



A R K A N S A S
Department of Environmental Quality

FEB 16 2019

CERTIFIED MAIL: RETURN RECEIPT REQUESTED (9489 0090 0027 6060 6412 65)

MaryEmily Slate, General Manager/VP
Nucor Corporation - Nucor Steel Arkansas - Hickman Mill
P.O. Box 30
Armored, AR 72310

RE: Discharge Permit Number AR0045977, AFIN 47-00233

Dear Ms. Slate:

Enclosed are the public notice, a copy of the draft permit, and Fact Sheet which the Arkansas Department of Environmental Quality (ADEQ) has prepared and mailed to you on the above date under the authority of the National Pollutant Discharge Elimination System (NPDES) and the Arkansas Water and Air Pollution Control Act. A copy of the final permit will be mailed to you when the Department has made a final permitting decision.

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

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

Should you have any questions concerning any part of the draft permit, please contact Terry Liu, P.E. at (501) 682-0653.

Sincerely,

A handwritten signature in black ink, appearing to read "Caleb Osborne", is written over a horizontal line.

Caleb Osborne
Associate Director, Office of Water Quality

CO:tl

Enclosure

PUBLIC NOTICE OF DRAFT DISCHARGE PERMIT
PERMIT NUMBER AR0045977, AFIN 47-00233

In accordance with Ark. Code Ann. § 8-4-203(e), the Arkansas Department of Environmental Quality (ADEQ), Office of Water Quality, gives the following notice:

Nucor Corporation - Nucor Steel Arkansas - Hickman Mill operates a facility located as follows: 7301 East County Road 142, Blytheville, AR 72315 in Mississippi County. The facility is currently permitted to discharge treated process wastewater into the Mississippi River in Segment 6C of the Mississippi River Basin. Nucor Corporation - Nucor Steel Arkansas - Hickman Mill submitted an application on August 2, 2018 for the modification of NPDES Permit No. AR0045977. The application has been reviewed by the ADEQ's Office of Water Quality and has received tentative approval subject to the terms of this notice.

Citizens wishing to examine or obtain copies of the permit application, the draft permitting decision, or the Fact Sheet may do so at the ADEQ headquarters located at 5301 Northshore Drive, North Little Rock, AR 72118-5317. To request a hard copy of one or more of the documents to be mailed, please call (501) 682-0623. For those with Internet access, a copy of the proposed draft permit as well as the publication date may be found on the ADEQ's website at: https://www.adeq.state.ar.us/water/permits/drafts_pn.aspx

Comments on the draft modification will be accepted in accordance with Arkansas Pollution Control and Ecology Commission Reg. 8.208. ADEQ's contact person for submitting written comments on the draft permit or requesting a public hearing on the draft permit, is Terry Liu, P.E., at the above address and telephone number, or by email at Water-Draft-Permit-Comment@adeq.state.ar.us.

The period for submitting comments on the draft permit and for requesting a public hearing shall begin on the date of publication of the public notice, and end at 4:30 P.M. (Central Time) on the 30th day after the publication date. If the last day of the comment period is a Saturday, Sunday, or legal holiday, the public comment period shall expire on the next day that is not a Saturday, Sunday, or legal holiday. For information regarding the actual publication date along with the actual date and time the comment period will end, please contact Terry Liu, P.E. at the above address and telephone number or by email at Water-Draft-Permit-Comment@adeq.state.ar.us. Public notice, comments, and hearings will be conducted in accordance with Regulation 6.104(A)(5) [40 CFR Parts 124.10 through 124.12 by reference] and Regulation 8.207 through 8.210 (Administrative Procedures). All persons, including the permittee, who wish to comment on ADEQ's draft permitting decision must submit written comments to ADEQ, along with their name and mailing address. A Public Hearing will be held when ADEQ finds a significant degree of public interest. After the public comment period, ADEQ will issue a final permitting decision. ADEQ will notify the applicant and each person who has submitted written comments or requested notice of the final permitting decision. Any interested person who has submitted comments may appeal a final decision by ADEQ in accordance with the APC&EC Regulation No. 8.603.

**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.),

Nucor Corporation
Nucor Steel Arkansas - Hickman Mill

is authorized to discharge treated sanitary wastewater through Outfall 002, and treated process wastewater from steelmaking, continuous casting, hot forming, acid pickling, cold forming, alkaline cleaning, and hot coating through Outfall 004 from a facility located as follows: 7301 East County Road 142, Blytheville, AR 72315, twelve miles east of Blytheville on East County Road 142, just off of Hwy 137 in Mississippi County, Arkansas. The applicant's mailing address is: P.O. Box 30, Armorel, AR 72310.

Latitude: 35° 56' 17.19" N; Longitude: 89° 43' 0.15" W

to receiving waters named:

Outfall 002: an unnamed tributary, thence to Ditch No. 38, thence to Crooked Lake Bayou, thence to Pemiscot Bayou (Ditch No. 29), thence to the Little River, thence to the St. Francis River in Segment 5C of the St. Francis River Basin.

Outfall 004: the Mississippi River in Segment 6C of the Mississippi River Basin.

The outfall is located at the following coordinates:

Outfall 002: Latitude: 35° 56' 16" N; Longitude: 89° 43' 2" W

Outfall 004: Latitude: 35° 57' 3" N; Longitude: 89° 42' 12" 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: January 1, 2018

Major Modification Effective Date:

Expiration Date: December 31, 2022

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

Major Modification Issue Date

PART I
PERMIT REQUIREMENTS

SECTION A1. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS: OUTFALL 002 - treated sanitary wastewater

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 and calculations.

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max.	Monthly Avg.	Daily Max.		
Flow	N/A	N/A	Report, MGD	Report, MGD	once/day	totalizing meter
Carbonaceous Biochemical Oxygen Demand (CBOD ₅)						
(May-Oct)	3.8	5.6	15.0	22.5	once/month	composite
(Nov-Apr)	5.0	7.5	20.0	30.0	once/month	composite
Total Suspended Solids (TSS)	5.0	7.5	20.0	30.0	once/month	composite
Ammonia Nitrogen (NH ₃ -N)						
(April)	1.3	1.3	5.2	5.2	once/month	composite
(May-Oct)	1.3	1.9	5.0	7.5	once/month	composite
(Nov-March)	2.5	3.7	10.0	14.7	once/month	composite
Dissolved Oxygen (DO)	N/A	N/A	2.0 (Inst. Min.)		once/month	grab
Fecal Coliform Bacteria (FCB)			(colonies/100ml)			
	N/A	N/A	1000	2000	once/month	grab
Oil and Grease (O&G)	2.5	3.8	10.0	15.0	once/month	grab
pH	N/A	N/A	<u>Minimum</u> 6.0 s.u.	<u>Maximum</u> 9.0 s.u.	once/month	grab

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 final treatment at the outfall.

PART I PERMIT REQUIREMENTS

SECTION A2. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS: OUTFALL 004 - treated process wastewater from steelmaking, continuous casting, hot forming, acid pickling, cold forming, alkaline cleaning, and hot coating

During the period beginning on the effective date and lasting until the start of operation of Cold Mill 2, the permittee is authorized to discharge from Outfall 004. Such discharges shall be limited and monitored by the permittee as specified below as well as Parts II and III. See Part IV for all definitions and calculations.

Tier I – Design Flow = 0.819 MGD*

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max.	Monthly Avg.	Daily Max.		
Flow	N/A	N/A	Report, MGD	Report, MGD	once/day	totalizing meter
Total Suspended Solids (TSS)	498.82	1302.44	Report	Report	once/month	composite
Oil and Grease (O&G)	57.39	102.46	10.0	15.0	once/month	grab
Total Recoverable Chromium (Cr) ¹	0.050	0.125	Report, µg/l	Report, µg/l	once/month	composite
Total Recoverable Lead (Pb) ¹	1.65	4.94	Report, µg/l	Report, µg/l	once/month	composite
Total Recoverable Nickel (Ni) ¹	0.342	0.484	Report, µg/l	Report, µg/l	once/month	composite
Total Recoverable Zinc (Zn) ¹	2.37	7.11	Report, µg/l	Report, µg/l	once/month	composite
pH	N/A	N/A	<u>Minimum</u> 6.0 s.u.	<u>Maximum</u> 9.0 s.u.	once/month	grab
Acute WET Testing ²						
<u>Pimephales promelas (Acute)</u>² Pass/Fail Lethality (48-Hr NOEC) TEM6C Survival (48-Hr NOEC) TOM6C Coefficient of Variation (48-Hr NOEC) TQM6C			<u>48-hr Minimum</u> Report (Pass=0/Fail=1) Report % Report %		once/quarter once/quarter once/quarter	composite composite composite
<u>Daphnia pulex (Acute)</u>² Pass/Fail Lethality (48-Hr NOEC) TEM3D Survival (48-Hr NOEC) TOM3D Coefficient of Variation (48-Hr NOEC) TQM3D			<u>48-hr Minimum</u> Report (Pass=0/Fail=1) Report % Report %		once/quarter once/quarter once/quarter	composite composite composite

* See Transition Condition in Part II.8 of this permit.

¹ See Part II.5 (Metals Condition).

² See Part II.7 (WET Testing Requirements).

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

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge during the entire monitoring period. Samples shall be taken after final treatment from the discharge pipe of the wastewater storage tank.

PART I PERMIT REQUIREMENTS

SECTION A3. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS: OUTFALL 004 - treated process wastewater from steelmaking, continuous casting, hot forming, acid pickling, cold forming, alkaline cleaning, and hot coating

During the period beginning with the initial operation of Cold Mill 2 and lasting until the date of expiration, the permittee is authorized to discharge from Outfall 004. Such discharges shall be limited and monitored by the permittee as specified below as well as Parts II and III. See Part IV for all definitions and calculations.

Tier II – Design Flow = 1.24 MGD*

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max.	Monthly Avg.	Daily Max.		
Flow	N/A	N/A	Report, MGD	Report, MGD	once/day	totalizing meter
Total Suspended Solids (TSS)	585.07	1502.82	Report	Report	once/week	composite
Oil and Grease (O&G)	86.17	155.12	10.0	15.0	once/week	grab
Total Recoverable Chromium (Cr) ¹	0.087	0.215	Report, µg/l	Report, µg/l	once/month	composite
Total Recoverable Lead (Pb) ¹	1.85	5.56	Report, µg/l	Report, µg/l	once/month	composite
Total Recoverable Nickel (Ni) ¹	0.447	0.910	Report, µg/l	Report, µg/l	once/month	composite
Total Recoverable Zinc (Zn) ¹	2.63	7.91	Report, µg/l	Report, µg/l	once/month	composite
pH	N/A	N/A	<u>Minimum</u> 6.0 s.u.	<u>Maximum</u> 9.0 s.u.	once/week	grab
Acute WET Testing ²						
<u>Pimephales promelas (Acute)</u>² Pass/Fail Lethality (48-Hr NOEC) TEM6C Survival (48-Hr NOEC) TOM6C Coefficient of Variation (48-Hr NOEC) TQM6C			<u>48-hr Minimum</u> Report (Pass=0/Fail=1) Report % Report %		once/quarter once/quarter once/quarter	composite composite composite
<u>Daphnia pulex (Acute)</u>² Pass/Fail Lethality (48-Hr NOEC) TEM3D Survival (48-Hr NOEC) TOM3D Coefficient of Variation (48-Hr NOEC) TQM3D			<u>48-hr Minimum</u> Report (Pass=0/Fail=1) Report % Report %		once/quarter once/quarter once/quarter	composite composite composite

* See Transition Condition in Part II.8 of this permit.

¹ See Part II.5 (Metals Condition).

² See Part II.7 (WET Testing Requirements).

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

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge during the entire monitoring period. Samples shall be taken after final treatment from the discharge pipe of the wastewater storage tank.

SECTION B. PERMIT COMPLIANCE SCHEDULE

None.

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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 Regulation No. 3.
2. In accordance with 40 CFR Parts 122.62 (a)(2) and 124.5, this permit may be reopened for modification or revocation and/or reissuance to require additional monitoring and/or effluent limitations when new information is received that actual or potential exceedance of State water quality criteria and/or narrative criteria are determined to be the result of the permittee's discharge(s) to a relevant water body or a Total Maximum Daily Load (TMDL) is established or revised for the water body that was not available at the time of the permit issuance that would have justified the application of different permit conditions at the time of permit issuance.

3. Other Specified Monitoring Requirements

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

- The monitoring and analytical instruments are consistent with accepted scientific practices.
- The requests shall be submitted in writing to the Permits Branch of the Office of Water Quality of the ADEQ for use of the alternate method or instrument.
- The method and/or instrument is in compliance with 40 CFR Part 136 or approved in accordance with 40 CFR Part 136.5.
- 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 Control/Quality Assurance program.

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

4. Best Management Practices (BMPs), as defined in Part IV.6, must be implemented for the facility to prevent or reduce the pollution of waters of the State from stormwater runoff, spills or leaks, and/or waste disposal. The permittee must amend the BMPs whenever there is a change in the facility or a change in the operation of the facility.
5. The permittee may use any EPA approved method based on 40 CFR Part 136 provided the MQL for the chosen method is equal to or less than what has been specified in chart below:

Pollutant	MQL (µg/l)
Chromium, Total Recoverable	10
Lead, Total Recoverable	0.5
Nickel, Total Recoverable	0.5
Zinc, Total Recoverable	20

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

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

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

6. The permittee is not allowed to use Naphthalene or Tetrachloroethylene in any process at this facility.

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

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:	004
REPORTED ON DMR AS FINAL OUTFALL:	Outfall 004
CRITICAL DILUTION (%):	1.0
EFFLUENT DILUTION SERIES (%):	0.4, 0.6, 0.8, 1.0, and 1.3
TESTING FREQUENCY:	once/quarter
COMPOSITE SAMPLE TYPE:	Defined at PART II.6.C.iv
TEST SPECIES/METHODS:	40 CFR Part 136

Daphnia pulex acute static renewal 48-hour definitive toxicity test using EPA-821-R-02-012, or the latest update thereof. A minimum of five (5) replicates with eight (8) organisms per replicate must be used in the control and in each effluent dilution of this test.

Pimephales promelas (Fathead minnow) acute static renewal 48-hour definitive toxicity test using EPA-821-R-02-012, or the latest update thereof. A minimum of five (5) replicates with eight (8) organisms per replicate must be used in the control and in each effluent dilution of this test.

- ii. The NOEC (No Observed Effect Concentration) is defined as the greatest effluent dilution at and below which toxicity that is statistically different from the control (0% effluent) at the 95% confidence level does not occur. 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 whole effluent toxicity limits, chemical specific effluent limits, additional testing, and/or other appropriate actions to address toxicity.

B. PERSISTENT LETHALITY

The requirements of this subsection apply only when a toxicity test demonstrates significant lethal effects at or below the critical dilution. Significant lethal effects are herein defined as a statistically significant difference at the 95% confidence level between the survival of the appropriate test organism in a specified effluent dilution and the control (0% effluent). The purpose of retests is to determine the duration of a toxic event. A test that meets all test acceptability criteria and demonstrates significant toxic effects does not need additional confirmation.

Such testing cannot confirm or disprove a previous test result.

If a frequency reduction, as specified in Item F, has been granted and any subsequent 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 for the life of the permit.

i. Part I Testing Frequency Other Than Monthly

- a. The permittee shall conduct a total of three (3) retests for any species that demonstrates significant lethal effects at or below the critical dilution. The retests shall be conducted monthly during the next three consecutive months. If testing on a quarterly basis, the permittee may substitute one of the retests in lieu of one Scheduled toxicity test. A full report shall be prepared for each test required by this section in accordance with procedures outlined in Item D of this section and submitted with the period discharge monitoring report (DMR) to the permitting authority for review.

- b. If any of the retests demonstrates significant lethal effects at or below the critical dilution, the permittee shall initiate Toxicity Reduction Evaluation (TRE) requirements as specified in Item E of this section. The permittee shall notify ADEQ in writing within 5 days of the failure of any retest, and the TRE initiation date will be the test completion date of the first failed retest. A TRE may be also be required due to a demonstration of intermittent lethal effects at or below the critical dilution, or for failure to perform the required retests.
- c. The provisions of Item B.i are suspended upon submittal of the TRE Action Plan.

C. REQUIRED TOXICITY TESTING CONDITIONS

i. Test Acceptance

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

- a. Each toxicity test control (0% effluent) must have a survival equal to or greater than 90%.
- b. The percent coefficient of variation between replicates shall be 40% or less in the control (0% effluent) for: Daphnia pulex survival test; and Fathead minnow survival test.
- c. The percent coefficient of variation between replicates shall be 40% or less in the critical dilution, unless significant lethal effects are exhibited for: Daphnia pulex survival test; and Fathead minnow survival test.
- d. If a test passes, yet the percent coefficient of variation between replicates is greater than 40% in the control (0% effluent) and/or in the critical dilution for: the survival in the Daphnia pulex survival test or the survival endpoint of the Fathead minnow test, the test is determined to be invalid. A repeat test shall be conducted within the required reporting period of any test determined to be invalid.
- e. If a test fails, test failure may not be construed or reported as invalid due to a coefficient of variation value of greater than 40%.

ii. Statistical Interpretation

For the Daphnia pulex survival test and the Fathead minnow survival test, the statistical analyses used to determine if there is a statistically significant difference between the control and the critical dilution shall be in accordance with the methods for determining the No Observed Effect Concentration (NOEC) as described in EPA-821-R-02-012 or the most recent update thereof.

If the conditions of Test Acceptability are met in Item C.i above and the percent survival of the test organism is equal to or greater than 90% in the critical dilution concentration and all lower dilution concentrations, the test shall be considered to be a passing test, and the permittee shall report an NOEC of not less than the critical dilution for the DMR reporting requirements found in Item D below.

iii. Dilution Water

- a. Dilution water used in the toxicity tests will be receiving water collected as close to the point of discharge as possible but unaffected by the discharge. The permittee shall substitute synthetic dilution water of similar pH, hardness, and alkalinity to the closest downstream perennial water for;
 - (1) toxicity tests conducted on effluent discharges to receiving water classified as intermittent streams; and
 - (2) toxicity tests conducted on effluent discharges where no receiving water is available due to zero flow conditions.
- b. If the receiving water is unsatisfactory as a result of instream toxicity (fails to fulfill the test acceptance criteria of Item C.i), the permittee may substitute synthetic dilution water for the receiving water in all subsequent tests provided the unacceptable receiving water test met the following stipulations:
 - (1) a synthetic dilution water control which fulfills the test acceptance requirements of Item C.i was run concurrently with the receiving water control;
 - (2) the test indicating receiving water toxicity has been carried out to completion (i.e., 48 hours);
 - (3) the permittee includes all test results indicating receiving water toxicity with the full report and information required by Item D below; and
 - (4) the synthetic dilution water shall have a pH, hardness, and alkalinity similar to that of the receiving water or closest downstream perennial water not adversely affected by the discharge, provided the magnitude of these parameters will not cause toxicity in the synthetic dilution water.

iv. Samples and Composites

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

- b. The permittee shall collect a second composite sample for use during the 24-hour renewal of each dilution concentration for both tests. The permittee must collect the composite samples so that the maximum holding time for any effluent sample shall not exceed 36 hours. The permittee must have initiated the toxicity test within 36 hours after the collection of the last portion of the first composite sample. Samples shall be chilled to between 0 and 6 degrees Centigrade during collection, shipping, and/or storage.
- c. The permittee must collect both flow-weighted composite samples within the monitoring period. The second composite sample shall not be collected into the next monitoring period; such tests will be determined to be invalid. Monitoring period definitions are listed in Part IV.
- d. The permittee must collect the composite samples such that the effluent samples are representative of any periodic episode of chlorination, biocide usage or other potentially toxic substance discharged on a regular or intermittent basis.
- e. If the flow from the outfall(s) being tested ceases during the collection of effluent samples, the requirements for the minimum number of effluent samples, the minimum number of effluent portions and the sample holding time are waived during that sampling period. However, the permittee must have collected an effluent composite sample volume during the period of discharge that is sufficient to complete the required toxicity tests with daily renewal of effluent. The effluent composite sample collection duration and the static renewal protocol associated with the abbreviated sample collection must be documented in the full report required in Item D of this section.

D. 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 EPA-821-R-02-012, for every valid or invalid toxicity test initiated, whether carried to completion or not. The permittee shall retain each full report pursuant to the provisions of PART III.C.7 of this permit. The permittee shall submit full reports. For any test or retest which fails, is considered invalid or which is terminated early for any reason, the full report must be submitted for agency review.
- ii. A valid test for each species must be reported on the DMR during each reporting period specified in PART I of this permit. The full report for all invalid tests, repeat tests (for invalid tests), and retests (for tests previously failed) performed during the reporting period must be attached to the DMR for Agency review.
- iii. The permittee shall report the following results of each valid toxicity test and retest on the subsequent monthly DMR for that reporting period in accordance with PART III.D.4 of this permit. Only results of valid tests are to be reported on the DMR.

a. Pimephales promelas (Fathead minnow)

- (1) If the No Observed Effect Concentration (NOEC) for survival is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TEM6C.
- (2) Report the NOEC value for survival, Parameter No. TOM6C.
- (3) Report the highest (critical dilution or control) Coefficient of Variation, Parameter No. TQM6C.
- (4) If conducting retests due to a test failure (demonstration of significant toxic effects at or below the critical dilution):
 - (A) Consecutive Monthly Retest 1: If the NOEC for P. promelas is less than the critical dilution, enter a '1'; otherwise, enter a '0' under Parameter No. 22418;
 - (B) Consecutive Monthly Retest 2: If the NOEC for P. promelas is less than the critical dilution, enter a '1'; otherwise, enter a '0' under Parameter No. 22419;
 - (C) Consecutive Monthly Retest 3: If the NOEC for P. promelas is less than the critical dilution, enter a '1'; otherwise, enter a '0' under Parameter No. 51444;
 - (D) If testing on a quarterly basis, the permittee may substitute one of the retests in lieu of one routine toxicity test;
 - (E) If retests are not required, Report NODI=9 (Conditional Monitoring - Not Required This Period) under Parameter Nos. 22418, 22419, 51444

b. Daphnia pulex

- (1) If the NOEC for survival is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TEM3D
- (2) Report the NOEC value for survival, Parameter No. TOM3D.
- (3) Report the highest (critical dilution or control) Coefficient of Variation, Parameter No. TQM3D.
- (4) If conducting retests due to a test failure (demonstration of significant toxic effects at or below the critical dilution):
 - (A) Consecutive Monthly Retest 1: If the NOEC for D. pulex is less than the critical dilution, enter a '1'; otherwise, enter a '0' under Parameter No. 22415;

(B) Consecutive Monthly Retest 2: If the NOEC for D. pulex is less than the critical dilution, enter a '1'; otherwise, enter a '0' under Parameter No. 22416;

(C) Consecutive Monthly Retest 3: If the NOEC for D. pulex is less than the critical dilution, enter a '1'; otherwise, enter a '0' under Parameter No. 51443;

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

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

E. TOXICITY REDUCTION EVALUATION (TRE)

- 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. The TRE Action Plan shall specify the approach and methodology to be used in performing the TRE. A Toxicity Reduction Evaluation is an investigation intended to determine those actions necessary to achieve compliance with water quality-based effluent limits by reducing an effluent's toxicity to an acceptable level. A TRE is defined as a step-wise process which combines toxicity testing and analyses of the physical and chemical characteristics of a toxic effluent to identify the constituents causing effluent toxicity and/or treatment methods which will reduce the effluent toxicity. The TRE Action Plan shall lead to the successful elimination of effluent toxicity at the critical dilution and include the following:
 - a. Specific Activities. The plan shall detail the specific approach the permittee intends to utilize in conducting the TRE. The approach may include toxicity characterizations, identifications and confirmation activities, source evaluation, treatability studies, or alternative approaches. When the permittee conducts Toxicity Characterization Procedures the permittee shall perform multiple characterizations and follow the procedures specified in the documents "Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures" (EPA-600/6-91/003) or alternate procedures. When the permittee conducts Toxicity Identification Evaluations and Confirmations, the permittee shall perform multiple identifications and follow the methods specified in the documents "Methods for Aquatic Toxicity Identification Evaluations, Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity" (EPA/600/R-92/080) and "Methods for Aquatic Toxicity Identification Evaluations, Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity" (EPA/600/R-92/081), as appropriate.

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

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

- b. Sampling Plan (e.g., locations, methods, holding times, chain of custody, preservation, etc.). The effluent sample volume collected for all tests shall be adequate to perform the toxicity test, toxicity characterization, identification and confirmation procedures, and conduct chemical specific analyses when a probable toxicant has been identified;
 - c. Where the permittee has identified or suspects specific pollutant(s) and/or source(s) of effluent toxicity, the permittee shall conduct, concurrent with toxicity testing, chemical specific analyses for the identified and/or suspected pollutant(s) and/or source(s) of effluent toxicity. Where lethality was demonstrated within 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;
 - d. Quality Assurance Plan (e.g., QA/QC implementation, corrective actions, etc.); and
 - e. Project Organization (e.g., project staff, project manager, consulting services, etc.).
- ii. The permittee shall initiate the TRE Action Plan within thirty (30) days of plan and schedule submittal. The permittee shall assume all risks for failure to achieve the required toxicity reduction.
 - iii. The permittee shall submit a quarterly TRE Activities Report, with the Discharge Monitoring Report in the months of January, April, July and October, containing information on toxicity reduction evaluation activities including:
 - a. any data and/or substantiating documentation which identifies the pollutant(s) and/or source(s) of effluent toxicity;
 - b. any studies/evaluations and results on the treatability of the facility's effluent toxicity; and
 - c. any data which identifies effluent toxicity control mechanisms that will reduce effluent toxicity to the level necessary to meet no significant lethality at the critical dilution.

- iv. The permittee shall submit a Final Report on Toxicity Reduction Evaluation Activities no later than twenty-eight (28) months from confirming lethality in the retests, which provides information pertaining to the specific control mechanism selected that will, when implemented, result in reduction of effluent toxicity to no significant lethality at the critical dilution. The report will also provide a specific corrective action schedule for implementing the selected control mechanism.
- v. Quarterly testing during the TRE is a minimum monitoring requirement. EPA recommends that permittees required to perform a TRE not rely on quarterly testing alone to ensure success in the TRE, and that additional screening tests be performed to capture toxic samples for identification of toxicants. Failure to identify the specific chemical compound causing toxicity test failure will normally result in a permit limit for whole effluent toxicity limits per federal regulations at 40 CFR 122.44(d)(1)(v).

F. MONITORING FREQUENCY REDUCTION

- i. The permittee may apply for a testing frequency reduction upon the successful completion of the first four consecutive quarters or first twelve consecutive months (in accordance with Item A.i.) of the current permit term of testing for one or both test species, with no lethal effects demonstrated at or below the critical dilution. If granted, the monitoring frequency for that test species may be reduced to not less than once per year for the less sensitive species (usually the Fathead minnow) and not less than twice per year for the more sensitive test species (usually the 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 in item C.i. above. In addition the permittee must provide a list with each test performed including test initiation date, species, NOECs for lethal effects and the maximum coefficient of variation for the controls. Upon review and acceptance of this information the agency will issue a letter of confirmation of the monitoring frequency reduction. A copy of the letter will be forwarded to the agency's Permit Compliance System section to update the permit reporting requirements.
- iii. SURVIVAL FAILURES - Monthly retesting is not required if the permittee is performing a TRE.
- iv. Any monitoring frequency reduction granted applies only until the expiration date of this permit, at which time the monitoring frequency for both test species reverts to once per quarter until the permit is re-issued.

8. Transition Period

The Nucor Corporation is proposing to include a second wastewater treatment plant to treat the proposed Cold Mill 2 process water with a design flow of 0.157 MGD. The process wastewater from the Cold Mill Pickling and Galvanization lines is pretreated via

equalization, temperature adjustment, neutralization, flocculation, clarification, Turbo Disc filtration, and pH adjustment. Treatment of the process wastewater generated from the R/T mill includes oil and water separation, pH adjustment, dissolved air flotation, and Turbo Disc filtration. The design flow at the outfall 004 will be increasing from 0.819 MGD to 1.24 MGD when the new system is installed and operating.

- a. Beginning on the effective date of the permit modification, the permittee must submit a Discharge Monitoring Report (DMR) for each permitted design flow (i.e., Tier I = 0.819 MGD and Tier II = 1.24 MGD) on a monthly basis. The DMR for Tier II can be marked and submitted as “Conditional Monitoring – Not Required This Period” until such time as the new treatment system is operational. The permittee must continue to submit two (2) monthly DMRs until the report required in Item b of this condition is received.
- b. The permittee must notify the ADEQ within 30 days of when the new wastewater treatment system has been installed and is operating. The permittee shall follow Tier II requirements after notification until the end of the permit term.

PART III STANDARD CONDITIONS

SECTION A – GENERAL CONDITIONS

1. Duty to Comply

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

2. Penalties for Violations of Permit Conditions

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

3. Permit Actions

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

- A. Violation of any terms or conditions of this permit.
- B. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts.
- C. A change in any conditions that requires either a temporary or permanent reduction or elimination of the authorized discharge.
- D. A determination that the permitted activity endangers human health or the environment and can only be regulated to acceptable levels by permit modification or termination.
- E. Failure of the permittee to comply with the provisions of APC&EC Regulation No. 9 (Permit fees) as required by Part III.A.11 herein.

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

4. **Toxic Pollutants**

Notwithstanding Part III.A.3, if any toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under APC&EC Regulation No. 2, as amended, or Section 307(a) of the Clean Water Act for a toxic pollutant which is present in the discharge and that standard or prohibition is more stringent than any limitations on the pollutant in this permit, this permit shall be modified or revoked and reissued to conform to the toxic effluent standards or prohibition and the permittee so notified.

The permittee shall comply with effluent standards, narrative criteria, or prohibitions established under APC&EC Regulation No. 2, as amended, or Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

5. **Civil and Criminal Liability**

Except as provided in permit conditions for “Bypass of Treatment Facilities” (Part III.B.4), and “Upset” (Part III.B.5), nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance. Any false or materially misleading representation or concealment of information required to be reported by the provisions of this permit or applicable state and federal 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 regulation under authority preserved by Section 510 of the Clean Water Act.

8. **Property Rights**

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

9. Severability

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

10. Applicable Federal, State or Local Requirements

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

11. Permit Fees

The permittee shall comply with all applicable permit fee requirements (i.e., including annual permit fees following the initial permit fee that will be invoiced every year the permit is active) for wastewater discharge permits as described in APC&EC Regulation No. 9 (Regulation for the Fee System for Environmental Permits). Failure to promptly remit all required fees shall be grounds for the Director to initiate action to terminate this permit under the provisions of 40 CFR Parts 122.64 and 124.5(d), as adopted in APC&EC Regulation No. 6 and the provisions of APC&EC Regulation No. 8.

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

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

2. Need to Halt or Reduce not a Defense

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

production or discharges or both until the facility is restored or an alternative method of treatment is provided. This requirement applies, for example, when the primary source of power for the treatment facility is reduced, is lost, or alternate power supply fails.

3. **Duty to Mitigate**

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

4. **Bypass of Treatment Facilities**

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

A. Bypass not exceeding limitation

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

B. Notice

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

C. Prohibition of bypass

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

5. Upset Conditions

- A. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Part III.B.5.B of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.
- B. Conditions necessary for demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
1. An upset occurred and that the permittee can identify the specific cause(s) of the upset.
 2. The permitted facility was at the time being properly operated.
 3. The permittee submitted notice of the upset as required by Part III.D.6.
 4. The permittee complied with any remedial measures required by Part III.B.3.
- C. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

6. Removed Substances

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

7. Power Failure

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

SECTION C – MONITORING AND RECORDS

1. Representative Sampling

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

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

2. **Flow Measurement**

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

Calculated Flow Measurement

For calculated flow measurements that are performed in accordance with either the permit requirements or a Department approved method (i.e., as allowed under Part II.3), the +/- 10% accuracy requirement described above is waived. This waiver is only applicable when the method used for calculation of the flow has been reviewed and approved by the Department.

3. **Monitoring Procedures**

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

4. **Penalties for Tampering**

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

5. **Reporting of Monitoring Results**

40 CFR 127.11 (a)(1) and 40 CFR 127.16 (a) require that monitoring reports must be reported on a Discharge Monitoring Reports (DMR) and filed electronically. Signatory Authorities must initially request access for a NetDMR account. Once a NetDMR account is

established, access to electronic filing should use the following link <https://netdmr.epa.gov>. Permittees who are unable to file electronically may request a waiver from the Director in accordance with 40 CFR 127.15. Monitoring results obtained during the previous monitoring period shall be summarized and reported on a DMR dated and submitted no later than the 25th day of the month, following the completed reporting period beginning on the effective date of the permit.

6. **Additional Monitoring by the Permittee**

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

7. **Retention of Records**

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

8. **Record Contents**

Records and monitoring information shall include:

- A. The date, exact place, time and methods of sampling or measurements, and preservatives used, if any.
- B. The individual(s) who performed the sampling or measurements.
- C. The date(s) and time analyses were performed.
- D. The individual(s) who performed the analyses.
- E. The analytical techniques or methods used.
- F. The measurements and results of such analyses.

9. **Inspection and Entry**

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

- A. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit.
- B. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit.
- C. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit.

- D. Sample, inspect, or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location.

SECTION D – REPORTING REQUIREMENTS

1. Planned Changes

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

- A. The alteration or addition to a permitted facility may meet one of the criteria for new sources at 40 CFR 122.29(b).
- B. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants subject to effluent limitations in the permit, or to the notification requirements under 40 CFR 122.42(b).

2. Anticipated Noncompliance

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

3. Transfers

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

4. Monitoring Reports

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

5. Compliance Schedule

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

6. Twenty-four Hour Report

- A. The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain the following information:
1. A description of the noncompliance and its cause.
 2. The period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue.
 3. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.
- B. The following shall be included as information which must be reported within 24 hours:
1. Any unanticipated bypass which exceeds any effluent limitation in the permit.
 2. Any upset which exceeds any effluent limitation in the permit.
 3. Violation of a maximum daily discharge limitation for any of the pollutants listed by the Director in Part I of the permit to be reported within 24 hours to the Enforcement Branch of the Office of Water Quality of the ADEQ.
- C. The Director may waive the written report on a case-by-case basis if the oral report has been received within 24 hours to the Enforcement Branch of the Office of Water Quality of the ADEQ.

7. Other Noncompliance

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

8. Changes in Discharge of Toxic Substances for Industrial Dischargers

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

- A. That any activity has occurred or will occur which would result in the discharge on a routine or frequent basis of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the "notification levels" described in 40 CFR Part 122.42(a)(1).
- B. That any activity has occurred or will occur which would result in any discharge on a non-routine or infrequent basis of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the "notification levels" described in 40 CFR Part 122.42(a)(2).

9. **Duty to Provide Information**

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

10. **Duty to Reapply**

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

11. **Signatory Requirements**

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

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

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

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

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

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

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

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

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

12. **Availability of Reports**

Except for data determined to be confidential under 40 CFR Part 2 and APC&EC Regulation No. 6, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department of Environmental Quality. As required by the Regulations, the name and address of any permit applicant or permittee, permit applications, permits, and effluent data shall not be considered confidential.

13. **Penalties for Falsification of Reports**

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

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

14. **Other Information**

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

PART IV DEFINITIONS

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

1. **“Act”** means the Clean Water Act, Public Law 95-217 (33.U.S.C. 1251 et seq.) as amended.
2. **“Administrator”** means the Administrator of the U.S. Environmental Protection Agency.
3. **“APCEC”** means the Arkansas Pollution Control and Ecology Commission.
4. **“Applicable effluent standards and limitations”** means all State and Federal effluent standards and limitations to which a discharge is subject under the Act, including, but not limited to, effluent limitations, standards of performance, toxic effluent standards and prohibitions, and pretreatment standards.
5. **“Applicable water quality standards”** means all water quality standards to which a discharge is subject under the federal Clean Water Act and which has been (a) approved or permitted to remain in effect by the Administrator following submission to the Administrator pursuant to Section 303(a) of the Act, or (b) promulgated by the Director pursuant to Section 303(b) or 303(c) of the Act, and standards promulgated under (APCEC) Regulation No. 2, as amended.
6. **“Best Management Practices (BMPs)”** are activities, practices, maintenance procedures, and other management practices designed to prevent or reduce the pollution of waters of the State. BMPs also include treatment technologies, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw sewage. BMPs may include structural devices or nonstructural practices.
7. **“Bypass”** means the intentional diversion of waste streams from any portion of a treatment facility, as defined at 40 CFR 122.41(m)(1)(i).
8. **“Composite sample”** is a mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing a minimum of 4 effluent portions collected at equal time intervals (but not closer than one hour apart) during operational hours, within the 24-hour period, and combined proportional to flow or a sample collected at more frequent intervals proportional to flow over the 24-hour period.
9. **“Daily Discharge”** means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling.
 - A. **Mass Calculations:** For pollutants with limitations expressed in terms of mass, the “daily discharge” is calculated as the total mass of pollutant discharged over the sampling day.
 - B. **Concentration Calculations:** For pollutants with limitations expressed in other units of measurement, the “daily discharge” is calculated as the average measurement of the pollutant over the day.
10. **“Daily Maximum”** discharge limitation means the highest allowable “daily discharge” during the calendar month.
11. **“Department”** means the Arkansas Department of Environmental Quality (ADEQ).
12. **“Director”** means the Director of the Arkansas Department of Environmental Quality.
13. **“Dissolved oxygen limit”** shall be defined as follows:
 - A. When limited in the permit as a minimum monthly average, shall mean the lowest acceptable monthly average value, determined by averaging all samples taken during the calendar month.

- B. When limited in the permit as an instantaneous minimum value, shall mean that no value measured during the reporting period may fall below the stated value.
14. **“E-Coli”** a sample consists of one effluent grab portion collected during a 24-hour period at peak loads. For E-Coli, report the Daily Maximum as the highest “daily discharge” during the calendar month and the Monthly Average as the geometric mean of all “daily discharges” within a calendar month, in colonies per 100 ml.
 15. **“Fecal Coliform Bacteria (FCB)”** a sample consists of one effluent grab portion collected during a 24-hour period at peak loads. For FCB, report the Daily Maximum as the highest “daily discharge” during the calendar month and the Monthly Average as the geometric mean of all “daily discharges” within a calendar month, in colonies per 100 ml.
 16. **“Grab sample”** means an individual sample collected in less than 15 minutes in conjunction with an instantaneous flow measurement.
 17. **“Industrial User”** means a nondomestic discharger, as identified in 40 CFR Part 403, introducing pollutants to a POTW.
 18. **“Instantaneous flow measurement”** means the flow measured during the minimum time required for the flow-measuring device or method to produce a result in that instance. To the extent practical, instantaneous flow measurements coincide with the collection of any grab samples required for the same sampling period so that together the samples and flow are representative of the discharge during that sampling period.
 19. **“Instantaneous Maximum”** when limited in the permit as an instantaneous maximum value, shall mean that no value measured during the reporting period may fall above the stated value.
 20. **“Instantaneous Minimum”** an instantaneous minimum value, shall mean that no value measured during the reporting period may fall below the stated value.
 21. **“Monthly Average”** means the highest allowable average of “daily discharges” over a calendar month, calculated as the sum of all “daily discharges” measured during a calendar month divided by the number of “daily discharges” measured during that month. For Fecal Coliform Bacteria (FCB) or E-Coli, report the Monthly Average as the geometric mean of all “daily discharges” within a calendar month.
 22. **“Monitoring and Reporting”**

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

 - A. **MONTHLY:**

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

is defined as two (2) calendar months or any portion of 2 calendar months for monitoring requirement frequency of once/2 months or more frequently.
 - C. **QUARTERLY:**
 1. is defined as a **fixed calendar quarter** or any part of the fixed calendar quarter for a non-seasonal effluent characteristic with a measurement frequency of once/quarter. Fixed calendar quarters are: January through March, April through June, July through September, and October through December.

2. is defined as a **fixed three month period** (or any part of the fixed three month period) of or dependent upon the seasons specified in the permit for a seasonal effluent characteristic with a monitoring requirement frequency of once/quarter that does not coincide with the fixed calendar quarter. Seasonal calendar quarters are: May through July, August through October, November through January, and February through April.
- D. **SEMI-ANNUAL:**
is defined as the fixed time periods January through June, and July through December (or any portion thereof) for an effluent characteristic with a measurement frequency of once/6 months or twice/year.
- E. **ANNUAL or YEARLY:**
is defined as a fixed calendar year or any portion of the fixed calendar year for an effluent characteristic or parameter with a measurement frequency of once/year. A calendar year is January through December, or any portion thereof.
23. **“National Pollutant Discharge Elimination System”** means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements under Sections 307, 402, 318, and 405 of the Clean Water Act.
24. **“POTW”** means Publicly Owned Treatment Works;
25. **“Reduction of CBOD₅/BOD₅ and TSS in mg/l Formula”**
$$[(\text{Influent} - \text{Effluent}) / \text{Influent}] \times 100$$
26. **“Severe property damage”** means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in products.
27. **“Sewage sludge”** means the solids, residues, and precipitate separated from or created in sewage by the unit processes at a POTW. Sewage as used in this definition means any wastes, including wastes from humans, households, commercial establishments, industries, and stormwater runoff that are discharged to or otherwise enter a POTW.
28. **“7-Day Average”** Also known as “average weekly” means the highest allowable average of “daily discharges” over a calendar week, calculated as the sum of all “daily discharges” measured during a calendar week divided by the number of “daily discharges” measured during that week. The 7-Day Average for Fecal Coliform Bacteria (FCB) or E-Coli is the geometric mean of the “daily discharges” of all effluent samples collected during a calendar week in colonies per 100 ml.
29. **“Treatment works”** means any devices and systems used in storage, treatment, recycling, and reclamation of municipal sewage and industrial wastes, of a liquid nature to implement section 201 of the Act, or necessary to recycle reuse water at the most economic cost over the estimated life of the works, including intercepting sewers, sewage collection systems, pumping, power and other equipment, and alterations thereof; elements essential to provide a reliable recycled supply such as standby treatment units and clear well facilities, and any works, including site acquisition of the land that will be an integral part of the treatment process or is used for ultimate disposal of residues resulting from such treatment.
30. **Units of Measure:**
“MGD” shall mean million gallons per day.
“mg/l” shall mean milligrams per liter or parts per million (ppm).

“**µg/l**” shall mean micrograms per liter or parts per billion (ppb).

“**cfs**” shall mean cubic feet per second.

“**ppm**” shall mean parts per million.

“**s.u.**” shall mean standard units.

31. “**Upset**” means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. Any upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventive maintenance, or careless of improper operations.
32. “**Visible sheen**” means the presence of a film or sheen upon or a discoloration of the surface of the discharge. A sheen can also be from a thin glistening layer of oil on the surface of the discharge.
33. “**Weekday**” means Monday – Friday.

Fact Sheet

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

This is a modified permit. Only the modified portions of the permit are open for comment at this time. This Fact Sheet is for information and justification of the permit limits only. Please note that it is not enforceable. This permitting decision is for *modification* of the discharge Permit Number AR0045977 with Arkansas Department of Environmental Quality (ADEQ) Facility Identification Number (AFIN) 47-00233 to discharge to Waters of the State.

1. PERMITTING AUTHORITY

The issuing office is:

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

2. APPLICANT

The applicant's mailing address is:

Nucor Corporation
Nucor Steel Arkansas - Hickman Mill
P.O. Box 30
Armored, AR 72310

The facility address is:

Nucor Corporation
Nucor Steel Arkansas - Hickman Mill
7301 East County Road 142
Blytheville, AR 72315

3. PREPARED BY

The permit was modified by:

*Terry Liu
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4. PERMIT ACTIVITY

Previous Permit Effective Date:	July 1, 2011
Previous Permit Modification Date:	May 1, 2012
Previous Permit Expiration Date:	June 30, 2016

The permittee submitted a permit renewal application on December 22, 2015, and additional information was received on December 28, 2015, June 21, 2017, July 21, 2017, and August 1, 2017.

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

The permittee submitted an application to modify their existing NPDES permit on August 2, 2018. The permit is being modified due to the addition of a second wastewater treatment system to treat the proposed Cold Mill 2 process wastewater, which will increase the design flow from 0.819 MGD to 1.24 MGD for Outfall 004. Therefore, the effluent limitations at Outfall 004 for the mass loadings of TSS, O&G, Total Chromium, Total Lead, Total Nickel, and Total Zinc are being revised to accommodate for the increased flow. It is proposed that the current discharge permit be modified for the remainder of the 5-year term in accordance with regulations promulgated at 40 CFR Part 122.46(a).

DOCUMENT ABBREVIATIONS

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

BAT - best available technology economically achievable
BCT - best conventional pollutant control technology
BMP - best management practice
BOD₅ - five-day biochemical oxygen demand
BPJ - best professional judgment
BPT - best practicable control technology currently available
CBOD₅ - carbonaceous biochemical oxygen demand
CD - critical dilution
CFR - Code of Federal Regulations
cfs - cubic feet per second
COD - chemical oxygen demand
COE - United States Corp of Engineers
CPP - continuing planning process
CWA - Clean Water Act
DMR - discharge monitoring report
DO - dissolved oxygen
ELG - effluent limitation guidelines
EPA - United States Environmental Protection Agency
ESA - Endangered Species Act
FCB - fecal coliform bacteria
gpm - gallons per minute
MGD - million gallons per day
MQL - minimum quantification level
NAICS - North American Industry Classification System
NH₃-N - ammonia nitrogen
NO₃ + NO₂-N - nitrate + nitrite nitrogen
NPDES - National Pollutant Discharge Elimination System
O&G - oil and grease
Reg. 2 - APCEC Regulation No. 2

Reg. 6 - APCEC Regulation No. 6
Reg. 8 - APCEC Regulation No. 8
Reg. 9 - APCEC Regulation No. 9
RP - reasonable potential
SIC - standard industrial classification
TDS - total dissolved solids
TMDL - total maximum daily load
TP - total phosphorus
TRC - total residual chlorine
TSS - total suspended solids
UAA - use attainability analysis
USF&WS - United States Fish and Wildlife Service
USGS – United States Geological Survey
WET - Whole effluent toxicity
WQMP - water quality management plan
WQS - Water Quality standards
WWTP - wastewater treatment plant

Compliance and Enforcement History:

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/AR0045977_Enforcement%20Review_20180823.pdf

5. SIGNIFICANT CHANGES FROM THE PREVIOUSLY ISSUED PERMIT

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

- 1. The mass limitations for all parameters have been revised. See Section 11.F below for details.*
- 2. The Critical Dilution (CD) for Acute WET testing has been revised to 1.0% based on the minimum CD noted in the CPP.*
- 3. Design flow for outfall 004 has been revised from 0.819 MGD to 1.24 MGD based on the submitted application. See Section 8 of this Fact Sheet for further information*
- 4. The treatment process has been updated to reflect the changes listed in the permit application. See Section 8 of this Fact Sheet for more details.*
- 5. New mass loading limitations for O&G at Outfalls 002 and 004 have been included in Part I.A1 and I.A2, respectively. See Sections 11.A, 11.B, and 11.F of this Fact Sheet for more details.*
- 6. New mass loading limitations and monitoring requirements in the Part I.A3 for outfall 004 will be effective once the proposed Cold Mill 2 is in operation. See Section 11.F and 14 of this Fact Sheet for more details.*

7. *The permit fee calculation has been included in this permit. See Section 19 of this Fact Sheet for further information.*

6. RECEIVING STREAM SEGMENT AND DISCHARGE LOCATION

The outfall is located at the following coordinates based on Google Earth using WGS84:

Outfall 002: Latitude: 35° 56' 16" N; Longitude: 89° 43' 2" W

Outfall 004: Latitude: 35° 57' 3" N; Longitude: 89° 42' 12" W

The receiving waters named:

Outfall 002: an unnamed tributary, thence to Ditch No. 38, thence to Crooked Lake Bayou, thence to Pemiscot Bayou (Ditch No. 29), thence to the Little River, thence to the St. Francis River in Segment 5C of the St. Francis River Basin. The receiving stream with USGS Hydrologic Unit Code (H.U.C.) of 08020204 and Reach #006 is a Water of the State classified for 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.

Outfall 004: the Mississippi River in Segment 6C of the Mississippi River Basin. The receiving stream with USGS Hydrologic Unit Code (H.U.C.) of 08010100 and Reach #018 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

This facility has a discharge to water bodies that are not on the State's currently approved 303(d) list of impaired waterbodies (2016). Therefore, the effluent limitations and monitoring requirements in the proposed permit are based on current technology and water quality standards requirements and are protective of the stream designated uses.

B. Applicable Total Maximum Daily Load (TMDL) Reports

There are no applicable TMDLs for either receiving stream.

C. Endangered Species

No comments on the application were received from the USF&WS. The draft permit and Fact Sheet will be sent to the USF&WS for their review.

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 Regulation No. 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 002: 0.03 MGD
Design Flow: Outfall 004: 1.24 MGD

B. Type of Treatment:

Outfall 002: grinding, screening, pre-aeration, sedimentation, activated sludge, and chlorine disinfection

Outfall 004: Flocculation and sedimentation are used to treat the process wastewater from the Hot Mill operations. The process wastewater from the Cold Mill Pickling and Galvanization lines is pretreated via equalization, temperature adjustment, neutralization, flocculation, clarification, *Turbo Disc filtration*, and pH adjustment. Treatment of the process wastewater generated from the R/T mill includes oil and water separation, pH adjustment, dissolved air flotation, and *Turbo Disc filtration*. The treated effluents from the Hot Mill, *the Cold Mill 1, and the proposed Cold Mill 2* are routed to the Wastewater Effluent Tank prior to discharge.

C. Discharge Description:

Outfall 002: treated sanitary wastewater

Outfall 004: treated process wastewater from steelmaking, including vacuum degassing, hot forming, continuous casting, pickling, reversing, tempering, and galvanizing.

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 105 is greater than 80, this facility is classified as a Major industrial.

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

9. ACTIVITY

Under the Standard Industrial Classification (SIC) code of 3312 or North American Industry Classification System (NAICS) code of 331221, the applicant's activities are the operation of steel mill.

10. SEWAGE SLUDGE & SOLIDS PRACTICES

Solids generated by the process wastewater treatment system, and dewatered solids generated by the sanitary wastewater treatment system, are disposed of at the Mississippi County Landfill operating under ADEQ Solid Waste Permit No. 0136-S1-R4.

11. DEVELOPMENT AND BASIS FOR PERMIT CONDITIONS

The Arkansas Department of Environmental Quality has determined to issue a permit for the discharge described in the application. Permit requirements are based on federal regulations (40 CFR Parts 122, 124, and Subchapter N), the National Pretreatment Regulation in 40 CFR Part 403 and regulations promulgated pursuant to the Arkansas Water and Air Pollution Control Act (Ark. Code Ann. 8-4-101 et seq.). All of the information contained in the application, including all of the submitted effluent testing data, was reviewed to determine the need for effluent limits and other permit requirements.

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

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

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

Parameter	Water Quality-Based		Technology-Based		Previous Permit		Draft Permit	
	Monthly Avg. mg/l	Daily Max. mg/l	Monthly Avg. mg/l	Daily Max. mg/l	Monthly Avg. mg/l	Daily Max. mg/l	Monthly Avg. mg/l	Daily Max. mg/l
OUTFALL 002								
CBOD ₅								
(May-Oct)	15.0	22.5	N/A	N/A	15.0	22.5	15.0	22.5
(Nov-Apr)	20.0	30.0	N/A	N/A	20.0	30.0	20.0	30.0
TSS	N/A	N/A	20.0	30.0	20.0	30.0	20.0	30.0
NH ₃ -N								

Parameter	Water Quality-Based		Technology-Based		Previous Permit		Draft Permit	
	Monthly Avg. mg/l	Daily Max. mg/l	Monthly Avg. mg/l	Daily Max. mg/l	Monthly Avg. mg/l	Daily Max. mg/l	Monthly Avg. mg/l	Daily Max. mg/l
(Apr)	5.2	5.2	N/A	N/A	5.2	5.2	5.2	5.2
(May-Oct)	5.0	7.5	N/A	N/A	5.0	7.5	5.0	7.5
(Nov-Mar)	10.0	14.7	N/A	N/A	10.0	14.7	10.0	14.7
DO	2.0 (Inst. Min.)		N/A		2.0 (Inst. Min.)		2.0 (Inst. Min.)	
FCB (col/100ml)	1000	2000	N/A	N/A	1000	2000	1000	2000
O&G	10	15	N/A	N/A	10	15	10	15
pH	6.0-9.0 s.u.		N/A		6.0-9.0 s.u.		6.0-9.0 s.u.	
OUTFALL 004								
TSS	N/A	N/A	Report	Report	Report	Report	Report	Report
O&G	10.0	15.0	N/A	N/A	10.0	15.0	10.0	15.0
Total Recoverable Chromium (Cr)	N/A	N/A	Report µg/l	Report µg/l	Report µg/l	Report µg/l	Report µg/l	Report µg/l
Total Recoverable Lead (Pb)	N/A	N/A	Report µg/l	Report µg/l	Report µg/l	Report µg/l	Report µg/l	Report µg/l
Total Recoverable Nickel (Ni)	N/A	N/A	Report µg/l	Report µg/l	Report µg/l	Report µg/l	Report µg/l	Report µg/l
Total Recoverable Zinc (Zn)	N/A	N/A	Report µg/l	Report µg/l	Report µg/l	Report µg/l	Report µg/l	Report µg/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.	

A. Justification for Limitations and Conditions of the Draft Permit

Parameter	Water Quality or Technology	Justification
OUTFALL 002		
CBOD ₅	Water Quality	MultiSMP Model dated May 4, 2007, and reviewed September 15, 2017, CWA § 402(o), and previous permit
TSS	Technology	40 CFR 122.44(l), and previous permit
NH ₃ -N	Water Quality	Reg. 2.512, MultiSMP Model dated May 4, 2007, and reviewed September 15, 2017, CWA § 402(o),

Parameter	Water Quality or Technology	Justification
		and previous permit
DO	Water Quality	Reg. 2.505, MultiSMP Model dated May 4, 2007, and reviewed September 15, 2017, CWA § 402(o), and previous permit
FCB	Water Quality	Reg. 2.507, CWA § 402(o), and previous permit
O&G	Water Quality	Reg. 2.510, CWA § 402(o), and previous permit
pH	Water Quality	Reg. 2.504, CWA § 402(o), and previous permit
OUTFALL 004		
TSS	Technology	40 CFR 420, 40 CFR 122.44 (l), and previous permit (mass limits)
O&G	Water Quality/ Technology	Reg. 2.510 and 40 CFR 420 (mass limits)
	Water Quality	Reg. 2.510 (concentration limits)
Total Recoverable Chromium (Cr)	Technology	40 CFR 420, 40 CFR 122.44 (l), and previous permit (mass limits)
Total Recoverable Lead (Pb)	Technology	40 CFR 420, 40 CFR 122.44 (l), and previous permit (mass limits)
Total Recoverable Nickel (Ni)	Technology	40 CFR 420, 40 CFR 122.44 (l), and previous permit (mass limits)
Total Recoverable Zinc (Zn)	Technology	40 CFR 420, 40 CFR 122.44 (l), and previous permit (mass limits)
pH	Water Quality	Reg. 2.504, CWA § 402(o), and previous permit

With the exception of revised mass limitations of TSS, O&G, Total Chromium, Total Lead, Total Nickel, and Total Zinc at Outfall 004, discussed in Section 11.B below, no other effluent limitations are being added, removed or revised with this permit modification.

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 CFR 122.44(l)]. The final effluent limitations for reissuance permits must be as stringent as those in the previous permit, unless the less stringent limitations can be justified using exceptions listed in CWA 402(o)(2), CWA 303(d)(4), or 40 CFR 122.44 (l)(2)(i).

The permit maintains the requirements of the previous permit with the exception of revised mass limitations identified for TSS, O&G, Total Chromium, Total Lead, Total Nickel, and Total Zinc.

The revisions to the mass limitations are allowed in accordance with the 40 CFR 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 is adding a second wastewater treatment system to treat the proposed Cold Mill 2 process wastewater, thereby increasing the design flow from 0.819 MGD to 1.24 MGD at outfall 004. This increase in flow justifies the increase of allowable mass loadings of TSS, O&G, Total Chromium, Total Lead, Total Nickel, and Total Zinc at Outfall 004.

C. Limits Calculations

1. Mass Limits:

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

Outfall 002

The calculation of the loadings (lbs per day) uses the following equation and a design flow of 0.03 MGD for discharges from Outfall 002:

$$\text{Mass (lbs/day)} = \text{Concentration (mg/l)} \times \text{Flow (MGD)} \times 8.34$$

Outfall 004

For mass limitations for discharges from Outfall 004, see Section F below.

2. Daily Maximum Limits:

Outfall 002

The daily maximum limits for NH₃-N (May through October) as well as CBOD₅ and TSS are based on Section 5.4.2 of the Technical Support Document for Water Quality-Based Toxics Control.

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

The daily maximum NH₃-N limits for the months of November through April are based on the requirements of Reg. 2.512.

The daily maximum limits for FCB and O&G are based on Regs. 2.507 and 2.510, respectively.

Outfall 004

For daily maximum limits for discharges from Outfall 004, see Section F below.

D. Ammonia-Nitrogen (NH₃-N)

The water quality effluent limitations for Ammonia are based either on DO-based effluent limits or on toxicity-based standards, whichever are more stringent. The toxicity-based effluent limitations are based on Reg. 2.512 and the CPP.

E. 208 Plan (Water Quality Management Plan)

There are no changes to the 208 Plan.

F. Applicable Effluent Limitations Guidelines

Discharges from facilities of this type are covered by Federal Effluent Limitations Guidelines (ELGs) promulgated under 40 CFR Part 420 – Iron and Steel Manufacturing Point Source Category.

Operations generating wastewater at the facility can be divided in two major categories: Hot Mill operations and Cold Mill operations. These operations, associated production lines, and applicable ELGs are listed in the table below:

Hot Mill		
Production Line	Effluent Limitation Guideline	Regulatory Citation
Vacuum Degassing	Part 420, Subpart E	40 CFR 420.54
Continuous Casting	Part 420, Subpart F	40 CFR 420.64
Hot Forming	Part 420, Subpart G	40 CFR 420.74(c)(1)
Cold Mill		
Production Line	Effluent Limitation Guideline	Regulatory Citation
Pickling	Part 420, Subpart I	40 CFR 420.94(b)(2)
Reversing (Cold Forming)	Part 420, Subpart J	40 CFR 420.104(a)(1)
Tempering (Alkaline Cleaning)	Part 420, Subpart K	420.114(a)
Galvanizing	Part 420, Subpart L	420.124(a)(1)

TSS, O&G, Chromium, Lead, and Zinc

All of the production lines generate wastewater that must meet technology-based effluent limitations. Technology-based limitations for TSS, O&G, Chromium, Lead, and Zinc are derived from the applicable New Source Performance Standards (NSPS). The federal effluent limitations are based on the amount of production from a particular process (see the tables below). The technology-based limitations for TSS, O&G, Chromium, Lead, and Zinc are calculated by multiplying the federal limitation by the applicable rate using the following equation:

Mass Load (lb/day) = Production (1000 lb/day) x NSPS Multiplier (lbs/1000 lb product)

The following tables present the applicable federal effluent limitations and the resulting production-based effluent limitations for TSS, O&G, Chromium, Lead, and Zinc for each of production lines.

Production Rates				
	Subpart	Highest Month (Tons Tapped)	Days of Operation	Production* (1000 lb/day)
Hot Mill	E (Vacuum Degassing)	266,248	30	17,750
	F (Continuous Casting)	266,248	30	17,750
	G (Hot Forming)	266,248	30	17,750
Cold Mill 1	I (Pickling)	98,151	30	6,543
	J (Reversing)	89,847	30	5,990
	K (Tempering)	22,649	30	1,510
	L (Galvanizing)	56,532	30	3,769
Cold Mill 2	<i>I (Pickling)</i>	<i>115,200</i>	<i>30</i>	<i>7,680</i>
	<i>J (Reversing)</i>	<i>64,800</i>	<i>30</i>	<i>4,320</i>
	<i>K (Tempering)</i>	<i>108,000</i>	<i>30</i>	<i>7,200</i>
	<i>L (Galvanizing)</i>	<i>N/A</i>	<i>30</i>	<i>N/A</i>

*Production (1000 lb/day) = Highest Month (Tons Tapped) x (2000 lb/ton) / 1000/ Days of Operation
 The Galvanizing line is not included in the construction plan for the proposed Cold Mill 2. A permit modification will be required if the Galvanizing line is installed.

Combined Technology-Based Effluent Limitations For TSS, O&G, Chromium, Lead, and Zinc								
Pollutant	Hot Mill			Cold Mill				Combined Limits
	Subparts			Subparts				
	E (lb/day)	F (lb/day)	G (lb/day)	I (lb/day)	J (lb/day)	K (lb/day)	L (lb/day)	Total Mass (lb/day)
TSS (max.)	129.58	129.58	772.13	166.41	12.89	127.17	165.08	1502.82
TSS (avg.)	46.33	46.33	289.33	71.26	6.45	54.52	70.86	585.07
O & G (max.)	-----	55.56	193.48	71.26	5.38	54.52	70.86	451.05
O & G (avg.)	-----	18.46	-----	23.75	2.15	18.20	23.59	86.17
Chromium (max.)	-----	-----	-----	-----	0.22	-----	-----	0.215
Chromium (avg.)	-----	-----	-----	-----	0.09	-----	-----	0.087
Lead (max.)	1.67	1.67	-----	1.07	0.10	-----	1.06	5.56

<i>Lead (avg.)</i>	0.56	0.56	-----	0.36	0.03	-----	0.35	1.85
<i>Zinc (max.)</i>	2.50	2.50	-----	1.42	0.06	-----	1.42	7.91
<i>Zinc (avg.)</i>	0.83	0.83	-----	0.48	0.02	-----	0.47	2.63

The calculations may be reviewed by using the following web link:

https://www.adeg.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/AR0045977_ELG%20Production%20Mass%20Loading%20Calculations_20180905.pdf

O & G

The calculation of the loadings (lbs per day) uses the following equation and a design flow of 1.24 MGD for discharges from Outfall 004:

$$\text{Mass (lbs/day)} = \text{Concentration (mg/l)} \times \text{Flow (MGD)} \times 8.34$$

<i>Pollutant</i>	<i>Water Quality-Based (lb/day)</i>	<i>Technology-Based (lb/day)</i>	<i>Draft Permit (lb/day)</i>
<i>O & G (max.)</i>	155.12	451.05	155.12
<i>O & G (avg.)</i>	103.42	86.17	86.17

Nickel

40 CFR 420 Subpart J applies to wastewaters from the Cold Forming operation (also called Reversing) at the facility, and contains an ELG for Nickel. The facility has wastewaters from several other processes that do not have ELGs for Nickel, but contain significant concentrations of Nickel. The previous permit did not make allowances for these other sources of Nickel in the determination of the Nickel mass limitations. Technology-based mass limitations for Nickel have been included in the permit, based on the NSPS for Nickel in 40 CFR 420.104(a)(1) and the concentrations of Nickel contributed by these unregulated wastestreams.

The permittee performed a study of the Nickel-containing unregulated wastestreams, as outlined in [“Corrective Action Plan for Non-compliance with Nickel Loading Limits at Outfall 004, Nucor Steel – Hickman Mill, NPDES Permit No. AR0045977; AFIN:46-00237”, November 18, 2016, FTN Associates, Ltd.](#) The mass loading of Nickel in the discharge from Outfall 004 was determined for each Nickel-containing unregulated wastestream in the following manner:

1. Average Nickel concentrations were found from laboratory analysis of grab samples from each unregulated wastestream prior to commingling and treatment in the Cold Mill wastewater treatment system (WWTS).

2. The treatment efficiency for Nickel of the WWTS was determined from laboratory analysis of influent and effluent samples.
3. The measured concentration of Nickel for each untreated wastestream was reduced based on the treatment efficiency of the WWTS.
4. Average and maximum flows for each unregulated wastestream were determined.
5. Average and maximum effluent Nickel loads were calculated using the calculated Nickel concentrations, wastestream flows, and the equation in Section 11.C.1 above.

<i>Combined Technology-Based Effluent Limitations for Nickel</i>							
<i>Nickel</i>	<i>Cold Forming</i>	<i>Galvanizing</i>	<i>Pickling</i>	<i>Filter Backwash</i>	<i>Annealing</i>	<i>Treated Hot Mill Effluent</i>	<i>Total Load (lb/day)</i>
<i>Max. (lb/day)</i>	<i>0.194</i>	<i>0.060</i>	<i>0.490</i>	<i>0.0008</i>	<i>0.0023</i>	<i>0.163</i>	<i>0.910</i>
<i>Avg. (lb/day)</i>	<i>0.065</i>	<i>0.048</i>	<i>0.210</i>	<i>0.0005</i>	<i>0.0012</i>	<i>0.123</i>	<i>0.447</i>

The Total Loads noted in the table above have been included as Nickel mass limitations for discharges through Outfall 004.

The calculations may be reviewed by using the following web link:

https://www.adeg.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/AR0045977_Building%20Block%20Calculations_20180905.pdf

Naphthalene and Tetrachloroethylene:

The ELG for Cold Forming in 40 CFR 420, Subpart J, contains limitations for Naphthalene and Tetrachloroethylene. In a letter dated September 24, 2010, the permittee certified that Naphthalene and Tetrachloroethylene have not been used in the past or present, nor does the facility intend to use these chemicals in the future. Therefore, in lieu of including limitations for these parameters in the permit, a prohibition on using these chemicals at the facility is included in Part II.6 of the permit.

Hexavalent Chromium:

The ELG for Galvanizing in 40 CFR 420, Subpart L, establishes effluent limitations for Hexavalent Chromium (Cr^{+6}). According to the ELG, effluent limits are only applicable to galvanizing operations which discharge wastewater from the chromate rinse step. The permittee has certified by a letter, dated September 24, 2010, that the facility does not have a chromate rinse step on the galvanizing line. In addition, all wastes from the chromate section, including overspray and "off-spec" chromate are manifested as hazardous waste under RCRA and shipped off site for disposal. Therefore, the limitations for hexavalent chromium in this particular ELG do not apply to this facility and are not included in the permit.

G. Priority Pollutant Scan (PPS)

ADEQ has reviewed and evaluated the effluent in accordance with the potential toxicity of each analyzed pollutant using the procedures outlined in the Continuing Planning Process (CPP).

The concentration of each pollutant after mixing with the receiving stream was compared to the applicable water quality standards as established in the Arkansas Water Quality Standards (AWQS), Regulation No. 2 (Reg. 2.508) and criteria obtained from the "Quality Criteria for Water, 1986 (Gold Book)".

Under Federal Regulation 40 CFR Part 122.44(d), as adopted by Regulation No. 6, if a discharge poses the reasonable potential to cause or contribute to an exceedance above a water quality standard, the permit must contain an effluent limitation for that pollutant. Effluent limitations for the toxicants listed below have been derived in a manner consistent with the Technical Support Document (TSD) for Water Quality-based Toxics Control (EPA, March 1991), the CPP, and 40 CFR Part 122.45(c).

The following items were used in calculations:

Parameter	Value	Source
<i>Discharge Flow = Q</i>	<i>1.24 MGD = 1.92 cfs</i>	<i>Modification Application</i>
7Q10 Background Flow	100,000 cfs	U.S.G.S.
LTA Background Flow	300,000 cfs	Calculated
TSS	8 mg/l	CPP
Hardness as CaCO ₃	81 mg/l	CPP
pH	7.0 s.u.	Neutral

It was determined that a revised reasonable potential analysis, based on the increased design flow, will not be necessary with this permit modification due to the large background flow of the receiving stream.

The following pollutants were reported above detection levels:

Pollutant	Concentration Reported, µg/l	MQL, µg/l
Arsenic	9	0.5
Copper	12	0.5
Nickel	18	0.5
Phenols	31	5
Bromoform	17	10

NOTE: Data are from 1 sample reported on PPS Form submitted with application.

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

https://www.adeg.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/AR0045977_Toxicity%20Calculations_20170829.pdf

1. Aquatic Toxicity Evaluation

a. Acute Criteria Evaluation

Pollutant	Concentration Reported (C_e) $\mu\text{g/l}$	$C_e \times 2.13^1$	Instream Waste Concentration (IWC)	Criteria ²	Reasonable Potential (Yes/No)
			Acute, $\mu\text{g/l}$	Acute, $\mu\text{g/l}$	
Copper	12	25.56	0.0054	38.87	No
Nickel	18	38.34	0.0081	2603.30	No

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

² Criteria are from Reg. 2.508 unless otherwise specified.

b. Chronic Criteria Evaluation

Pollutant	Concentration Reported (C_e) $\mu\text{g/l}$	$C_e \times 2.13^1$	Instream Waste Concentration (IWC)	Criteria ²	Reasonable Potential (Yes/No)
			Chronic, $\mu\text{g/l}$	Chronic, $\mu\text{g/l}$	
Copper	12	25.56	0.0013	26.41	No
Nickel	18	38.34	0.0019	289.12	No

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

² Criteria are from Reg. 2.508 unless otherwise specified.

2. Human Health (Bioaccumulation) Evaluation

Pollutant	Concentration Reported (C_e) $\mu\text{g/l}$	$C_e \times 2.13^1$	Instream Waste Concentration (IWC)	Criteria ²	Reasonable Potential (Yes/No)
Arsenic	9	19.17	0.00008	1.4	No
Copper	12	25.56	0.00011	13,000	No

Nickel	18	38.34	0.00016	46,000	No
Bromoform	17	36.21	0.00015	1,400	No

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

² Adapted from "National Recommended Water Quality Criteria: 2002 – Human Health Criteria Calculation Matrix", EPA. The respective WQC from the noted reference are Consumption of Organism Only values. The values from the reference are for a lifetime risk factor of 10⁻⁶. These values have been multiplied by 10 to correspond to human health criteria lifetime risk factor of 10⁻⁵ as stated in Reg. 2.508.

ADEQ has determined from the submitted information that the discharge does not pose the reasonable potential to cause or contribute to an exceedance above a listed Criteria.

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, ADEQ is required under 40 CFR Part 122.44(d)(1), adopted by reference in Regulation 6, to include conditions as necessary to achieve water quality standards as established under Section 303 of the Clean Water Act. Arkansas has established a narrative criteria which states "toxic materials shall not be present in receiving waters in such quantities as to be toxic to human, animal, plant or aquatic life or to interfere with the normal propagation, growth and survival of aquatic biota."

Whole effluent 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 7Q10 is greater than 100 cfs (ft³/sec) and dilution ratio 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) = $(Q_d / (Q_d + Q_b)) \times 100$

$Q_d = \text{Design Flow} = 1.24 \text{ MGD} = 1.92 \text{ cfs}$

$7Q_{10} = 100,000 \text{ cfs}$

$Q_b = \text{Background flow} = 0.1 \times 0.25 \times 7Q_{10} = 2,500 \text{ cfs}$

$CD = ((1.92) / (1.92 + 2,500)) \times 100 = 0.08\% \rightarrow 1.0\% \text{ (minimum CD per CPP)}$

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 **0.4%, 0.6%, 0.8%, 1.0%, and 1.3%** (See the CPP). The low-flow effluent concentration (critical dilution) is defined as **1.0%** 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 CFR Part 122.48.

Results of all dilutions as well as the associated chemical monitoring of pH, temperature, hardness, dissolved oxygen, conductivity, and alkalinity shall be reported according to EPA-821-R-02-012, 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 Department shows toxicity in the permittee's discharge. Modification or revocation of this permit is subject to the provisions of 40 CFR 122.62, as adopted by reference in APC&EC Regulation No. 6. Increased or intensified toxicity testing may also be required in accordance with Section 308 of the Clean Water Act and Section 8-4-201 of the Arkansas Water and Air Pollution Control Act (Act 472 of 1949, as amended).

Administrative Records

Permit Number:	AR0045977	AFIN:	47-00233	Outfall Number:	004
Date of Review:	11/27/2018	Reviewer:	A. Bates/M. Barnett		
Facility Name:	Nucor Steel Arkansas - Hickman Mill				
Previous Dilution series:	0.4, 0.6, 0.8, 1.0, 1.3%	Proposed Dilution Series:	0.4, 0.6, 0.8, 1.0, 1.3%		
Previous Critical Dilution:	1.00%	Proposed Critical Dilution:	1.00%		
Previous TRE activities:	TRE completed in 2009				
Frequency recommendation by species					
<i>Pimephales promelas</i> (Fathead minnow):	once per quarter				
<i>Daphnia pulex</i> (water flea):	once per quarter				
TEST DATA SUMMARY					
TEST DATE	Vertebrate (<i>Pimephales promelas</i>)		Invertebrate (<i>Daphnia pulex</i>)		
	Lethal	NOEC	Lethal	NOEC	
12/31/2013		0.06		0.06	
3/31/2014		0.06		0.06	
6/30/2014		0.06		0.06	
9/30/2014		0.06		0.06	
12/31/2014		0.06		0.06	
3/31/2015		0.06		0.06	
6/30/2015		0.06		0.06	
9/30/2015		0.06		0.06	
12/31/2015		0.06		0.06	
3/31/2016		0.06		0.06	
6/30/2016		0.06		0.06	
9/30/2016		0.06		0.06	
12/31/2016		0.06		0.06	
3/31/2017		0.06		0.06	
6/30/2017		0.06		0.06	
9/30/2017		0.06		0.06	
12/31/2017		0.06		0.06	
3/31/2018		1.3		1.3	
6/30/2018		1.3		1.3	
9/30/2018		1.3		1.3	
Failures noted in BOLD					
REASONABLE POTENTIAL CALCULATIONS					
	Vertebrate Lethal		Invertebrate Lethal		
Min NOEC Observed	0.06		0.06		
TU at Min Observed	1666.67		1666.67		
Count	20		20		
Failure Count	0		0		
Mean	1428.205		1428.205		
Std. Dev.	582.399		582.399		
CV	0.4		0.4		
RPMF	1.2		1.2		
Reasonable Potential	20.000		20.000		
100/Critical dilution	10000.000		10000.000		
Does Reasonable Potential Exist	No		No		
PERMIT ACTION					
<i>P. promelas</i> acute - monitoring					
<i>D. pulex</i> acute - monitoring					

13. STORMWATER REQUIREMENTS

The federal regulations at 40 CFR 122.26(b)(14) require certain industrial sectors to have NPDES permit coverage for stormwater discharges from the facility. These requirements include the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) to control the quality of stormwater discharges from the facility. This facility was issued stormwater permit coverage under NPDES Tracking number ARR00A870.

14. SAMPLE TYPE AND FREQUENCY

Regulations require permits to establish monitoring requirements to yield data representative of the monitored activity [40 CFR Part 122.48(b)] and to ensure compliance with permit limitations [40 CFR Part 122.44(i)(1)].

Requirements for sample type and sampling frequency at outfall 002 have been based on the current discharge permit. Requirements for sample type and sampling frequency at outfall 004 were based on recommended frequencies for self-monitoring of discharges within the flow of 1.0 to 5.0 MGD.

Parameter	Previous Permit		Draft Permit	
	Frequency of Sample	Sample Type	Frequency of Sample	Sample Type
OUTFALL 002				
Flow	once/day	totalizing meter	once/day	totalizing meter
CBOD ₅				
(May-Oct)	once/month	composite	once/month	composite
(Nov-Apr)	once/month	composite	once/month	composite
TSS	once/month	composite	once/month	composite
NH ₃ -N				
(April)	once/month	composite	once/month	composite
(May-Oct)	once/month	composite	once/month	composite
(Nov-Apr)	once/month	composite	once/month	composite
DO	once/month	grab	once/month	grab
FCB	once/month	grab	once/month	grab
O&G	once/month	grab	once/month	grab
pH	once/month	Grab	once/month	grab

Parameter	Previous Permit		Draft Permit	
	Frequency of Sample	Sample Type	Frequency of Sample	Sample Type
OUTFALL 004				
Flow	once/day	totalizing meter	once/day	totalizing meter
TSS	once/month	composite	<i>once/week</i>	composite
O&G	once/month	grab	<i>once/week</i>	grab
Total Recoverable Chromium (Cr)	once/month	composite	once/month	composite
Total Recoverable Lead (Pb)	once/month	composite	once/month	composite
Total Recoverable Nickel (Ni)	once/month	composite	once/month	composite
Total Recoverable Zinc (Zn)	once/month	composite	once/month	composite
pH	once/month	grab	<i>once/week</i>	grab
Acute WET	once/quarter	composite	once/quarter	composite

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. [*Modification application for discharge permit AR0045977 received August 2, 2018.*](#)
- B. Application No. AR0045977 received December 22, 2015, and additional information received December 28, 2015, June 21, 2017, July 21, 2017, and August 1, 2017.
- C. APCEC Regulation No. 2.
- D. APCEC Regulation No. 3.
- E. APCEC Regulation No. 6 which incorporates by reference certain federal regulations included in Title 40 of the Code of Federal Regulations at Reg. 6.104.
- F. 40 CFR Parts 122 and 125.
- G. 40 CFR Part 420.
- H. Discharge permit file AR0045977.
- I. Discharge Monitoring Reports (DMRs).

- J. "2016 List of Impaired Waterbodies (303(d) List)", ADEQ, February 2008.
- K. "Identification and Classification of Perennial Streams of Arkansas", Arkansas Geological Commission.
- L. Continuing Planning Process (CPP).
- M. Technical Support Document For Water Quality-based Toxic Control.
- N. [Letter, dated September 24, 2010, from Samuel E. Commella of Nucor Steel, to Shane Byrum of ADEQ.](#)
- O. ["Corrective Action Plan for Non-compliance with Nickel Loading Limits at Outfall 004, Nucor Steel – Hickman Mill, NPDES Permit No. AR0045977; AFIN:46-00237", November 18, 2016, FTN Associates, Ltd.](#)
- P. [Inspection Report #090400, dated April 25, 2016.](#)
- Q. [CAO LIS-16-081.](#)
- R. [Compliance Review Memo dated August 30, 2017 from Bailey Taylor to Guy Lester.](#)
- S. [MultiSMP Model dated May 4, 2007, and reviewed September 15, 2017.](#)
- T. [Email, dated July 17, 2017, from Ray Weida of FTN Associates, Ltd. to Guy Lester of ADEQ.](#)
- U. [Letter, dated August 30, 2017, from Mary Emily Slate of Nucor Steel - Arkansas, to Guy Lester of ADEQ.](#)
- V. [Letter from EPA, dated October 17, 2017, no objection to preliminary Draft Permit AR0045977.](#)

18. **PUBLIC NOTICE**

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

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

19. **PERMIT FEE**

Permit Modification Fee

In accordance with Reg. No. 9.403(A), the fee for major modification of the Non-municipal major facilities permit is \$5,000.

Permit Annual Fee

Outfall 002

In accordance with Reg. No. 9.403(C)(1), the annual fee for the permit is calculated from the Design Flow (Q, in MGD) as follows:

$$Fee = \$200 + (5,600 \times Q) = \$200 + (5,600 \times 0.03) = \$368$$

Outfall 004

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

Therefore, Total Annual Fee = \$368 + \$15,000 = \$15,368

20. POINT OF CONTACT

For additional information, contact:

Terry Liu, P.E.
Permits Branch, Office of Water Quality
Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, Arkansas 72118-5317
Telephone: (501) 682-0023