefore, no permit action is necessary.

B. **Applicable Total Maximum Daily Load (TMDL) Reports**

There are no applicable TMDL reports issued for the receiving stream.

C. **Endangered Species**

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

The Arkansas Natural Heritage Commission stated that the following species of conservation concern are known to occur in the Mississippi River at or within five miles downstream of the outfall:

Notropis wickliffi, channel shiner-state concern
Scaphirhynchus albus, pallid sturgeon-federal concern (endangered)
Sternula antillarum athalassos, Interior Least Tern-federal concern (endangered)

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

D. **Anti-Degradation**

The limitations and requirements set forth in this permit for discharge into waters of the state are consistent with the Anti-degradation Policy and all other applicable water quality standards found in APC&EC Rule 2.

8. **OUTFALL, TREATMENT PROCESS DESCRIPTION, AND FACILITY CONSTRUCTION**

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

A. Design Flow:

Outfall 001
Design Flow: 1.25 MGD *(the highest monthly average flow for the last two years will be used for evaluation when the new production lines are in operation)*

Outfall 002
Flow = variable

B. Type of Treatment:

Outfall 001

Pretreatment:

- (oily wastewater) various tanks utilized for oil and water separation using pH adjustment, chemical treatment, and/or decanting
- (chromate-contaminated wastewater) chromium reactor tank using pH adjustment and redox reaction where applicable

Primary Treatment (all process wastewater, which includes pretreated wastewater, contact water blowdown, and sand filter backwash):
- all wastewater streams are processed using pH adjustment, chemical treatment, precipitation of metals, dissolved air flotation, and decanting
- coagulation-flocculation and sedimentation using thickener to separate solids
- aeration basin and sand filtration for removal of remaining suspended solids
- sludge is separated and dewatered in filter press and/or thickened prior to recycling and/or disposal
- dewatering separated solids using press plate filter

Outfall 002
sedimentation pond

C. Discharge Description:

Outfall 001
treated process wastewater from the following sources: RH degasser unit, continuous casting line, hot rolling mill, tube mill, alkaline cleaning operations, chromate reactor, galvanizing lines, pickling lines, skin pass mills, tandem cold mill, reversing cold mills, coating operations, vehicle wash pad, contact cooling water systems, and non-contact cooling water systems

Outfall 002
stormwater runoff from slag yard and dust suppression/quenching water runoff from slag yard

D. Facility Status: This facility was evaluated using the NPDES Permit Rating Worksheet (MRAT) to determine the correct permitting status. Since the facility's MRAT score of *115* is greater than 80, this facility is classified as a major industrial.

E. Facility Construction: This permit does not authorize or approve the construction or modification of any part of the treatment system or facilities. Approval for such construction must be by permit issued under Rule 6.202.

9. **ACTIVITY**

Under the Standard Industrial Classification (SIC) code of 3312 or North American Industry Classification System (NAICS) code of 331110, the applicant's activities are the operation of steel mill.

10. SOLIDS PRACTICES

It should be noted that no sanitary wastewater will be treated at this facility. All sanitary wastewater will be sent to the nearby publicly owned treatment works.

Solids generated by the process wastewater treatment system will be dewatered through the press plate filter or by air drying in the sludge processing area, and disposed of at a nearby landfill. Solids that accumulate in the sump from the vehicle wash pad will be periodically removed for off-site disposal in accordance with federal, state, and local requirements. Solids generated by the stormwater/slag quenching water runoff treatment system will remain in the sedimentation pond. Solids disposal, if any, will require prior authorization from this Division and shall be conducted in accordance with the conditions in Part III Section B.6 of the permit.

11. DEVELOPMENT AND BASIS FOR PERMIT CONDITIONS

The Division of Environmental Quality has determined to issue a permit for the discharge described in the application. Permit requirements are based on federal regulations (40 C.F.R. Parts 122, 124, and Subchapter N) and rules promulgated pursuant to the Arkansas Water and Air Pollution Control Act (Ark. Code Ann. § 8-4-101 et seq.). All of the information contained in the application, including all of the submitted effluent testing data, was reviewed to determine the need for effluent limits and other permit requirements.

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

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

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

Parameter	Water Quality-Based		Technology-Based		Previous Permit		Final Permit	
	Monthly Avg.	Daily Max.	Monthly Avg.	Daily Max.	Monthly Avg.	Daily Max.	Monthly Avg.	Daily Max.
Outfall 001								
TSS	N/A	N/A	*725.1 lb/day*	*1,828 lb/day*	Report* mg/l	Report* mg/l	Report* mg/l	Report* mg/l
					766.6 lb/day	*1938.4 lb/day*	*725.1 lb/day*	*1,828 lb/day*
O&G	10 mg/l	15 mg/l	*245.3 lb/day*	*587.9 lb/day*	10 mg/l	15 mg/l	10 mg/l	15 mg/l
	104.3 lb/day	156.4 lb/day			*104.3 lb/day*	*156.4 lb/day*	104.3 lb/day	156.4 lb/day

Parameter	Water Quality-Based		Technology-Based		Previous Permit		Final Permit	
	Monthly Avg.	Daily Max.	Monthly Avg.	Daily Max.	Monthly Avg.	Daily Max.	Monthly Avg.	Daily Max.
Chromium (VI)	*738 lb/day*	*1,480 lb/day*	*0.13 lb/day*	*0.40 lb/day*	Report* mg/l	Report* mg/l	*Report* µg/l*	*Report* µg/l*
					0.2 lb/day	*0.5 lb/day*	*0.13 lb/day*	*0.40 lb/day*
Chromium, Total	N/A	N/A	*0.54 lb/day*	*1.3 lb/day*	Report* mg/l	Report* mg/l	*Report* µg/l*	*Report* µg/l*
					0.4 lb/day	*0.9 lb/day*	*0.54 lb/day*	*1.3 lb/day*
Copper, Total	*1,825 lb/day*	*3,661 lb/day*	*0.74 lb/day*	*1.5 lb/day*	*N/A*	*N/A*	*Report* µg/l*	*Report* µg/l*
					N/A	*N/A*	*0.74 lb/day*	*1.5 lb/day*
Iron, Total (Net Increase Over Intake Water)	*6,658 lb/day*	*13,316 lb/day*	*0.67 lb/day*	*1.4 lb/day*	*N/A*	*N/A*	*Report* µg/l*	*Report* µg/l*
					N/A	*N/A*	*0.67 lb/day*	*1.4 lb/day*
Lead, Total	*2,590 lb/day*	*5,197 lb/day*	*2.0 lb/day*	*6.0 lb/day*	Report* mg/l	Report* mg/l	*Report* µg/l*	*Report* µg/l*
					2.3 lb/day	*7.0 lb/day*	*2.0 lb/day*	*6.0 lb/day*
Nickel, Total	*71,430 lb/day*	*143,321 lb/day*	*0.28 lb/day*	*0.84 lb/day*	Report* mg/l	Report* mg/l	*Report* µg/l*	*Report* µg/l*
					0.3 lb/day	*0.8 lb/day*	*0.28 lb/day*	*0.84 lb/day*
Zinc, Total	*14,979 lb/day*	*30,054 lb/day*	*3.3 lb/day*	*9.6 lb/day*	Report* mg/l	Report* mg/l	*Report* µg/l*	*Report* µg/l*
					3.2 lb/day	*9.8 lb/day*	*3.3 lb/day*	*9.6 lb/day*
Cyanide, Total	*1,050 lb/day*	*2,106 lb/day*	*0.081 lb/day*	*0.21 lb/day*	*N/A*	*N/A*	*Report* µg/l*	*Report* µg/l*
					N/A	*N/A*	*0.081 lb/day*	*0.21 lb/day*
Naphthalene	*107,983 lb/day*	*216,662 lb/day*	*0.047 lb/day*	*0.094 lb/day*	Report* mg/l	Report* mg/l	*Report* µg/l*	*Report* µg/l*
					0.05 lb/day	*0.09 lb/day*	*0.047 lb/day*	*0.094 lb/day*
Tetrachloroethylene	*207,533 lb/day*	*416,405 lb/day*	*0.071 lb/day*	*0.14 lb/day*	Report* mg/l	Report* mg/l	*Report* µg/l*	*Report* µg/l*
					0.07 lb/day	*0.1 lb/day*	*0.071 lb/day*	*0.14 lb/day*

Parameter	Water Quality-Based		Technology-Based		Previous Permit		Final Permit	
	Monthly Avg.	Daily Max.	Monthly Avg.	Daily Max.	Monthly Avg.	Daily Max.	Monthly Avg.	Daily Max.
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.	
Acute WET Testing	Report	Report	N/A	N/A	Report	Report	Report	Report
Outfall 002								
TSS	N/A	N/A	100 mg/l	150 mg/l	100 mg/l	150 mg/l	100 mg/l	150 mg/l
O&G	10 mg/l	15 mg/l	N/A	N/A	10 mg/l	15 mg/l	10 mg/l	15 mg/l
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.	

* Monitor and report requirements only for concentration are included in the permit. See Section 11.D.5, paragraph two of this Fact Sheet for explanation.

A. **Justification for Limitations and Conditions of the Final Permit**

Parameter	Water Quality or Technology	Justification
Outfall 001		
TSS	Technology	NSPS 40 C.F.R. § 420 Subparts D, E, F, G, I, J, K, and L, *NSPS 40 C.F.R. 465 § Subparts A & B,* 40 C.F.R. § 122.44(l), and previous permit
O&G	Water Quality	Rule 2.510, CWA § 402(o), and previous permit
Chromium (VI)	Technology	NSPS 40 C.F.R. § 420 Subpart L, 40 C.F.R. § 122.44(l), and previous permit
Chromium, Total	Technology	NSPS 40 C.F.R. § 420 Subpart J, *NSPS 40 C.F.R. 465 § Subparts A & B,* 40 C.F.R. § 122.44(l), and previous permit
Copper, Total	*Technology*	*NSPS 40 C.F.R. § 465 Subpart B*
Iron, Total	*Technology*	*NSPS 40 C.F.R. § 465 Subparts A & B and 40 C.F.R. § 122.45 (g)(1)*
Lead, Total	Technology	NSPS 40 C.F.R. § 420 Subparts D, E, F, I, J, and L, 40 C.F.R. § 122.44(l), and previous permit
Nickel, Total	Technology	NSPS 40 C.F.R. § 420 Subpart J, 40 C.F.R. § 122.44(l), and previous permit
Zinc, Total	Technology	NSPS 40 C.F.R. § 420 Subparts D, E, F, I, J, and L, *NSPS 40 C.F.R. § 465 Subparts A & B,* 40 C.F.R. § 122.44(l), and previous permit
Cyanide, Total	*Technology*	*NSPS 40 C.F.R. § 465 Subparts A & B and 40 C.F.R. § 465.03*
Naphthalene	Technology	NSPS 40 C.F.R. § 420 Subpart J, 40 C.F.R. § 122.44(l), and previous permit
Tetrachloroethylene	Technology	NSPS 40 C.F.R. § 420 Subpart J, 40 C.F.R. § 122.44(l), and previous permit

Parameter	Water Quality or Technology	Justification
pH	Water Quality	NSPS 40 C.F.R. § 420 Subparts D, E, F, G, I, J, K, and L, Rule 2.504 , *NSPS 40 C.F.R. § 465 Subparts A & B*, CWA § 402(o), and previous permit
Acute WET Testing	Water Quality	2000 CPP: Appendix D Part V.C – Implementation Procedures for Toxic Substances, CWA § 402(o), and previous permit
Outfall 002		
TSS	Technology	Generally accepted scientific knowledge and engineering practice, Industrial Stormwater General Permit ARR000000, 40 C.F.R. § 122.44(l), and previous permit
O&G	Water Quality	Rule 2.510, CWA § 402(o), and previous permit
pH	Water Quality	Rule 2.504, CWA § 402(o), and previous permit

Tetrachloroethylene

Tetrachloroethylene (PCE) is limited by this permit in accordance with requirements of applicable Effluent Limitation Guidelines (ELGs). For comparison, the technology limit provided by the ELG was compared to the water quality based effluent limitation calculated using the ambient water quality criteria published by the EPA, "Quality Criteria for Water 1986," and the more stringent effluent limitation was selected. Please see Items D (5-7) below for further information.

As discussed in Section 11.B below, the mass limitations for TSS, Chromium (VI), Total Chromium, Total Lead, Total Nickel, Total Zinc, Naphthalene, and Tetrachloroethylene at Outfall 001 *were* revised due to the addition of production units *in the 2021 permit renewal application*.

The mass limitations for O&G at Outfall 001 *were* revised *in the 2021 permit renewal* due to the decreased design flow, which *was* projected in the renewal application. The Arkansas DEQ Continuous Planning Process (CPP) provides guidance in the description of effluent flow, "The design flow for municipalities and the highest monthly average flow for the last two years for industrial dischargers is used as a default. However, in cases where information exists to indicate that increased production is planned and/or projected and will ultimately require increased effluent discharge, the alternative projected increased flow may be used to calculate permit parameters." (CPP p. D-31)

Lead and Nickel

The permittee conducted a study in 2023 to establish the site-specific MQLs for Lead and Nickel at this facility in accordance with Appendix B of 40 C.F.R. Part 136. The full study is available at the following link:

https://www.adeq.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/AR0052582_Request%20for%20Site-Specific%20MQLs_20231026.pdf

Based on the results of this study, the site-specific MQLs for Lead of 1.0 µg/l and Nickel of 4.0 µg/l have been approved for this facility. Part II.8 of the permit specifies the ongoing data collection and verification requirements for maintaining the site-specific MQL.

New Coating Production Lines

Due to the installation of new coating production lines, Chromium, Cyanide, Zinc, Iron, Oil and grease, TSS, pH, and Copper at Outfall 001 were evaluated in the permit according to 40 C.F.R. Part 465. The periodic analyses for Cyanide were waived based on 40 C.F.R. § 465.03. The monitoring and reporting requirements for net increase of Iron at the effluent over the raw groundwater were added due to consideration of the intake credit in accordance with 40 C.F.R. § 122.45 (g)(1). The Division will review the data at the time of the next permit renewal in order to determine if additional action is necessary.

B. **Anti-backsliding**

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

The permit maintains the requirements of the current permit with the exception of revised mass limitations of *Total Chromium and Total Zinc* at Outfall 001.

The revisions to the mass limitations are allowed in accordance with the 40 C.F.R. § 122.44 (l)(2)(i)(A), which states, "A permit…may be renewed, reissued, or modified to contain a less stringent effluent limitation applicable to a pollutant, if material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation." As stated in Section 4 of this Fact Sheet, the permittee *has constructed* additional steel manufacturing units as part of expansion. This increase in production justifies the increase of allowable mass loadings of Total Chromium, Total Zinc, and Tetrachloroethylene at Outfall 001.

C. **Limits Calculations**

1. Mass Limits:

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

   Outfall 001

   Calculations of mass limits are explained in Section 11.D of this Fact Sheet.

Outfall 002

Mass limits are not feasible for this outfall because the runoff through the system depends more on meteorological conditions than on the operations of the steel mill.

2. Daily Maximum Limits:

Outfall 001

The daily maximum concentration limit for O&G is based on Rule 2.510.

Concentration limits are not included for other parameters at this outfall since the receiving stream to effluent dilution factor is greater than 100:1 [EPA Technical Support Document for Water Quality-based Toxics Control, Section 5.7.1, March 1991].

Outfall 002

The daily maximum limit for TSS is based on Section 5.4.2 of the Technical Support Document for Water Quality-based Toxics Control using the following equation:
Daily Maximum limits = Monthly Average limits × 1.5

The daily maximum concentration limit for O&G is based on Rule 2.510.

D. **Applicable Effluent Limitations Guidelines**

Discharges from facilities of this type are covered by federal effluent limitations guidelines (ELGs) promulgated under 40 C.F.R. Part 420 – Iron and Steel Manufacturing Point Source Category *and 40 C.F.R. Part 465 – Coil Coating Point Source Category*. The operations consuming water and generating wastewater at this facility are covered under the following subcategories of 40 C.F.R. Part 420: Subpart D – Steelmaking Subcategory, Subpart E – Vacuum Degassing Subcategory, Subpart F – Continuous Casting Subcategory, Subpart G – Hot Forming Subcategory, Subpart I – Acid Pickling Subcategory, Subpart J – Cold Forming Subcategory, Subpart K – Alkaline Cleaning Subcategory, and Subpart L – Hot Coating Subcategory; and *40 C.F.R. Part 465: Subpart A – Steel Basis Material Subcategory and Subpart B – Galvanized Basis Material Subcategory*.

40 C.F.R. §§ 465.13 and 465.23 specifies new source performance standards for the discharge of pollutants from steel basis material coils coating. The technology-based effluent limitations and monitoring requirements are included based on the estimated production data and 40 C.F.R. Part 465. Based on the reported data in the application, the contribution of Iron from the influent groundwater accounts for a significant portion of the level of Iron discharged at Outfall 001. Therefore, the effluent limits for Iron are included with the consideration of Iron from the influent groundwater in accordance with 40 C.F.R. § 122.45 (g). Periodic monitoring and reporting requirements for Cyanide have been

waived based on a waiver request by the permittee, in accordance with 40 C.F.R. § 465.03 (a). Part II.11 of the permit prohibits the use of chemicals in the coating lines which contain Cyanide without prior approval from the Division.

The production data submitted with the application is based on projections for the first three (3) years of operation and the projected capacity of the new process units. The technology-based effluent limitations and monitoring requirements are included based on the estimated production data, 40 C.F.R. Part 420, *and 40 C.F.R. Part 465* . These limits are derived from the applicable New Source Performance Standards (NSPSs) specified in the aforementioned subcategories. The calculations of these limits are presented as follows:

(1) **Production Data**

Applicable New Source Performance Standard (NSPS)	Production Quantity (1,000 lb/day as liquid steel)
Subpart D – Steelmaking 40 C.F.R. § 420.44(a), Basic oxygen furnace steelmaking—semi-wet; and electric arc furnace steelmaking—semi-wet	22,466
Subpart E – Vacuum Degassing 40 C.F.R. § 420.54	8,220
Subpart F – Continuous Casting 40 C.F.R. § 420.64	22,466
Subpart G – Hot Forming 40 C.F.R. § 420.74(c)(1), Flat mills—Hot strip and sheet mills, carbon and specialty	22,466
Subpart I – Acid Pickling 40 C.F.R. § 420.94(b)(4), Hydrochloric acid pickling (spent acid solutions and rinse waters)—Fume scrubbers	two (2) fume scrubbers
Subpart J – Cold Forming 40 C.F.R. § 420.104(a)(2), Cold rolling mills—Recirculation-multiple stands	22,466
Subpart K – Alkaline Cleaning 40 C.F.R. § 420.114(a), Batch and continuous	*4,728*
Subpart L – Hot Coating 40 C.F.R. § 420.124(a)(1), Galvanizing, terne coating and other coatings—Strip, sheet, and miscellaneous products	*10,514*

Applicable New Source Performance Standard (NSPS)	*Area Processed (million ft^2/day)*
Subpart A – Steel Basis Material	*16.229**

Applicable New Source Performance Standard (NSPS)	*Area Processed (million ft^2/day)*
40 C.F.R. § 465.13	
Subpart B – Galvanized Basis Material *40 C.F.R. § 465.23*	

** The limit calculations were based on Subpart A because it has more stringent limits than Subpart B, except for Copper. Copper limits were based on Subpart B because Subpart A does not include Copper limits. See details below.*

The ACL and CCL processes produce both galvanized (Subject to Subpart B) and non-galvanized (Subject to Subpart A) products. The relative amounts of galvanized and non-galvanized production may vary, but the total production is expected to be relatively constant. Therefore, DEQ is permitting these processes as a combined wastestream. For all pollutants except Copper, the limits are based on the more stringent limits from Subpart A. Copper is only regulated under Subpart B.

The 1982 Development Document for Effluent Limitation Guidelines and Standards for the Coil Coating Category states that for the Steel Subcategory (Subpart A):

> *"Copper concentrations appeared on 22 of 37 process sampling days for the steel subcategory. The maximum concentration was 0.161 mg/l, which is less than the concentration achievable by specific treatment methods. Therefore, this priority pollutant is not considered for specific regulation in this subcategory."*

This document also states that for the Galvanized Subcategory (Subpart B):

> *"Copper concentrations appeared on 24 of 40 process sampling days for the galvanized subcategory. The maximum concentration was 0.140 mg/l, which is lower than the concentration that can be achieved with specific treatment methods. However, this priority pollutant is considered for specific regulation in this subcategory because coil coaters sometimes process copper containing alloys which are included under this subcategory."*

Based on the above-referenced development document, Copper is expected to be present in Subpart A regulated wastestreams at similar concentrations to Subpart B regulated wastestreams. DEQ evaluated the Subpart B Copper limit as a case-by-case limitation to the combined Subpart A and Subpart B wastestream in accordance with 40 C.F.R. § 125.3(c)(2). DEQ considered the following factors in this evaluation:

(a) The total cost of application of technology in relation to the effluent reduction benefits to be achieved from such application;
(b) The age of equipment and facilities involved;
(c) The process employed;
(d) The engineering aspects of the application of various types of control techniques;
(e) Process changes;

(f) Non-water quality environmental impact (including energy requirements);
(g) The cost of achieving such effluent reduction;
(h) The appropriate technology for the category or class of point sources of which the applicant is a member, based on all available information; and
(i) Any unique factors relating to the applicant.

Items (a) and (g) are addressed by the following: no additional costs are expected to achieve this level of Copper reduction because the combined wastestream is being treated to achieve the levels of Copper reduction required for the Subpart B wastestream.

Items (b), (c), (d), (e), and (h) are addressed by the following: the facility has a modern treatment system that was designed to achieve the level of Copper reduction required to meet the Subpart B wastestream requirements. No changes to the process are necessary, and the process is appropriate for treating Coil Coating wastewater.

Item (f) is addressed by the following: No additional non-water quality environmental impacts are anticipated because the combined wastestream will be treated using the same processes necessary to meet the Subpart B Copper requirements.

Item (i) is addressed by the following: The facility produces variable quantities of Subpart A and Subpart B regulated wastestreams and combines these wastestreams for treatment. Based on the Coil Coating ELG development document, the raw wastestreams are expected to have similar concentrations of Copper and can be treated by the same processes to achieve similar effluent concentrations.

Therefore, DEQ has implemented case-by-case limitations for Copper on the combined Subpart A and Subpart B wastestream for this facility in accordance with 40 C.F.R. § 125.3(c)(2). The case-by-case limitations for Copper are equal to the ELG limit for the Subpart B wastestream: 0.043 lb/(1 million ft^2 of area processed) Monthly Average and 0.090 lb/(1 million ft^2 of area processed) Daily Maximum.

(2) **Federal Effluent Limitations**

<u>40 C.F.R. § 420.44(a), Subpart D—Steelmaking – New Source Performance Standards</u>

It was noted in Air Permit No. *2305-AOP-R8* for Big River Steel LLC that baghouses are used as the primary emissions control devices for the electric arc furnaces. As with other steel mills, this type of control device is defined as semi-wet, according to 40 C.F.R. § 420.41(e). Therefore, 40 C.F.R. § 420.44(a) applies in this situation and requires no discharge of process wastewater pollutants to navigable waters.

<u>40 C.F.R. § 420.54, Subpart E—Vacuum Degassing – New Source Performance Standards</u>

Production-based Effluent Limit Factors		
Parameter	New Source Performance Standards	
	Monthly Average (lb/1,000 lb of product)	Daily Maximum (lb/1,000 lb of product)
TSS	0.00261	0.00730
Lead	0.0000313	0.0000939
Zinc	0.0000469	0.000141
pH	6.0-9.0 s.u.	6.0-9.0 s.u.

40 C.F.R. § 420.64, Subpart F—Continuous Casting – New Source Performance Standards

Production-based Effluent Limit Factors		
Parameter	New Source Performance Standards	
	Monthly Average (lb/1,000 lb of product)	Daily Maximum (lb/1,000 lb of product)
TSS	0.00261	0.00730
O&G	0.00104	0.00313
Lead	0.0000313	0.0000939
Zinc	0.0000469	0.000141
pH	6.0-9.0 s.u.	6.0-9.0 s.u.

40 C.F.R. § 420.74(c)(1), Subpart G—Hot Forming – New Source Performance Standards

Production-based Effluent Limit Factors		
Parameter	New Source Performance Standards	
	Monthly Average (lb/1,000 lb of product)	Daily Maximum (lb/1,000 lb of product)
TSS	0.0163	0.0435
O&G	0.00545[1]	0.0109
pH	6.0-9.0 s.u.	6.0-9.0 s.u.

[1] A production-based effluent limit factor for the monthly average for O&G was determined by the permit writer for calculation of final effluent limits. The factor was calculated by dividing the daily maximum factor of 0.0109 lb/1,000 lb by two (2), resulting in a monthly average factor of 0.00545 lb/1,000 lb. This determination is based on Section 5.4.2 of the Technical Support Document for Water Quality-Based Toxics Control, which states that in the absence of other information, the daily maximum limit is divided by 2.0 in order to derive a monthly average limit.

40 C.F.R. § 420.94(b)(4), Subpart I—Acid Pickling – New Source Performance Standards

Production-based Effluent Limit Factors		
Parameter	New Source Performance Standards	
	Monthly Average[2] (lb/day)[3]	Daily Maximum[2] (lb/day)[3]
TSS	5.40	12.61
O&G[1]	1.81	5.40

Production-based Effluent Limit Factors		
Parameter	New Source Performance Standards	
	Monthly Average[2] (lb/day)[3]	Daily Maximum[2] (lb/day)[3]
Lead	0.0271	0.0811
Zinc	0.0362	0.108
pH	6.0-9.0 s.u.	6.0-9.0 s.u.

[1] The limitations for O&G shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[2] The above limitations shall be applicable to each fume scrubber associated with acid pickling operations.
[3] It should be noted that the above limitations, except pH, are expressed in the federal regulation in units of kg/day, but have been converted to lb/day for simplification.

40 C.F.R. § 420.104(a)(2), Subpart J—Cold Forming – New Source Performance Standards

Production-based Effluent Limit Factors		
Parameter	New Source Performance Standards	
	Monthly Average (lb/1,000 lb of product)	Daily Maximum (lb/1,000 lb of product)
TSS	0.00125	0.00250
O&G	0.000417	0.00104
Chromium[1]	0.0000167	0.0000418
Lead	N/A[1]	N/A[1]
Nickel[1]	0.0000125	0.0000376
Zinc	N/A[1]	N/A[1]
Naphthalene	0.0000021 [2]	0.0000042
Tetrachloroethylene	0.00000315 [2]	0.0000063
pH	6.0-9.0 s.u.	6.0-9.0 s.u.

[1] The limitations for chromium and nickel shall be applicable in lieu of those for lead and zinc when cold rolling wastewaters are treated with descaling or combination acid pickling wastewaters. Therefore, the loadings calculated for lead and zinc, according to Subpart J, were not included in the building block approach for those parameters.
[2] Production-based effluent limit factors for the monthly averages of naphthalene and tetrachloroethylene were determined by the permit writer for calculations of final effluent limits. The factor for naphthalene was calculated by dividing the daily maximum factor of 0.0000042 lb/1,000 lb by two (2), resulting in a monthly average factor of 0.0000021 lb/1,000 lb. The factor for tetrachloroethylene was calculated by dividing the daily maximum factor of 0.0000063 lb/1,000 lb by two (2), resulting in a monthly average factor of 0.00000315 lb/1,000 lb. These determinations are based on Section 5.4.2 of the Technical Support Document for Water Quality-Based Toxics Control, which states that in the absence of other information, the daily maximum limit is divided by 2.0 in order to derive a monthly average limit.

40 C.F.R. § 420.114(a), Subpart K—Alkaline Cleaning – New Source Performance Standards

Production-based Effluent Limit Factors		
Parameter	New Source Performance Standards	
	Monthly Average (lb/1,000 lb of product)	Daily Maximum (lb/1,000 lb of product)
TSS	0.00626	0.0146
O&G	0.00209	0.00626
pH	6.0-9.0 s.u.	6.0-9.0 s.u.

40 C.F.R. § 420.124(a)(1), Subpart L—Hot Coating – New Source Performance Standards

Production-based Effluent Limit Factors		
Parameter	New Source Performance Standards	
	Monthly Average (lb/1,000 lb of product)	Daily Maximum (lb/1,000 lb of product)
TSS	0.0188	0.0438
O&G	0.00626	0.0188
Lead	0.0000939	0.000282
Zinc	0.000125	0.000376
Chromium (VI)[1]	0.0000125	0.0000376
pH	6.0-9.0 s.u.	6.0-9.0 s.u.

[1] The limitations for chromium (VI) shall be applicable only to galvanizing operations, which discharge wastewaters from the chromate rinse step.

40 C.F.R. § 465.13, Subpart A—Steel Basis Material – New Source Performance Standards

Production-based Effluent Limit Factors		
Parameter	*New Source Performance Standards*	
	Monthly Average (lb/1 million ft^2 of area processed)	*Daily Maximum (lb/1 million ft^2 of area processed)*
Chromium	*0.01*	*0.024*
Cyanide	*0.005*	*0.013*
Zinc	*0.027*	*0.066*
Iron	*0.041*	*0.086*
O&G	*0.65*	*0.65*
TSS	*0.78*	*0.97*
pH	*7.5-10.0 s.u.*	*7.5-10.0 s.u.*

40 C.F.R. § 465.23, Subpart B—Galvanized Basis Material – New Source Performance Standards

Production-based Effluent Limit Factors		
Parameter	*New Source Performance Standards*	
	Monthly Average (lb/1 million ft^2 of area processed)	*Daily Maximum (lb/1 million ft^2 of area processed)*
Chromium	*0.011*	*0.027*

Production-based Effluent Limit Factors		
Parameter	*New Source Performance Standards*	
	Monthly Average (lb/1 million ft^2 of area processed)	*Daily Maximum (lb/1 million ft^2 of area processed)*
Copper	*0.043*	*0.090*
Cyanide	*0.006*	*0.015*
Zinc	*0.030*	*0.08*
Iron	*0.045*	*0.09*
O&G	*0.702*	*0.71*
TSS	*0.84*	*1.06*
pH	*7.5-10.0 s.u.*	*7.5-10.0 s.u.*

(3) **Calculations**

40 C.F.R. Part 420
Limit (lb/day) = Production Quantity (1,000 lb/day) × ELG Factor (lb/1,000 lb product)

40 C.F.R. Part 465
Limit (lb/day) = Area Processed (1 million ft^2/day) × ELG Factor (lb/1 million ft^2)

The following sample calculation shows how the technology-based TSS limits were calculated. In accordance with the NPDES Permit Writers' Manual, the building block approach was used since this facility is subject to multiple subparts of 40 C.F.R. Part 420 *and 40 C.F.R. Part 465*. Technology-based limits for O&G, Chromium (VI), Chromium, *Copper, Cyanide, Iron,* Lead, Nickel, Zinc, Naphthalene, and Tetrachloroethylene are calculated using the same procedure shown below, with the applicable production-based effluent limit factors from 40 C.F.R. Part 420 *and 40 C.F.R. Part 465* listed in the previous tables. It should be noted that the effluent limit factor for Subpart I is based on the number of fume scrubbers used rather than production.

Sample Calculation of TSS Technology-based Limits

Monthly Average Limit

ELG-NSPS	Production Quantity (1,000 lb/day)	ELG Factor (lb/1,000 lb)	Monthly Avg. Mass Limit (lb/day)
40 C.F.R. Part 420			
Subpart D	22,466	No discharge	0.0
Subpart E	8,220	0.00261	21.45
Subpart F	22,466	0.00261	58.64
Subpart G	22,466	0.0163	366.20
Subpart I	2 fume scrubbers	5.40 lb/day	10.80
Subpart J	22,466	0.00125	28.08
Subpart K	*4,728*	0.00626	*29.60*

Subpart L	*10,514*	0.0188	*197.66*
ELG-NSPS	*Area Processed (1 million ft²/day)*	*ELG Factor (lb/1 million ft²lb)*	*Monthly Avg. Mass Limit (lb/day)*
40 C.F.R. Part 465			
Subpart A[1]	*16.229*	*0.78*	*12.66*
Total	-	-	***725.1***

[1]*The more stringent Subpart A limits were used for the combined Subpart A and Subpart B wastestreams.*

Daily Maximum Limit

ELG-NSPS	Production Quantity (1,000 lb/day)	ELG Factor (lb/1,000 lb)	Daily Max. Mass Limit (lb/day)
40 C.F.R. Part 420			
Subpart D	22,466	No discharge	0.0
Subpart E	8,220	0.0073	60.0
Subpart F	22,466	0.0073	164.0
Subpart G	22,466	0.0435	977.3
Subpart I	2 fume scrubbers	12.61 lb/day	25.2
Subpart J	22,466	0.0025	56.2
Subpart K	*4,728*	0.0146	*69.0*
Subpart L	*10,514*	0.0438	*460.5*
ELG-NSPS	*Area Processed (1 million ft²/day)*	*ELG Factor (lb/1 million ft²lb)*	*Daily Max. Mass Limit (lb/day)*
40 C.F.R. Part 465			
Subpart A[1]	*16.229*	*0.97*	*15.7*
Total	-	-	***1827.9***

[1]*The more stringent Subpart A limits were used for the combined Subpart A and Subpart B wastestreams.*

(4) **Technology-based Limits**

Parameter	Monthly Average Limit (lb/day)	Daily Maximum Limit (lb/day)
TSS	*725.1*	*1828*
O&G	*245.3*	*587.9*
Chromium (VI)	*0.13*	*0.40*
Chromium, Total	*0.54*	*1.3*
Copper, Total	*0.70*	*1.46*
Iron, Total	*0.67*	*1.4*
Lead, Total	*2.0*	*6.0*
Nickel, Total	0.28	0.84

Parameter	Monthly Average Limit (lb/day)	Daily Maximum Limit (lb/day)
Zinc, Total	*3.3*	*9.6*
Cyanide, Total	*0.081*	*0.21*
Naphthalene	0.047	0.094
Tetrachloroethylene	0.071	*0.14*
pH	6.0-9.0 s.u.	6.0-9.0 s.u.

Based on the application, only 0.129 MGD of the wastewater is subject to 40 C.F.R. Part 465 while the rest is subject to 40 C.F.R. Part 420. Therefore, pH limits are based on 40 C.F.R. 420. The calculations of technology-based limits can be reviewed at the following web link:

https://www.adeq.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/AR0052582_ELG%20Production-based%20Limits_20241002.pdf

(5) **Water Quality-based Limits vs. Technology-based Limits**

The water quality-based limit for pH contained in APC&EC Rule 2.504 is equivalent to the technology-based limits specified in the ELGs of the select subparts of 40 C.F.R. Part 420. Therefore, no comparison is necessary for pH limits.

Concentration limits have not been calculated for limitation purposes because this outfall discharges directly to the Mississippi River, which has a 7Q10 of *164,272 cfs*. Instead, water quality-based mass limits, derived from the water quality standards contained in APC&EC Rule 2.508, were calculated for comparison with the aforementioned technology-based limits. The water quality-based masses for Chromium (VI), *Copper, Cyanide, Iron,* Lead, Nickel, Zinc, Naphthalene, and Tetrachloroethylene were calculated using the procedures derived in a manner consistent with the Technical Support Document for Water Quality-based Toxics Control (EPA, March 1991), the 2000 CPP, and 40 C.F.R. § 122.45(c).

Parameter	Value	Source
Design Flow	1.25 MGD = 1.93 cfs	Permit renewal application
7Q10	*164,272 cfs*	U.S.G.S. Station ID: 07032000
TSS	8 mg/l	Specified in CPP for Delta Ecoregion
Hardness as $CaCO_3$	81 mg/l	Specified in CPP for Delta Ecoregion
pH	7.0 s.u.	Neutral pH used since no known upstream data was found.

(6) **Calculated Water Quality-based Masses**

Parameter	Monthly Average Limit (lb/day)	Daily Maximum Limit (lb/day)
O&G	104.3	156.4
Chromium (VI)	*738*	*1,480*
Copper	*1,825*	*3,661*
Iron	*6,658*	*13,316*
Lead, Total	*2,590*	*5,197*
Nickel, Total	*71,430*	*143,321*
Zinc, Total	*14,979*	*30,054*
Cyanide	*1,050*	*2,106*
Naphthalene	*107,983*	*216,662*
Tetrachloroethylene	*207,533*	*416,405*

O&G

The calculation of the mass loadings uses a design flow of 1.25 MGD and the following equation:

Monthly average limit = Concentration (mg/l) × Flow (MGD) × 8.34 = 10 × 1.25 × 8.34 = 104.3 (lb/day)

Daily maximum limit = monthly average limits × 1.5 = 104.3 × 1.5 = 156.4 (lb/day)

Iron

The EPA's National Recommended Water Quality Criteria has 1.0 mg/L for freshwater aquatic life and 0.3 mg/L for domestic water supplies for Iron.

Design Flow = 1.25 MGD = 1.93 cfs
7Q10 = 164,272 cfs
Q_b = Background flow = 0.1 × (0.25) × 7Q10 = 4,107 cfs
C_b = Background concentration = 10 µg/L*
Allowed discharge concentration = [(4,107 + 1.93) × 0.3 – 4,107 × 0.01] / 1.93 = 617.4 (mg/L)

Monthly average limit (lb/day) = 617.4 × 1.25 × 8.34 = 6,436 (lb/day)

* *Iron concentration from the Mississippi River near the Blytheville, AR based on the study, "Concentrations of select dissolved trace elements and anthropogenic organic compounds in the Mississippi River and major tributaries during the summer of 2012 and 2013," by DD Bussan and others, 2017.*

Based on Section 5.4.2 of the Technical Support Document for Water Quality-based Toxics Control, the daily maximum mass loading can be calculated as follows:

Daily maximum limit = monthly average limits × 2= 6,436 × 2 = 12,872 (lb/day)

The facility provided data from 159 intake water samples for iron, with 95th percentile and 99th percentile concentrations of 5.4 mg/l and 7.8 mg/l, respectively. These results are much lower than the above calculated allowed discharge concentration of 617.4 mg/l. Therefore, in accordance with 40 C.F.R. § 122.45(g)(4), the DEQ has determined that there is no reasonable potential for environmental degradation due to iron discharges from this facility, and the DEQ is waiving the requirement that the intake water is drawn from the same body of water into which the discharge is made for the purposes of granting an intake credit for iron. If new information becomes available that discharges of iron from this facility are causing or contributing to environmental degradation, this permit may be reopened and modified to remove or reduce the intake credit in accordance with Part II.2.

For the other pollutants, the calculations of water quality-based masses can be reviewed at the following web link:

https://www.adeq.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/AR0052582_PPS%20for%20Outfall%20001_20240926.pdf

(7) **Comparison of Technology-based Masses to Water Quality-based Masses**

Parameter	Technology-based Masses		Water Quality-based Masses	
	Monthly Average Limit (lb/day)	Daily Maximum Limit (lb/day)	Monthly Average Limit (lb/day)	Daily Maximum Limit (lb/day)
O&G	*245.3*	*587.9*	**104.3**	**156.4**
Chromium (VI)	***0.13***	***0.40***	*738*	*1,480*
Copper, Total	***0.70***	***1.46***	*1,825*	*3,661*
Iron, Total	***0.67***	***1.4***	*6,658*	*13,316*
Lead, Total	***2.0***	***6.0***	*2,590*	*5,197*
Nickel, Total	***0.28***	***0.84***	*71,430*	*143,321*
Zinc, Total	***3.3***	***9.6***	*14,979*	*30,054*
Cyanide, Total	***0.081***	***0.21***	*1,050*	*2,106*
Naphthalene	***0.047***	***0.094***	*107,983*	*216,662*
Tetrachloroethylene	***0.071***	***0.14***	*207,533*	*416,405*

Using the above comparison table, the water quality-based mass for the monthly average and the daily maximum of O&G is more stringent than the technology-based mass. For the rest of the parameters in this table, the technology-based masses are much more stringent than the water quality-based masses. Therefore, for parameters other than O&G, the technology-based mass limits are used in the permit instead of the water quality-based mass limits. The concentration limits for O&G are water quality-based in accordance with Rule 2.510. As stated above in Section 11.D.5, equivalent technology-based concentrations for

other pollutants discharging through Outfall 001 are not included in the permit since the receiving stream to effluent dilution factor is greater than 100:1 [EPA Technical Support Document for Water Quality Based Toxics Control, Section 5.7.1, March 1991].

(8) **Mass Permit Limits Included for Outfall 001**

The pollutants, Copper, Iron, and Cyanide, are regulated under 40 C.F.R. Part 465 but are not regulated under 40 C.F.R. Part 420. The facility will combine and treat all the wastewater through the existing treatment process. Pursuant to 40 C.F.R. Part 122.45(g), technology-based effluent limitations or standards shall be adjusted to reflect credit for pollutants in the discharger's intake water. Therefore, the limitations for Iron (Net Increase Over Intake Water) are included to account for the influent background concentration in the source water wells. The periodic analyses for Cyanide are only required once per year because the facility certifies that cyanide is not used in the coil coating process. Based on the submitted data in the application, only one (1) out of 103 samples was above the detection level, which was considered as a sampling error. Therefore, no adjustment is needed for Cyanide because the wastewater generated from the production lines under 40 C.F.R. Part 420 didn't contain any Cyanide chemicals.

Since Copper is not a regulated parameter under 40 C.F.R. Part 420 and the process wastewater generated by 40 C.F.R. Part 420 and Part 465 are combined for treatment prior to discharge, the permit limits for Copper derived using 40 C.F.R. Part 465 were adjusted to account for the Copper concentration in the wastewater generated from the production lines under 40 C.F.R. Part 420. In April 2002, EPA published the document, "Development Document for Final Effluent Limitations Guidelines and Standards for the Iron and Steel Manufacturing Point Source Category," to calculate each production-normalized limitation using the following basic equation:

Production-normalized limitation = Concentration-based limitation × Production-normalized flow rate × conversion factor

In accordance with EPA's "Development Document for Effluent Limitations Guidelines New Source Performance Standards and Pretreatment Standards for the Iron and Steel Manufacturing Point Source Category" in May 1982, the concentration-based limitations can be calculated by using the following statistical methodology.

Daily Maximum Concentrations (L) = VF × LTA
30-day Average Concentrations (L) = VF* × LTA*
Where,
Long Term Average (LTA) = Median of the plant averages for a pollutant
VF = daily variability factor
VF = 30-day average variability factor*

The daily maximum variability factor is estimated by the equation:

$$ln (VF) = Z(Sigma) - .5(Sigma)^2$$

where
Z is 2.33, which is the 99th percentile for the standard normal distribution, and
Sigma is the standard deviation of the natural logarithm of the concentrations.

The 30-day average variability factor is estimated by the equation:

VF = 1.0 + Z (S*/A)*
Where
Z is 1.64, which is the 95th percentile of the standard normal distribution;
S is the estimated standard deviation of the 30-day averages, obtained by dividing the estimated standard deviation of the daily pollutant concentrations by the square root of 30; and,*
A is the average pollutant concentration.

Based on the collected data in the application from February to October 2024, the production-normalized mass loading for Copper from 40 C.F.R. 420 can be derived as follows:

Long Term Average (LTA) = 2.65 μg/l
Daily Maximum Concentrations (L) = 2.926 × 2.65 μg/l = 7.75 μg/l
30-day Average Concentrations (L) = 1.222 × 2.65 μg/l = 3.24 μg/l*

Daily Maximum Mass = 7.75 (μg/l) × 0.0000616 (MGD/1,000 lbs/day) × 8.34/1,000
= 0.00000399 (lb/1,000 lb of product)
30-day Average Mass = 3.24 (μg/l) × 0.0000616 (MGD/1,000 lb/day) × 8.34/1,000
= 0.00000166 (lb/1,000 lb of product)

The adjusted amount of Copper from the production lines under 40 C.F.R. 420 can be calculated based on the estimated production of 22,466 (1,000 lb/day as liquid steel).

Daily Maximum Mass Loading = 0.00000399 × 22,466 = 0.0895 lb/day
30-day Average Mass Loading = 0.00000166 × 22,466 = 0.0374 lb/day

These Copper mass loadings from 40 C.F.R. 420 processes are added to the Copper mass loadings calculated from 40 C.F.R. 465 processes to determine the final limits for Copper shown in the following table.

Parameter	Monthly Average Limit (lb/day)	Daily Maximum Limit (lb/day)
TSS	*725.1*	*1,828*
O&G	104.3	156.4
Chromium (VI)	*0.13*	*0.40*
Chromium, Total	*0.54*	*1.3*
Copper, Total	*0.74*	*1.5*

Parameter	Monthly Average Limit (lb/day)	Daily Maximum Limit (lb/day)
Iron, Total (Net increase over intake water)	*0.67*	*1.4*
Lead, Total	*2.0*	*6.0*
Nickel, Total	*0.28*	*0.84*
Zinc, Total	*3.3*	*9.6*
Cyanide, Total	*0.081*	*0.21*
Naphthalene	*0.047*	*0.094*
Tetrachloroethylene	*0.071*	*0.14*
pH[1]	Minimum 6.0 s.u.	Maximum 9.0 s.u.

[1] There are no mass limits for pH.

12. **WHOLE EFFLUENT TOXICITY**

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

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

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

TOXICITY TESTS	**FREQUENCY**
48 hour Acute WET	Once/quarter

Requirements for measurement frequency are based on the CPP.

Since the 7Q10 is greater than 100 cfs (ft^3/sec) and the dilution ratio (DR) is greater than 100:1, acute WET testing requirements will be included in the permit.

The calculations for dilution used for the acute WET testing are as follows:

Critical Dilution (CD) = $(Q_d / (Q_d + Q_b)) \times 100$

Q_d = Design Flow = 1.25 MGD = 1.93 cfs
7Q10 = *164,272 cfs*
Q_b = Background flow = 0.1 × (0.25) × 7Q10 = *4,107 cfs*
CD = (1.93 / (1.93 + *4,107*)) × 100 = 0.05%

DR = $(7Q10 + Q_d) / Q_d$ = *85,116* >100

Toxicity tests shall be performed in accordance with protocols described in "Methods for Measuring the Acute Toxicity of Effluent to Freshwater and Marine Organisms," EPA/600/4-90/027. 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 ***0.02%, 0.03%, 0.04%, 0.05%,*** *and* ***0.07%*** (See the CPP). The low-flow effluent concentration (critical dilution) is defined as ***0.05%*** effluent. The requirement for acute WET tests is based on the magnitude of the facility's discharge with respect to receiving stream flow. The stipulated test species *Daphnia pulex* and the Fathead minnow (*Pimephales promelas*) are representative of organisms indigenous to the geographic area of the facility; the use of these is consistent with the requirements of the state water quality standards. The WET testing frequency has been established to provide data representative of the toxic potential of the facility's discharge, in accordance with the regulations promulgated at 40 C.F.R. § 122.48.

Results of all dilutions as well as the associated chemical monitoring of pH, temperature, hardness, dissolved oxygen, conductivity, and alkalinity shall be reported according to EPA-821-R-02-012, October 2002, and shall be submitted as an attachment to the Discharge Monitoring Report (DMR).

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

Administrative Records

The following information summarizes toxicity tests submitted by the permittee during the term of the current permit at Outfall **001:**

Permit Number:	AR0052582	AFIN:	47-00991	Outfall Number:	001
Date of Review:	10/9/2024	Reviewer:	N. McKenna/ M. Barnett		
Facility Name:	Big River Steel LLC				
Previous Dilution series:	0.03, 0.04, 0.05, 0.07, 0.09%	Proposed Dilution Series:	0.02, 0.03, 0.04, 0.05, 0.07%		
Previous Critical Dilution:	0.07	Proposed Critical Dilution:	0.05		
Previous TRE activities:	None				

Frequency recommendation by species

Pimephales promelas (Fathead minnow):	once/quarter
Daphnia pulex (water flea):	once/quarter

TEST DATA SUMMARY

	Vertebrate		Invertebrate	
TEST DATE	Lethal		Lethal	
	NOEC		NOEC	
12/31/2019	0.08		0.08	
3/31/2020	0.08		0.08	
6/30/2020	0.08		0.08	
9/30/2020	0.08		0.08	
12/31/2020	0.08		0.08	
3/31/2021	0.08		0.08	
6/30/2021	0.08		0.08	
9/30/2021	0.08		0.08	
12/31/2021	0.08		0.08	
3/31/2022	0.09		0.09	
6/30/2022	0.09		0.09	
9/30/2022	0.09		0.09	
12/31/2022	0.09		0.09	
3/31/2023	0.09		0.09	
6/30/2023	0.09		0.09	
9/30/2023	0.09		0.09	
12/31/2023	0.09		0.09	
3/31/2024	0.09		0.09	
6/30/2024	0.09		0.09	
9/30/2024	0.09		0.07	

REASONABLE POTENTIAL CALCULATIONS

	Vertebrate Lethal		**Invertebrate Lethal**	
Min NOEC Observed	0.08		0.07	
TU at Min Observed	1250.00		1428.57	
Count	20		20	
Failure Count	0		0	
Mean	1173.611		1189.484	
Std. Dev.	70.891		89.309	
CV	0.1		0.1	
RPMF	1.1		1.1	
Reasonable Potential	0.688		0.786	
100/Critical dilution	2000.000		2000.000	
Does Reasonable Potential Exist	No		No	

PERMIT ACTION

P. promelas lethal - monitoring
D. pulex lethal - monitoring

13. STORMWATER REQUIREMENTS

The federal regulations at 40 C.F.R. § 122.26(b)(14) require certain industrial sectors to have NPDES permit coverage for stormwater discharges from the facility. These requirements include the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) to control the quality of stormwater discharges from the facility. This facility was issued stormwater permit coverage under NPDES Tracking number ARR001578.

14. SAMPLE TYPE AND FREQUENCY

Regulations require permits to establish monitoring requirements to yield data representative of the monitored activity [40 C.F.R. § 122.48(b)] and to ensure compliance with permit limitations [40 C.F.R. § 122.44(i)(l)].

Requirements for sample type and sampling frequency have been based on the previous discharge permit, *except for Copper, Iron, and Cyanide. The sampling requirements for Iron and Copper have been based on other metals in the previous permit. The sampling requirements for Cyanide were once per year for this permit term based on the condition in 40 C.F.R. § 465.03(a).*

Parameter	Previous Permit		Final Permit	
	Frequency of Sample	Sample Type	Frequency of Sample	Sample Type
Outfall 001				
Flow	once/day	totalizing meter	once/day	totalizing meter
TSS	once/week	composite	once/week	composite
O&G	once/week	grab	once/week	grab
Chromium (VI)	once/week	composite	once/week	composite
Chromium, Total	once/week	composite	once/week	composite
Copper, Total	*N/A*	*N/A*	*once/week*	*composite*
Iron, Total	*N/A*	*N/A*	*once/week*	*composite*
Lead, Total	once/week	composite	once/week	composite
Nickel, Total	once/week	composite	once/week	composite
Zinc, Total	once/week	composite	once/week	composite
Cyanide, Total	*N/A*	*N/A*	*once/year*	*grab*
Naphthalene	once/week	grab	once/week	grab
Tetrachloroethylene	once/week	grab	once/week	grab
pH	once/week	grab	once/week	grab
Acute WET Testing	once/quarter	24-hr composite	once/quarter	composite
Outfall 002				
Flow	two/week	calculated	two/week	calculated
TSS	once/quarter	grab	once/quarter	grab

Parameter	Previous Permit		Final Permit	
	Frequency of Sample	Sample Type	Frequency of Sample	Sample Type
O&G	once/quarter	grab	once/quarter	grab
pH	once/month	grab	once/month	grab

15. **PERMIT COMPLIANCE SCHEDULE**

A Schedule of Compliance has not been included in this permit.

16. **MONITORING AND REPORTING**

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

17. **SOURCES**

The following sources were used to draft the permit:

A. Additional Information for Modification Application No. AR0052582 received on *November 15*, 2024.
B. *Additional Information for Modification Application No. AR0052582 received on September 12, 2024.*
C. *Modification Application No. AR0052582 received April 5, 2024.*
D. Application No. AR0052582 received November 30, 2020, with additional information received on March 25, 2021.
E. APC&EC Rule 2, *codified in 8 CAR Part 21*.
F. APC&EC Rule 3, *codified in 8 CAR Part 22*.
G. APC&EC Rule 6, *codified in 8 CAR Part 25*, which incorporates by reference certain federal regulations included in Title 40 of the Code of Federal Regulations at Rule 6.104.
H. 40 C.F.R. Parts 122 and 125.
I. *40 C.F.R. Part 420 - Subparts: D, E, F, G, I, J, K, and L and 40 C.F.R. Part 465 - Subparts: A and B.*
J. *"Development Document for Effluent Limitations Guidelines New Source Performance Standards and Pretreatment Standards for the Iron and Steel Manufacturing Point Source Category," EPA, May 1982.*
K. *"Development Document for Final Effluent Limitations Guidelines and Standards for the Iron and Steel Manufacturing Point Source Category," EPA, April 2002.*
L. Discharge permit file AR0052582.
M. Discharge Monitoring Reports (DMRs).
N. *"2020 Integrated Water Quality Monitoring and Assessment Report," DEQ.*
O. *"2020 List of Impaired Waterbodies (303(d) List)," DEQ.*
P. USGS StreamStats Web-based Program.
Q. Continuing Planning Process (CPP).
R. Technical Support Document for Water Quality-based Toxic Control.
S. *Inspection Report dated September 1, 2021*.

T. *Compliance Review Memo dated May 1, 2024*.
U. Planning Review Memo dated January 19, 2021.
V. *Planning Review Memo dated April 25, 2024*.
W. *NPDES Permit Rating Spreadsheet (MRAT) dated September 23, 2024*.
X. EPA Comments to Preliminary Draft Permit Letter, dated July 22, 2021, from Maria L. Martinez of EPA to Bryan Leamons of DEQ.
Y. ANHC Comment to Preliminary Draft Permit Letter, dated September 3, 2021, from Katie Shannon of ANHC to Terry Liu of DEQ.
Z. Public Comments to Preliminary Draft Permit dated September 21, 2021.
AA. *Request for Site Specific MQLs for Lead and Nickel date October 26, 2023*.
BB. *DEQ Approval Letter for Site Specific MQLs for Lead and Nickel dated November 22, 2023*.
CC. *Certification Letter for No Use of Cyanide Chemicals Dated October 14, 2024*.
DD. *"Concentrations of select dissolved trace elements and anthropogenic organic compounds in the Mississippi River and major tributaries during the summer of 2012 and 2013,"* *Bussan D. D., Ochs C. A., Jackson C. R., Anumol T., Snyder S. A., Cizdziel J. V., Environmental Modeling & Assessment. 2017, 189(2).*
EE. *EPA Comment to Preliminary Draft Permit Letter, dated March 17, 2025, from Mark Hayes of EPA to Jessica Sears of DEQ*.

18. PUBLIC NOTICE

The public notice of the draft permit was published for public comment on March 23, 2025. The last day of the comment period was thirty (30) days after the publication date. No public comments were received on the draft permit.

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

19. PERMIT FEE

In accordance with Rule 9.403(A)(1), the annual fee for the permit is $15,000 and the modification fee is $5,000.

This facility is billed under Fee Code J.

20. POINT OF CONTACT

For additional information, contact:

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