NPDES PERMIT

issued to

Nucor Steel Connecticut, Inc.
35 Toelles Road
Wallingford, CT 06492

Location Address:
Nucor Steel Connecticut, Inc
35 Toelles Road
Wallingford, CT 06492

Permit ID: CT0026794

Receiving Streams: Quinnipiac River

Effective Date: August 1, 2021

Stream Segment Number: CT 5200-00_02

Permit Expires: July 31, 2026

SECTION 1: GENERAL PROVISIONS

(A) This permit is reissued in accordance with section 22a-430 of Chapter 446k, Connecticut General Statutes ("CGS"), and Regulations of Connecticut State Agencies ("RCSA") adopted thereunder, as amended, and section 402(b) of the Clean Water Act, as amended, 33 USC 1251, et. seq., and pursuant to an approval dated September 26, 1973, by the Administrator of the United States Environmental Protection Agency for the State of Connecticut to administer an N.P.D.E.S. permit program.

(B) Nucor Steel Connecticut, Inc., ("Permittee"), shall comply with all conditions of this permit including the following sections of the RCSA which have been adopted pursuant to section 22a-430 of the CGS and are hereby incorporated into this permit. Your attention is especially drawn to the notification requirements of subsection (i)(2), (i)(3), (j)(1), (j)(6), (j)(8), (j)(9)(C), (j)(10)(C), (j)(11)(C), (D), (E), and (F), (k)(3) and (4) and (l)(2) of section 22a-430-3.

Section 22a-430-3 General Conditions

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Section 22a-430-4 Procedures and Criteria

(a) Duty to Apply
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(r) Secondary Treatment Requirements
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(C) Violations of any of the terms, conditions, or limitations contained in this permit may subject the Permittee to enforcement action including, but not limited to, seeking penalties, injunctions and/or forfeitures pursuant to applicable sections of the CGS and RCSA.

(D) Any false statement in any information submitted pursuant to this permit may be punishable as a criminal offense under section 22a-438 or 22a-131a of the CGS or in accordance with section 22a-6, under section 53a-157b of the CGS.

(E) The authorization to discharge under this permit may not be transferred without prior written approval of the Commissioner of Energy and Environmental Protection ("Commissioner"). To request such approval, the Permittee and proposed transferee shall register such proposed transfer with the Commissioner, at least 30 days prior to the transferee becoming legally responsible for creating or maintaining any discharge which is the subject of the permit transfer. Failure, by the transferee, to obtain the Commissioner's approval prior to commencing such discharge(s) may subject the transferee to enforcement action for discharging without a permit pursuant to applicable sections of the CGS and RCSA.

(F) No provision of this permit and no action or inaction by the Commissioner shall be construed to constitute an assurance by the Commissioner that the actions taken by the Permittee pursuant to this permit will result in compliance or prevent or abate pollution.

(G) Nothing in this permit shall relieve the Permittee of other obligations under applicable federal, state and local law.

(H) An annual fee shall be paid for each year this permit is in effect as set forth in section 22a-430-7 of the Regulations of Connecticut State Agencies.

SECTION 2: DEFINITIONS

(A) The definitions of the terms used in this permit shall be the same as the definitions contained in section 22a-423 of the CGS and section 22a-430-3(a) and 22a-430-6 of the RCSA, except for "No Observable Acute Effect Level (NOAEL)" which is redefined below.

(B) In addition to the above, the following definitions shall apply to this permit:

"-----" in the limits column on the monitoring table means a limit is not specified but a value must be reported on the DMR.

"Average Monthly Limit"; means the maximum allowable "Average Monthly Concentration" as defined in section 22a-430-3(a) of the RCSA when expressed as a concentration (e.g. mg/l); otherwise, it means "Average Monthly Discharge Limitation" as defined in section 22a-430-3(a) of the RCSA.

"Critical Test Concentration (CTC)" means the specified effluent dilution at which the Permittee is to conduct a single-concentration Aquatic Toxicity test.

"Daily Concentration" means the concentration of a substance as measured in a daily composite sample, or the arithmetic average of all grab sample results defining a grab sample average.

"Daily Quantity" means the quantity of waste discharged during an operating day.

"Instantaneous Limit" means the highest allowable concentration of a substance as measured by a grab sample, or the highest allowable measurement of a parameter as obtained through instantaneous monitoring.

"In stream Waste Concentration (IWC)" means the concentration of a discharge in the receiving water after mixing has occurred in the allocated zone of influence.

“kg/d" as a mass unit, means kilograms per day.

"Maximum Daily Limit", means the maximum allowable "Daily Concentration" (defined above) when expressed as a concentration (e.g. mg/l); otherwise, it means the maximum allowable "Daily Quantity" as defined above, unless it is expressed as a flow quantity. If expressed as a flow quantity it means “Maximum Daily Flow” as defined in section 22a-430-3(a) of the RCSA.

"mg/l" means milligrams per liter.

"NA" as a Monitoring Table abbreviation means “not applicable”.

"NR" as a Monitoring Table abbreviation means “not required”.

"No Observable Acute Effect Level (NOAEL)" means any concentration equal to or less than the critical test concentration in a single concentration (pass/fail) toxicity test conducted pursuant to section 22a-430-3(j)(7)(A)(i) RCSA demonstrating greater than 50% survival of test organisms in 100% (undiluted) effluent and 90% or greater survival of test organisms at the CTC.

"Quarterly", in the context of a sampling frequency, means sampling is required in the months of February, May, August, and November. If there is no discharge during the sampling month the Permittee shall sample during the month within the quarter when there is a discharge and submit the result in the DMR.

"Range During Month" ("RDM"), as a sample type, means the lowest and the highest values of all of the monitoring data for the reporting month.

"Range During Sampling" ("RDS"), as a sample type, means the maximum and minimum of all values recorded as a result of analyzing each grab sample of; 1) a Composite Sample, or, 2) a Grab Sample Average. For those Permittees with continuous monitoring and recording pH meters, Range During Sampling means the maximum and minimum readings recorded with the continuous monitoring device during the Composite or Grab Sample Average sample collection.

"Twice per Month" when used as a sample frequency shall mean two samples per calendar month collected no less than 12 days apart.

"µg/l" means micrograms per liter.

SECTION 3: COMMISSIONER'S DECISION

(A) The Commissioner has issued a final determination and found that continuance of the existing system to treat the discharge will protect the waters of the state from pollution. The Commissioner's decision is based on Application No. 201404649 for permit reissuance received on May 7, 2014 and the administrative record established in the processing of that application.

(B) (1) From the issuance of this permit through and including the last day of the first calendar month of such issuance, the Commissioner hereby authorizes the Permittee to discharge in accordance with the terms and conditions of Permit No. CT0026794, issued by the Commissioner to the Permittee on December 30, 2009, the previous application submitted by the Permittee on May 20, 2009, and all modifications and approvals issued by the Commissioner or the Commissioner's authorized agent for the discharge and/or activities authorized by, or associated with Permit No. CT0026794, issued by the Commissioner to the Permittee on December 30, 2009.

(2) Beginning on the first day of the month following the issuance of this permit and continuing until this permit expires or is modified or revoked, the Commissioner hereby authorizes the Permittee to discharge in accordance with the terms and conditions of this permit, Application No. 201404649 received by the Department on May 7, 2014, and all modifications and approvals issued by the Commissioner or the Commissioner's authorized agent for the discharge and/or activities authorized by, or associated with this permit.

(C) The Commissioner reserves the right to make appropriate revisions to the permit in order to establish any appropriate effluent limitations, schedules of compliance, or other provisions which may be authorized under the Federal Clean Water Act or the CGS or regulations adopted thereunder, as amended. The permit as modified or renewed under this paragraph may also contain any other requirements of the Federal Clean Water Act or CGS or regulations adopted thereunder which are then applicable.

(D) This permit also includes a determination regarding section 316(a) of the federal Water Pollution Control Act 33 U.S.C. § 1326(a) regarding the thermal component of the discharge, and compliance with this permit is sufficient to assure the protection and propagation of a balanced indigenous population of shellfish, fish and wildlife in and on the receiving waters.

SECTION 4: GENERAL EFFLUENT LIMITATIONS

(A) No discharge shall contain, or cause in the receiving stream, a visible oil sheen or floating solids; or, cause visible discoloration or foaming in the receiving stream.

(B) No discharge shall cause acute or chronic toxicity in the receiving water body beyond any zone of influence specifically allocated to that discharge in this permit.

(C) The temperature of any discharge shall not increase the temperature of the receiving stream above 85^{o}F, or, in any case, raise the normal temperature of the receiving stream more than 4^{o}F.

SECTION 5: SPECIFIC EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

(A) The discharge shall not exceed and shall otherwise conform to the specific terms and conditions listed below. The discharge is restricted by, and shall be monitored in accordance with, the tables below:

TABLE A									
Discharge Serial Number: 001-1						**Monitoring Location:** 1			
Wastewater Description: Treated contact cooling water blowdown from steel manufacturing, mesh cooling wastewater, quality assurance wastewater and stormwater from the immediate process area that has potential to become contaminated with process wastewater.									
Monitoring Location Description: Sampling tap after the flow meter						In stream Waste Concentration (IWC 12 hours) = 2.8%			
Allocated Zone of Influence : 86,391 gph						**In stream Waste Concentration (IWC 24 hours) =** 1.4%			
PARAMETER	**UNITS**	**FLOW/TIME BASED MONITORING**				**INSTANTANEOUS MONITORING**			**Minimum Level Test [4]**
		Average Monthly Limit	Maximum Daily Limit	Sample/ Reporting Frequency [2]	Sample Type or Measurement to be reported	Instantaneous limit or required range	Sample/ Reporting Frequency [2]	Sample Type or measurement to be reported	
Aluminum, Total	mg/l	1.48	3.99	Twice Per Month	Daily Composite	5.98	NR	NA	*
Aluminum, Total	kg/d	0.168	0.453	Twice Per Month	Daily Composite	NA	NR	NA	
Aquatic Toxicity, Daphnia pulex LC_{50}	%	NA	≥36%	Quarterly	Daily Composite	≥12%	NR	NA	
Aquatic Toxicity, Pimephales promelas LC_{50}	%	NA	≥36%	Quarterly	Daily Composite	≥12%	NR	NA	
Chronic Aquatic Toxicity, Ceriodaphnia dubia[1]	%	NA	---	Annually	Daily Composite	NA	NR	NA	
Chronic Aquatic Toxicity, Pimephales promelas[1]	%	NA	---	Annually	Daily Composite	NA	NR	NA	
Biological Oxygen Demand (BOD) 5-day	mg/l	NA	15.0	Quarterly	Daily Composite	NA	NR	NA	
Bis(2-Ethylhexyl) Phthalate	mg/l	NA	---	Quarterly	Daily Composite	NA	NR	NA	
Conductivity	uhm/cm	NA	NA	NR	NA	---	Monthly	Grab	
E.coli	col/100ml	NA	NA	NR	NA	---	Quarterly	Grab	
Flow Rate (Average Daily)[3]	gpd	30,000	NA	Continuous	Daily Flow	NA	NR	NA	
Flow, Maximum during 24 hr period[3]	gpd	NA	50,000	Continuous	Daily Flow	NA	NR	NA	
Flow (Day of Sampling)	gpd	NA	50,000	Monthly	Daily Flow	NA	NR	NA	
Cadmium, Total	mg/l	0.007	0.014	Quarterly	Daily Composite	0.021	NR	NA	*
Chromium, Total	mg/l	1.0	2.0	Quarterly	Daily Composite	3.0	NR	NA	*
Copper, Total	mg/l	0.32	0.65	Monthly	Daily Composite	0.98	NR	NA	*
Chlorine, Total Residual	mg/l	0.048	0.144	Monthly	Grab Sample Average	NA	NR	NA	*
Chlorine, Total Residual	gr/d	5.5	16.3	Monthly	Grab Sample Average	NA	NR	NA	
Iron, Total	mg/l	3.0	5.0	Quarterly	Daily Composite	7.5	NR	NA	
Lead, Total	mg/l	0.069	0.138	Monthly	Daily Composite	0.21	NR	NA	*
Nickel, Total	mg/l	1.0	2.0	Monthly	Daily Composite	3.0	NR	NA	*
Oil and Grease, Total	mg/l	10.0	---	Monthly	Grab Sample Average	15.0	NR	NA	
Oil and Grease, Total	kg/d	1.135	---	Monthly	Grab Sample Average	NA	NR	NA	
pH, Day of Sampling	S.U.	NA	NA	NR	NA	6.0 to 9.0	Monthly	RDS	

pH, Minimum	S.U.	NA	NA	NR	NA	6.0	Continuous	Continuous	
pH, Maximum	S.U.	NA	NA	NR	NA	9.0	Continuous	Continuous	
Temperature	°F	NA	NA	NR	NA	---	Continuous	Continuous	
Total Suspended Solids	mg/l	20.0	30.0	Monthly	Daily Composite	45	NR	NA	
Total Suspended Solids	kg/d	2.271	3.406	Monthly	Daily Composite	NA	NR	NA	
Zinc, Total	mg/l	0.72	1.73	Monthly	Daily Composite	2.59	NR	NA	*

Table Footnotes and Remark:

Footnotes:

[1] Refer to section 6(C) for chronic toxicity testing requirement.

[2] For this parameter, the Permittee shall maintain at the facility a record of the total flow for each day of discharge and shall report the Average Daily Flow and the Maximum Daily Flow for each sampling month.

[3] The first entry in this column is the 'Sample Frequency'. If a 'Reporting Frequency' does not follow this entry and the 'Sample Frequency' is more frequent than monthly then the 'Reporting Frequency' is monthly. If the 'Sample frequency' is specified as monthly, or less frequent, then the 'Reporting Frequency' is the same as the 'Sample Frequency'.

[4] Minimum Level Test refers to Section 6 Paragraph A(3) of this permit.

Remark:

a) With the exceptions of chlorine, conductivity, E.coli and oil and grease, all analysis shall be done on the same sample. However, analytical samples for chlorine, conductivity, E.coli and oil and grease must be collected the same day.

(1) All samples shall be comprised of only the wastewater described in this table. Samples shall be collected prior to combination with receiving waters or wastewater of any other type, and after all approved treatment units, if applicable. All samples collected shall be representative of the discharge during standard operating conditions.

(2) In cases where limits and sample type are specified but sampling is not required by this permit, the limits specified shall apply to all samples which may be collected and analyzed by the Department of Energy and Environmental Protection personnel, the Permittee, or other parties.

SECTION 6: SAMPLE COLLECTION, HANDLING AND ANALYTICAL TECHNIQUES

(A) Chemical Analysis

(1) Chemical analyses to determine compliance with effluent limits and conditions established in this permit shall be performed using the methods approved by the Environmental Protection Agency pursuant to 40 CFR 136 unless an alternative method has been approved in writing in accordance with 40 CFR 136.4 or as provided in section 22a-430-3(j)(7) of the RCSA. Chemicals which do not have methods of analysis defined in 40 CFR 136 shall be analyzed in accordance with methods specified in this permit.

(2) All metals analyses identified in this permit shall refer to analyses for Total Recoverable Metal as defined in 40 CFR 136 unless otherwise specified.

(3) The Minimum Levels specified below represent the concentrations at which quantification must be achieved and verified during the chemical analyses for the parameters identified in Section 5 Table A. Analyses for these parameters must include check standards within ten percent of the specified Minimum Level or calibration points equal to or less than the specified Minimum Level.

Parameter	Minimum Level
Aluminum	10.0 ug/L
Cadmium	0.5 ug/L
Chlorine, total residual	10.0 ug/L
Chromium	5.0 ug/L
Copper	5.0 ug/L
Lead	1.0 ug/L
Nickel	5.0 ug/L
Zinc	10.0 ug/L

(4) The value of each parameter for which monitoring is required under this permit shall be reported to the maximum level of accuracy and precision possible consistent with the requirements of this section of the permit.

(5) Effluent analyses for which quantification was verified during the analysis at or below the minimum levels specified in this section and which indicate that a parameter was not detected shall be reported as "less than x" where 'x' is the numerical value equivalent to the analytical method detection limit for that analysis.

(6) Results of effluent analyses which indicate that a parameter was not present at a concentration greater than or equal to the Minimum Level specified for that analysis shall be considered equivalent to zero (0.0) for purposes of determining compliance with effluent limitations or conditions specified in this permit.

(B) Acute Aquatic Toxicity Test

(1) Samples for monitoring of Aquatic Toxicity shall be collected and handled as prescribed in "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms" (EPA/821-R-02-012).

(a) Composite samples shall be chilled as they are collected. Grab samples shall be chilled immediately following collection. Samples shall be held at 4 degrees Centigrade until Aquatic Toxicity testing is initiated.

(b) Effluent samples shall not be dechlorinated, filtered, or, modified in any way, prior to testing for Aquatic Toxicity unless specifically approved in writing by the Commissioner for monitoring at this facility.

(c) Chemical analyses of the parameters identified in Section 5 Table A shall be conducted on an aliquot of the same sample tested for Aquatic Toxicity.

(i) At a minimum, pH, specific conductance, total alkalinity, total hardness, and total residual chlorine shall be measured in the effluent sample and, during Aquatic Toxicity tests, in the highest concentration of test solution and in the dilution (control) water at the beginning of the test and at test termination. If Total Residual Chlorine is not detected at test initiation, it does not need to be measured at test termination. Dissolved oxygen, pH, and temperature shall be measured in the control and all test concentrations at the beginning of the test, daily thereafter, and at test termination.

(ii) For tests with saltwater organisms that require salinity adjustment of the effluent, chemical analyses shall be conducted on an aliquot of the effluent sample collected for Aquatic Toxicity testing and on an aliquot of the effluent following salinity adjustment. Both sets of results shall be reported on the Aquatic Toxicity Monitoring Report (ATMR).

(d) Tests for Aquatic Toxicity shall be initiated within 24 hours of sample collection.

(2) Monitoring for Aquatic Toxicity to determine compliance with the permit limit on Aquatic Toxicity (invertebrate) above shall be conducted for 48-hours utilizing neonatal Daphnia pulex (less than 24-hours old)

(3) Monitoring for Aquatic Toxicity to determine compliance with the permit limit on Aquatic Toxicity (vertebrate) above shall be conducted for 48-hours utilizing larval Pimephales promelas (1-14 days old with no more than 24-hours range in age).

(4) Tests for Aquatic Toxicity shall be conducted as prescribed for static non-renewal acute tests in "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms" (EPA/821-R-02-012), except as specified below.

(a) Definitive (multi-concentration) testing, with LC50 as the endpoint, shall be conducted to determine compliance with limits on Aquatic Toxicity and monitoring conditions and shall incorporate, at a minimum, the following effluent concentrations:

(i) For Aquatic Toxicity Limits expressed as LC50 values of 33% or greater: 100%, 75%, 50%, 25%, 12.5%, and 6.25%

(ii) For Aquatic Toxicity Limits expressed as LC50 values between 15% and 33% and for monitoring only conditions: 100%, 50%, 25%, 12.5%, and 6.25%

(iii) For Aquatic Toxicity Limits expressed as LC50 values of 15% or less: 100%, 50%, 25%, 12.5%, 6.25%, and 3%

(b) Organisms shall not be fed during the tests.

(c) Copper nitrate shall be used as the reference toxicant in tests with freshwater organisms.

(d) Synthetic freshwater prepared with deionized water adjusted to a hardness of 50 mg/L (plus or minus 5 mg/L) as CaCO3 shall be used as dilution water in tests with freshwater organisms.

(5) Compliance with limits on Aquatic Toxicity shall be determined as follows:

(a) For limits expressed as a minimum LC50 value, compliance shall be demonstrated when the results of a valid definitive Aquatic Toxicity test indicates that the LC50 value for the test is greater than the Aquatic Toxicity Limit.

(C) The Permittee shall annually monitor the chronic toxicity of the DSN 001-1 in accordance with the following specifications.

(1) Chronic toxicity testing of the discharge shall be conducted annually during July, August, or September of each year.

(2) Chronic toxicity testing shall be performed on the discharge in accordance with the test methodology established in "Short term Methods For Estimating The Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms" (EPA-821-R-02-013) as referenced in 40 CFR 136 for Ceriodaphnia dubia survival and reproduction and Fathead Minnow (Pimephales promelas) larval survival and growth.

(3) Chronic toxicity tests shall utilize a minimum of five effluent dilutions prepared using a dilution factor of 0.5 (100% effluent, 50% effluent, 25 % effluent, 12.5 % effluent, 6.25 % effluent, 0 % effluent).

(4) Quinnipiac River water collected immediately upstream of the area influenced by the discharge shall be used as site water control (0% effluent) and dilution water in the toxicity tests.

(5) A laboratory water control consisting of synthetic freshwater prepared in accordance with EPA-821-R-02-013 at a hardness of 50±5 mg/l shall be included in the test protocol in addition to the site-water control.

(6) Daily composite samples of the discharge and grab samples of the Quinnipiac River for use as site water control and dilution water shall be collected on: day 0, for test solution renewal on day 1 and day 2 of the test; day 2, for test solution renewal on day 3 and day 4 of the test; and day 4, for test solution renewal on day 5, 6, and 7 of the test. Samples shall not be dechlorinated, pH or hardness adjusted, or chemically altered in any way.

(7) All samples of the discharge and the Quinnipiac River water used in the chronic toxicity test shall, at a minimum, be analyzed and results reported in accordance with the provisions listed in Section 6(A) of this permit for the following parameters:

pH
Hardness
Aluminum (Total recoverable and dissolved)
Alkalinity
Conductivity
Chlorine, (Total residual)
Zinc, (Total recoverable and dissolved)
Copper (Total recoverable and dissolved)
Nickel (Total recoverable and dissolved)
Lead (Total recoverable and dissolved)
Nitrogen, Ammonia (total as N)
Nitrogen, Nitrate (Total as N)
Solids, Total Suspended

SECTION 7: REPORTING REQUIREMENTS

(A) The results of chemical analyses and any aquatic toxicity test required above shall be entered on the Discharge Monitoring Report (DMR), provided by this office, and reported to the Bureau of Materials Management and Compliance Assurance (Attn: DMR Processing) at the following address. Except for continuous monitoring, any monitoring required more frequently than monthly shall be reported on an attachment to the DMR, and any additional monitoring conducted in accordance with 40 CFR 136 or other methods approved by the Commissioner shall also be included on the DMR, or as an attachment, if necessary. The report shall also include a detailed explanation of any violations of the limitations specified. The DMR shall be received at this address by the last day of the month following the month in which samples are collected.

Bureau of Materials Management and Compliance Assurance
Water Permitting and Enforcement Division (Attn: DMR Processing)
Connecticut Department of Energy and Environmental Protection
79 Elm Street, Hartford, CT 06106-5127

(B) Complete and accurate aquatic toxicity test data, including percent survival of test organisms in each replicate test chamber, LC50 values and 95% confidence intervals for definitive test protocols, and all supporting chemical/physical measurements performed in association with any aquatic toxicity test, including measured daily flow and hours of operation for the 30 consecutive operating days prior to sample collection if compliance with a limit on Aquatic Toxicity is based on toxicity limits based on actual flows described in Section 6, shall be entered on the Aquatic Toxicity Monitoring Report form (ATMR) and sent to the Bureau of Water Protection and Land Reuse at the following address. The ATMR shall be received at this address by the last day of the month following the month in which samples are collected.

Bureau of Water Protection and Land Reuse (Attn: Aquatic Toxicity)
Connecticut Department of Energy and Environmental Protection
79 Elm Street, Hartford, CT 06106-5127

(C) If this permit requires monitoring of a discharge on a calendar basis (e.g. Monthly, quarterly, etc.), but a discharge has not occurred within the frequency of sampling specified in the permit, the Permittee must submit the DMR and ATMR, as scheduled, indicating "NO DISCHARGE". For those Permittees whose required monitoring is discharge dependent (e.g. per batch), the minimum reporting frequency is monthly. Therefore, if there is no discharge during a calendar month for a batch discharge, a DMR must be submitted indicating such by the end of the following month.

(D) NetDMR Reporting Requirements

(1) Prior to one-hundred and eighty (180) days after the issuance of this permit, the Permittee may either submit monitoring data and other reports to the Department in hard copy form or electronically using NetDMR, a web-based tool that allows Permittees to electronically submit discharge monitoring reports (DMRs) and other required reports through a secure internet connection. Unless otherwise approved in writing by the Commissioner, no later than one-hundred and eighty (180) days after the issuance of this permit the Permittee shall begin reporting electronically using NetDMR. Specific requirements regarding subscription to NetDMR and submittal of data and reports in hard copy form and for submittal using NetDMR are described below:

(a) Submittal of *NetDMR Subscriber Agreement*

On or before fifteen (15) days after the issuance of this permit, the Permittee and/or the person authorized to sign the Permittee's discharge monitoring reports ("Signatory Authority") as described in RCSA Section 22a-430-3(b)(2) shall contact the Department at deep.netdmr@ct.gov and initiate the NetDMR subscription process for electronic submission of Discharge Monitoring Report (DMR) information. Information on NetDMR is available on the Department's website at www.ct.gov/deep/netdmr. On or before ninety (90) days after issuance of this permit the Permittee shall submit a signed and notarized copy of the ***Connecticut DEEP NetDMR Subscriber Agreement*** to the Department.

(b) Submittal of Reports Using NetDMR

Unless otherwise approved by the Commissioner, on or before one-hundred and eighty (180) days after issuance of this permit, the Permittee and/or the Signatory Authority shall electronically submit DMRs and reports required under this permit to the Department using NetDMR in satisfaction of the DMR submission requirement in paragraph (A) of this Section of this permit.

DMRs shall be submitted electronically to the Department no later than the 30th day of the month following the completed reporting period. All reports required under the permit, including any monitoring conducted more frequently than monthly or any additional monitoring conducted in

accordance with 40 CFR 136, shall be submitted to the Department as an electronic attachment to the DMR in NetDMR. Once a Permittee begins submitting reports using NetDMR, it will no longer be required to submit hard copies of DMRs or other reports to the Department. Permittee shall also electronically file any written report of non-compliance described in paragraph (A) of this Section and in the following Section of this Permit as an attachment in NetDMR. NetDMR is accessed from: https://netdmr.epa.gov/netdmr/public/home.htm.

(c) Submittal of NetDMR Opt-Out Requests

If the Permittee is able to demonstrate a reasonable basis, such as technical or administrative infeasibility, that precludes the use of NetDMR for electronically submitting DMRs and reports, the Commissioner may approve the submission of DMRs and other required reports in hard copy form ("opt-out request"). Opt-out requests must be submitted in writing to the Department for written approval on or before fifteen (15) days prior to the date a Permittee would be required under this permit to begin filing DMRs and other reports using NetDMR. This demonstration shall be valid for twelve (12) months from the date of the Department's approval and shall thereupon expire. At such time, DMRs and reports shall be submitted electronically to the Department using NetDMR unless the Permittee submits a renewed opt-out request and such request is approved by the Department.

All opt-out requests and requests for the NetDMR subscriber form should be sent to the following address or by email at deep.netdmr@ct.gov:

Attn: NetDMR Coordinator
Connecticut Department of Energy and Environmental Protection
79 Elm Street, Hartford, CT 06106-5127

SECTION 8: RECORDING AND REPORTING OF VIOLATIONS, ADDITIONAL TESTING REQUIREMENTS

(A) If any sample analysis indicates that an Aquatic Toxicity effluent limitation in Section 5 of this permit has been exceeded, or that the test was invalid, another sample of the effluent shall be collected and tested for Aquatic Toxicity and associated chemical parameters, as described above in Section 5 and Section 6, and the results reported to the Bureau of Materials Management and Compliance Assurance (Attn: DMR Processing), at the address listed above, within 30 days of the exceedance or invalid test. Results of all tests, whether valid or invalid, shall be reported.

(B) If any two consecutive test results or any three test results in a twelve month period indicates that an Aquatic Toxicity Limit has been exceeded, the Permittee shall immediately take all reasonable steps to eliminate toxicity wherever possible and shall submit a report to Bureau of Materials Management and Compliance Assurance (Attn: Aquatic Toxicity) for the review and approval of the Commissioner in accordance with section 22a-430-3(j)(10)(c) of the RCSA describing proposed steps to eliminate the toxic impact of the discharge on the receiving water body. Such a report shall include a proposed time schedule to accomplish toxicity reduction and the Permittee shall comply with any schedule approved by the Commissioner.

(C) The Permittee shall notify the Bureau of Materials Management and Compliance Assurance, Water Permitting and Enforcement Division, within 72 hours and in writing within thirty days of the discharge of any substance listed in the application but not listed in the permit if the concentration or quantity of that substance exceeds two times the level listed in the application.

This permit is hereby issued on July 29, 2021.

Yvonne Bolton

Yvonne Bolton, Bureau Chief
Materials Management and Compliance Assurance
Department of Energy and Environmental Protection

YB/OF

WASTE WATER DISCHARGE PERMIT: DATA TRACKING AND TECHNICAL FACT SHEET

Permittee: Nucor Steel Connecticut, Inc.

PERMIT, ADDRESS, AND FACILITY DATA

PERMIT #: CT0026794 *APPLICATION #: 201404649*

Mailing Address:						*Location Address:*					
Street:	*35 Toelles Road*					*Street:*	*35 Toelles Road*				
City:	*Wallingford*	*ST:*	*CT*	*Zip:*	*06492*	*City:*	*Wallingford*	*ST:*	*CT*	*Zip:*	*06492*
Contact Name:	*Joe Fronzaglio*					*DMR Contact*	*Ian Feeney*				
Phone No.:	*(203) 949-6800*					*Phone No.:*	*(203) 265-0615*				
Contact e-mail:	*Joe.fronzaglio@nucor.com*					*DMR Contact e-mail:*	*ian.feeney@nucor.com*				

PERMIT INFORMATION

DURATION *5 YEAR _X_ 10 YEAR ___ 30 YEAR ___*

TYPE *New _ Reissuance X Modification ___*

CATEGORIZATION *POINT (X) NON-POINT ()*

NPDES (X) PRETREAT () GROUND WATER (UIC) ( ) GROUND WATER (OTHER) ( )

*NPDES MAJOR **(MA)*** *X*
*NPDES SIGNIFICANT MINOR or PRETREAT SIU **(SI)*** ___
*NPDES or PRETREATMENT MINOR **(MI)*** ___
*PRETREAT SIGNIFICANT INDUS USER **(SIU)*** ___
*PRETREAT CATEGORICAL **(CIU)*** ___

SIC Code 3312, 3315

POLLUTION PREVENTION MANDATE __ ENVIRONMENTAL EQUITY ISSUE ___

SOLVENT MANAGEMENT PLAN
IS THE FACILITY OPERATING UNDER AN APPROVED SOLVENT MANAGEMENT PLAN (SMP)?YES__NOX(NA)

COMPLIANCE SCHEDULE *YES_ NO _X_*

POLLUTION PREVENTION ___ TREATMENT REQUIREMENT__ WATER CONSERVATION__

WATER QUALITY REQUIREMENT _ REMEDIATION __ OTHER __

RECENT ENFORCEMENT HISTORY
*IS THE PERMITTEE SUBJECT TO A PENDING ENFORCEMENT ACTION? YES ___ NO _X_*

OWNERSHIP CODE

Private X Federal __ State __ Municipal (town only) _ Other public __

DEEP STAFF ENGINEER *Oluwatoyin Fakilede*

PERMIT FEES

***Application Filing Fee**: $1,300*

***Application Processing Fee**: $13,650*

Discharge Code	*DSN Number*	*Annual Fee*
101031Y	*001-1*	*$4,337.50*

FOR NPDES DISCHARGES

Drainage basin Code: 5200 *Water Quality Standard: B**

NATURE OF BUSINESS GENERATING DISCHARGE

Nucor Steel Connecticut, Inc. is a steel rolling mill engaged in the manufacture of steel rod, rebar and steel wire mesh. Wastewater discharges are primarily generated from potable water used in the contact cooling system for its carbon steel, hot forming section mill rolls that shape solidified heated steel into finished and semi-finished steel products.

PROCESS AND TREATMENT DESCRIPTION (by DSN)

DSN 001-1: Nucor Steel Connecticut, Inc. is permitted to discharge up to 50,000 gallons per day of treated contact cooling water blowdown from steel manufacturing, mesh cooling wastewater, quality assurance wastewater and stormwater from the immediate process area that has potential to become contaminated with process wastewater. The wastewater undergoes equalization, coagulation, flocculation, filtration, neutralization, clarification and final bag filtration prior to discharge to the Quinnipiac River.

RESOURCES USED TO DRAFT PERMIT

X *Federal Effluent Limitation Guideline 40 CFR 420, Subpart G*
Iron and Steel Manufacturing,
40 CFR420.74(b)(1)
[TSS, O&G, pH]

X *Section 22a-430-4(s) of the Regulations of Connecticut State Agencies*

__ *Performance Standards*

__ *Federal Development Document _____*
Name of Category

__ *Treatability Manual*

X *Department File Information*

X *Connecticut Water Quality Standards*

__ *Anti-degradation Policy*

__ *Coastal Management Consistency Review*

X *Other – Explain*

BASIS FOR LIMITATIONS, STANDARDS OR CONDITIONS

X	*New Source Performance Standards (NSPS)* *pH range (MIL)*
X	*Case by Case Determination using Best Professional Judgment (See Other Comments)* *Aquatic toxicity (MDL, MIL), BOD (MDL), Aluminum (MIL), Cadmium (MIL), Chlorine (MIL), Copper (MIL), Lead (MIL), Oil and grease (MIL) and Zinc (MIL)*
X	*Section 22a-430-4(s) of the Regulations of Connecticut State Agencies* *Chromium (AML, MDL, MIL), Iron (AML, MDL, MIL), Nickel (AML, MDL, MIL), Oil and grease (AML), Total Suspended Solids (AML, MDL, MIL)*
X	*In order to meet in-stream water quality (See General Comments)* *Aluminum (AML, MDL), Cadmium (AML, MDL), Copper (AML, MDL), Chlorine (AML, MDL), Lead (AML, MDL) and Zinc (AML, MDL)*
	Anti-degradation policy

AML: Average Monthly Limit MDL: Maximum Daily Limit MIL: Maximum Instantaneous Limit

PERMIT LIMIT DEVELOPMENT

The first step in permit limit development is to perform a review of information to identify and characterize the discharge and quantify any pollutants that can reasonably be expected to be present in the discharge. Second is to determine whether a discharge of such pollutants would be subject to applicable federal or state categorical limitations. Third, an analysis is performed to determine whether there is reasonable potential for such pollutants to not meet water quality standards and to develop appropriate water quality based limits for such pollutants. Fourth, a comparative evaluation is performed to determine to most protective of the applicable regulatory limitations, water quality based limits, and pollutant limitations established in the current permit that may be required to be maintained in accordance with the anti-backsliding provisions of RCSA Section 22a-430-4(l)(4)(A)(xxiii). Fifth, a case-by-case determination pursuant to RCSA Section 22a-430-4(m) may be performed to determine whether any further limitations may need to be established in consideration of impacts of the discharge, either alone or in combination with other discharges, to receiving waters or its designated uses, to a sewerage system or its operation thereof, on the treatability of the discharge including the operation and management of any treatment system, and the potential for spills, leaks or other uncontrolled releases of pollutants, or any other factors pursuant to RCSA Section 22a-430-4(l).

Discharge Characterization

Based on a review of discharge information provided in Attachment O of the application and discharge monitoring data reported to the Department from June 2014 through May 2019 (see Attachment 1), the following pollutants have been identified as known or suspected present in the discharge: aluminum, bis-2 (ethyl hexyl) phthalate (always non-detect in the wastewater), cadmium, copper, chlorine, iron, lead, nickel, zinc, oil & grease, and total suspended solids.

Applicable Federal and State Categorical Limitations

The Nucor Steel Connecticut, Inc. facility, formerly known as Connecticut Steel Corporation, started operations on or after September 27, 1983, the date of incorporation filed with the Secretary of the State, commencing after the May 27, 1982 promulgation of the revised federal categorical standards for Iron and Steel Manufacturing, 40 CFR 420. A facility existed at the site prior to May 27, 1982, however the facility ceased operations for a period of time prior to subsequent acquisition and recommencement of facility operations by Connecticut Steel Corporation. Consequently, the facility's wastewater-generating activities are classified as a new point source discharge subject

to regulation under federal categorical standards for Iron and Steel Manufacturing, specifically 40 CFR 420, Hot Forming Subcategory, Subpart G, and more specifically Carbon Steel Section Mills, 40 CFR 420.74(b)(1).

Federal effluent limitations have been promulgated only for Total Suspended Solids (TSS) and Oil & Grease, with respective Maximum Daily and Average Monthly effluent limitations production-normalized and expressed in Kilograms (Kg) per kkg, or pounds per 1,000 lb, of product. The company produces an average of 1000 tons of steel per day. A federal effluent limitation has also been established for pH within the range of 6.0 to 9.0 Standard Units.

Nucor Steel's iron and steel manufacturing discharges is one of the categories of discharges for which applicable state effluent limitations have been promulgated under RCSA Sections 22a-430-4(s)(1). The state regulations establish Average Monthly, Maximum Daily and Maximum Instantaneous concentration-based effluent limits for pertinent pollutants of concern including Aluminum, Cadmium, Chromium, Copper, Total Residual Chlorine, Iron, Lead, Nickel, Zinc, Oil & Grease and Total Suspended Solids, which are each expressed in milligrams per liter (mg/L).

Water Quality Based Effluent Limitations – Reasonable Potential Analysis

The need for inclusion of water quality based discharge limitations in this permit was evaluated consistent with Connecticut Water Quality Standards and criteria, pursuant to 40 CFR 122.44(d). Each parameter was evaluated for consistency with the available aquatic life criteria (acute and chronic) and human health (fish consumption only) criteria, considering the zone of influence allocated to the facility's discharge where appropriate. The reasonable potential statistical procedures outlined in the EPA Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001) were employed to calculate the need for such limits. Comparison of monitoring data and its inherent variability with the calculated water quality based limits indicates a statistical probability of exceedance of such limits for aluminum, chlorine and nickel. Therefore, water quality based concentration and mass limits were evaluated for aluminum, chlorine, and nickel based on an average monthly flow of 30,000 gallons per day.

Comparative Evaluation

Attachment 2 of this Fact Sheet describes the comparative analysis that demonstrates that the concentration-based state effluent limitations for TSS and Oil & Grease under RCSA Sections 22a-430-4(s)(2) are more protective than the federal production-normalized, mass-based effluent limitations. Therefore, the respective RCSA Section 22a-430-4(s)(2) effluent limitations for TSS and Oil and Grease are applied for further analysis.

COMPARISON OF FEDERAL AND STATE CATEGORICAL LIMITS

Pollutants of concern	*Section 22a-430-4(s)(2) Effluent limits (Concentration Limits) mg/l*			*Section 22a-430-4(s)(2) Effluent limits (Mass limits) Kg/d*			*Federal Effluent limits (NSPS) (Mass limits) Kg/d*		
	AML	*MDL*	*MIL*	*AML*	*MDL*	*MIL*	*AML*	*MDL*	*MIL*
Total Suspended Solids	*20*	*30*	*45*	*2.271*	*3.406*	*5.109*	*11.3*	*30.3*	---
Oil & Grease	*10*	---	*20*	*1.135*	---	*2.271*		*7.56*	---

PARAMETER	Federal Categorical Limits 40 CFR 420.72(b)(1) & 40 CFR 420.77(b)(1)		RCSA 22a-430-4(s)			Water Quality Limits			Previous Permit (*Anti-backsliding*)		
	Average Monthly (pounds per 1,000 lb product - Kg/kkg)/(Kg/day)	Maximum Daily (pounds per 1,000 lb product - Kg/kkg)/(Kg/day)	Average Monthly (mg/L)	Maximum Daily (mg/L)	Maximum Instantaneous Limit (mg/L)	Average Monthly (mg/L)	Maximum Daily (mg/L)	Maximum Instantaneous (mg/L)			
Aluminum, Total	-	-	2.0	4.0	6.0	1.5	4.0				
Cadmium, Total	-	-	0.07	0.11	0.16	-	-	-			
Chromium, Total	-	-	1.0	2.0	3.0	-	-	-			
Copper, Total	-	-	1.0	2.0	3.0	-	-	-			
Chlorine, Total Residual	-	-	-	-	-	0.048	0.14				
Iron, Total	-	-	3.0	5.0	7.5	-	-	-			
Lead, Total	-	-	0.1	0.5	0.75	-	-	-			
Nickel, Total	-	-	1.0	2.0	3.0	1.1	3.5				
Zinc, Total	-	-	1.0	2.0	3.0	-	-	-			
Total Suspended Solids	0.125/11.3	0.0334/30.3	20.0	30.0	45.0	-	-	-			
Oil and Grease	-	0.00834/7.56	10.0	-	20.0	-	-	-			

Although the proposed concentration-based limits for cadmium are lower than the limits in the previous permit, the above referenced DMR data showed that the Permittee can comply with the limits. However, concentration-based limits for copper, lead and zinc are less stringent than the limits included in the previous permit. Applying less stringent concentration-based limits than the limits in the previous permit would contravene the anti-backsliding rule.

Therefore, based on best professional judgement, water quality based concentration limits were included for cadmium, copper, lead and zinc (see Attachment 1). The proposed limits for copper, lead and zinc are higher than the limits in the previous permit. However, this does not contravene the anti-backsliding rule in accordance with Section 22a-430-4(l)(4)(A)(xxiii) of the RCSA and Section 402(o)(2) of the Clean Water Act because the circumstances on which the previous permit were based have changed; the previous permit calculation was based on a discharge of 43,200 gpd and an assumed coefficient of variation, while the proposed limits in this permit renewal are based on a discharge of 30,000 gpd and calculated coefficients of variation (see Attachment 1). Based on the flow volume, the calculated mass loads are actually lower than that of the previous permit limits (see Table E of this fact sheet).

Mass limits for copper, lead, and zinc were not included in this permit because the concentration limits included in the permit are sufficiently protective of the receiving stream based on the average monthly flow of 30,000 gallons per day.

Nucor Steel typically discharges on an as-needed basis for conductivity control, however, DMR data indicate that discharges may be more frequent. Therefore, an annual chronic toxicity testing requirement was included in the permit. The Department may remove this requirement in subsequent permits if data from this permit cycle show no chronic toxicity.

A review of the discharge monitoring reports (DMR) from June 2014 to May 2019 showed that the Permittee should be able to comply with the proposed aluminum limits although there were higher concentrations levels in June

2014(1.9mg/l) and March 2018(2.3mg/l). DMR data from August 2015 to May 2019 for chlorine also showed that the Permittee should be able to meet the proposed chlorine limits.

Section 22a-430-3(j)(2) of the RCSA prescribes twice per month monitoring frequency for Iron and Steel manufacturing discharges with discharge volumes of 0 gpd to 50,000 gpd. However, the Department had determined for the previous permit cycle that monthly and quarterly monitoring frequencies would be sufficient for Nucor Steel's discharge. DMR data continues to support this decision. Therefore, the monitoring frequencies in the previous permit were carried forward with the exception of aluminum. Aluminum monitoring frequency was increased from monthly to twice per month in this permit renewal consistent with Section 22a-430-3(j)(2) of the RCSA, because aluminum is a pollutant of concern (DMR data showed an exceedance of the previous average monthly limit of 2.0 mg/l and several data that are very close to the proposed average monthly limit of 1.48 mg/l).

Section 22a-430-4(s)(2) of the RCSA only has an average monthly limit and a maximum instantaneous limit for oil and grease. The maximum instantaneous limit for oil and grease in the previous permit was carried forward because of the anti-backsliding rule. The previous maximum instantaneous limit which was based on best professional judgment, was derived by multiplying the average monthly limit by a factor of 1.5, since the RCSA does not have a maximum daily limit.

Based on Case by Case Determination using Best Professional Judgment, the maximum daily limit for biochemical oxygen demand was carried forward from the previous permit using secondary treatment limits as a guide. The maximum instantaneous limits for aluminum, cadmium, chlorine, copper, lead and zinc in Table A, are also based on Case by Case Determination using Best Professional Judgment. The maximum instantaneous limits were derived by multiplying the maximum daily limits by a factor of 1.5, consistent with Section 22a-430-4(s)(2) of RCSA.

Monitoring requirement was included for chlorine because the Permittee uses city water for its contact cooling operations. The sample type of chlorine was changed from grab to grab sample average for better representation of the effluent being discharged during an operating day.

The receiving stream, Quinnipiac River, has been assessed and is listed as being impaired for its designated uses of habitat for fish, other aquatic life and wildlife. It is believed that potential sources may include industrial point source discharges, municipal discharges, landfills, illicit discharge, remediation sites or groundwater contamination. Although the permitted discharge is an industrial point source discharge, other contributory discharges to the Quinnipiac were considered before allocating a zone of influence to Nucor Steel's discharge. Compliance with the limitations and conditions of the permit should ensure protection of the receiving stream (see Attachment 3).

A final total maximum daily load (TMDL) for E. coli has been adopted for the receiving stream. Four municipal wastewater treatment plants (Cheshire WPCF, Meriden WPCF, Southington WPCF, and Wallingford WPCF) and one industry (Allnex USA Inc.) that discharge to the Quinnipiac River are assigned indicator bacteria limits in their National Pollutant Discharge Elimination (NPDES) Permits. Disinfection required under those NPDES Permits is sufficient to reduce indicator bacteria densities to below levels of concern in the effluent when in use and functioning properly. Although Nucor Steel's permitted discharge includes stormwater, the Department does not believe that E.coli is a pollutant of concern in this discharge. Therefore, limits for E.coli were not included in the permit. However, a quarterly monitoring requirement was included in order to verify whether E.coli. is present in the wastewater.

Antidegradation analysis

Since an increase in volume or concentration of pollutants is not proposed for Nucor Steel discharge, an antidegradation analysis is not required pursuant to Sec. 22a-426-8(a)(1) of the CTWQS.

Section 316(a) of the Federal Water Pollution Control Act, U.S.C. § 1326(a)

Section 316(a) of the Federal Water Pollution Control Act, U.S.C. § 1326(a) provides that the thermal component of any discharge will assure the protection and propagation of a balanced indigenous population of shellfish, fish and wildlife in and on the receiving water body. Although the Permittee generates contact cooling wastewater, the cooling wastewater is retained for about 3 hours in the treatment system, sometimes comingling with stormwater, and then goes into the cooling tower before it is discharged. The wastewater also travels more than 2,000 feet before it is discharged to the Quinnipiac River (see Attachment 4). At the point the wastewater is discharged, the

elevated temperature of the wastewater has already been substantially reduced. The application Attachment O showed a discharge temperature lower than 60°F.

Section 22a-426-4(l)(8) of the Connecticut Water Quality Standards (CTWQS) states that a thermal zone of influence (ZOI) shall not exceed 25% of the cross sectional area or volume of flow of the receiving water. The ZOI allocated for chemical constituents is 10% of the 7Q10 of the receiving water and it is less than 25% of the cross sectional area or volume of flow of the receiving water, therefore, the ZOI allocated for chemical constituents was used as the thermal mixing zone. Using the thermal mixing zone, the actual maximum temperature of the receiving stream taken from USGS data and the permitted maximum monthly flow, Department of Energy and Environmental Protection (DEEP) staff determined that a temperature limit is not necessary (see Attachment 1). However, a temperature monitoring requirement was included in the permit. In addition, consistent with all NPDES permits, the following narrative temperature effluent limitation was included in section 4 of this permit: "The temperature of any discharge shall not increase the temperature of the receiving stream above 85°F, or, in any case, raise the temperature of the receiving stream by more than 4°F".

OTHER COMMENTS

Information was provided to the department by Quinnipiac University's Prof. Pylypiw in 2015 indicating potential presence of phenothiazine in Nucor Steel's discharge. The department has reviewed such information and determined that specific monitoring for phenothiazine is not warranted (see the attached memo dated November 30, 2016).

On December 22, 2020, a draft permit was e-mailed to Nucor Steel's Environmental Supervisor, Ian Feeney. In a response e-mail sent on January 4, 2021, Mr. Feeney indicated that the Permittee concurs with the terms and conditions of the draft permit.

COMMENTS RELATED TO THE PUBLIC NOTICE

The attached public notice was published in the Meriden Record-Journal on March 22, 2021. On March 23, 2021, the Department received written comments via e-mail from Mr. Ian Feeney of Nucor Steel Connecticut, Inc. The Department also received comments via email on April 21, 2021, from Ms. Christine Gleason on the proposed action:

The Bureau of Materials Management and Compliance Assurance staff has reviewed the written comments and recommends the following changes in the draft permit. Below are the comments in italics followed by the Department's responses in bold letters.

A) *Mr. Feeney indicated that Nucor Steel's general manager is presently Joe Fronzaglio, and he also requested that the DMR contact's phone number be changed.*

The company contact information in the permit fact sheet has been updated to reflect the current General Manager Joe Fronzaglio and the contact's associated e-mail address joe.fronzaglio@nucor.com and phone number (203) 949-6800. The phone number for Mr. Feeney, who is the DMR contact, has also been updated to (203) 949-6800 in the permit fact sheet.

B) Ms. Christine Gleason had the following comments:

1. *Compliance Schedule: What is the scope of the water-quality based compliance schedule noted in the fact sheet?*

There is no proposed compliance schedule in the draft permit. The water quality requirement under "Compliance Schedule" on page 1 of the permit fact sheet was inadvertently check-marked "YES," and has been corrected to "NO".

2. *Basis for Limitation, Standards, or Conditions: This section of the fact sheet incorrectly identifies BPT and BCT as the basis for limits, not NSPS.*

   New Source Performance Standards ("NSPS") were previously evaluated with regard to the parameter pH, and the proposed pH effluent limits in the draft permit are reflective of that analysis. Therefore, no change in pH limits in the draft permit is necessary at this time and the "Basis for Limitations, Standards or Conditions" for pH on page 2 of the permit fact sheet has been changed from BPT and BCT to NSPS.

3. *Applicable Federal and State regulations: No information is provided about the permittee's operations to support a conclusion that the wastewater is subject to 40 CFR 420.74(b)(1).*

   The permit fact sheet already states that the Nucor Steel Connecticut, Inc. ["Nucor Steel"] facility is a steel rolling mill that engages in the manufacture of steel rod, rebar and steel wire mesh. Wastewater discharges are primarily generated from potable water used in the contact cooling system for its carbon steel, hot forming section mill rolls that shape solidified heated steel into finished and semi-finished steel products. The fact sheet also states that the Nucor Steel facility, formerly known as Connecticut Steel Corporation, started operations on or after September 27, 1983, the date of incorporation filed with the Secretary of the State, and therefore commenced its operations after the May 27, 1982 promulgation of the revised federal categorical standards for Iron and Steel Manufacturing, 40 CFR 420. While a previous facility existed at the site prior to May 27, 1982, such prior facility ceased operations for a period of time prior to the subsequent acquisition and recommencement of facility operations by Connecticut Steel Corporation. Consequently, the facility's wastewater-generating activities are classified as a new point source discharge subject to regulation under federal categorical standards for Iron and Steel Manufacturing, specifically 40 CFR 420, Hot Forming Subcategory, Subpart G, and more specifically Carbon Steel Section Mills, 40 CFR 420.74(b)(1). No change to the draft permit or the permit fact sheet is necessary at this time.

4. *Discharge Characterization: The fact sheet fails to identify all of the pollutants from Attachment O that are "Known or Suspected Present". Bis-2(ethyl hexyl) phthalate is included as a monitoring parameter in the draft permit, but is not identified in this section.*

   Bis-2(ethyl hexyl) phthalate is an appropriate monitoring parameter in the draft permit, and bis-2(ethyl hexyl) phthalate is now added to the permit fact sheet to complete the list of pollutants known or suspected present. No change to the draft permit is necessary at this time.

5. *Limits under RCSA 22a-430-4(s): RCSA 22a-430-4(s)(2) states that the effluent limits identified in this section apply to "process waters". The 4(s) limits were applied to the entire discharge, including the stormwater. Stormwater is excluded from the definition of "Process Wastewater" under RCSA 22a-430-3.*

6. *Limits under 40 CFR 420.74(b)(1): The fact sheet fails to identify how the stormwater in the discharge was addressed when calculating the limits under 40 CFR 420.74(b)(1).*

   [Response to Comments 5 & 6]
   Stormwater contacting the manufacturing process combines with process wastewaters in the roll mill scrap pit, which are then treated, cooled and reused within the manufacturing process. In this way, contaminated stormwater is captured and reused as process water, which is subject to effluent limitations under 40 CFR 420.74(b)(1). Remaining stormwater at the facility that does not come into contact with the manufacturing process is regulated separately under the General Permit for the Discharge of Stormwater Associated with Industrial Activity. Stormwater contacting the manufacturing process is now referenced more clearly in permit fact sheet on page 2 under the "Process and Treatment Description" for DSN 001-1 to specify that it includes "stormwater from the immediate process area that has potential to become contaminated with process wastewater." A similar clarification has been made to the Wastewater Description for DSN 001-1 in Table A of the draft permit.

7. *Failed to express limits as mass-based limits: Both federal and state regulations require that pollutants limited in permits be expressed as mass-based limits. The permit fails include mass-based limits for BOD5, cadmium, chromium, copper, iron, lead, nickel, and zinc.*

   All pollutants listed under the Federal NSPS regulation were included as mass limits. Other pollutants were not included as mass limits consistent with Section 22a-430- 4(l)(4)(A)(xiv)(2) of the Regulations of CT State Agencies ("RCSA"), which allows other units instead of mass limits. No change to the draft permit or the permit fact sheet is necessary at this time.

8. *Failed to accurately express mass-based limits: The few mass-based average monthly limits that were included in the draft permit were developed using the permitted average monthly flow of 30,000 gallons per day, not the long-term average flow. The permitted average monthly flow is significantly in excess of the long-term average flow. The average monthly permit limits developed with this value are almost two to three times higher than what they should be. The mass-based maximum daily limits were developed using the maximum permitted flow. This procedure is incorrect. Both sets of mass-based limits should be calculated using a reasonable measure of the actual daily flow rate.*

   The mass-based limits in the draft permit referenced above are each calculated using average flow rather than maximum flow. In this case, the long-term average flow does not provide a reliable flow estimate that can reasonably be expected to prevail during the next permit term. Average permitted flow provides a more useful estimate and has been used to update the applicable comparative analysis calculations consistent with section 22a-430-4(s)(2) of the RCSA where necessary for total suspended solids ("TSS") and for oil and grease ("O&G"). The corresponding calculations for TSS (MDL and MIL) and O&G (MIL) are shown on pages 19 and 20 of the permit fact sheet, and the results of the revised calculations are included in the tables entitled "Comparison of Federal and State Categorical Limits" on page 4 of the permit fact sheet and "Comparison of Calculated Limits" on page 20 of the permit fact sheet. No change to the draft permit is necessary at this time.

9. *Frequency of monitoring: The basis for selecting a monitoring frequency outside of the monitoring schedule provided in the regulations is unsupported.*

   As indicated in the permit fact sheet, the Department had previously authorized a lesser frequency of monitoring for this discharge under the prior permit based on both the quality of the wastewater and frequency of discharge, which occurs periodically on an as-needed basis. Staff's evaluation of Nucor Steel's discharge monitoring data determined that such previous monitoring frequencies remain adequate for the proposed permit renewal for similar reasons and the monitoring frequencies have been carried forward into the draft permit; more frequent monitoring for aluminum, however, was deemed necessary and is consistent with Section 22a-430-3(j)(2) of the RCSA. No change to the draft permit or the permit fact sheet is necessary at this time.

10. *Reasonable Potential: The regulations require that a reasonable potential analysis be performed. No reasonable potential analysis was included in the fact sheet for: Bis-2 (ethyl hexyl) phthalate, e Coli, and Chronic Whole Effluent Toxicity.*

    Nucor Steel's historical analytical results for Bis-2 (ethyl hexyl) phthalate consistently indicate pollutant concentrations that are non-detect in the wastewater and are considered to be zero at this time. Anticipated concentrations of this pollutant are expected to remain below detection levels. However, continued quarterly monitoring for Bis-2 (ethyl hexyl) phthalate is required in the draft permit to ensure that any potential future changes in operating conditions are adequately monitored.
    Regarding E. coli, a final total maximum daily load (TMDL) for E. coli has been adopted for the receiving stream. Four municipal wastewater treatment plants (Cheshire WPCF, Meriden WPCF, Southington WPCF, and Wallingford WPCF) and one industry (Allnex USA Inc.) that discharge to the Quinnipiac River are assigned indicator bacteria limits in their National

Pollutant Discharge Elimination (NPDES) Permits. Disinfection required under those NPDES Permits is sufficient to reduce indicator bacteria densities to below levels of concern in the effluent when in use and functioning properly. E. coli is not associated with Nucor Steel's process discharge and, while Nucor Steel's permitted discharge includes some stormwater that comes into contact with the manufacturing process, the Department does not consider E. coli to be a pollutant of concern in the discharge. Therefore, no reasonable potential analysis was performed and no limits for E. coli were included in the permit. Quarterly monitoring for E. coli, however, is included as a new requirement in the draft permit in order to verify whether E.coli. remain absent or neglible in the discharge.
Toxicity limits were determined consistent with section 22a-430-3(j)(7)(B)(i) of the RCSA and the anti-backsliding rule, and are further discussed in response to Comment #12.
No change to the draft permit or the permit fact sheet is necessary at this time.

11. *Temperature: The information in the fact sheet regarding temperature is incorrect, inconsistent with the regulations and standards, and contrary to the manner in which thermal limits are implemented in the state's NPDES permits. If the thermal component of the discharge is in excess of what is allowed under the water quality standards, the applicant/permittee must request alternative thermal limits and with that request, the requisite studies that support the request. However, the information provided in the fact sheet fails to adequately document the thermal component in the discharge. It acknowledges that one data point exists, as provided in the application. Even that point calls into question whether the differential temperature criteria can be met. The temperature "analysis" in the fact sheet includes only a calculation using a hypothetical temperature value which is designed to back-calculate a maximum effluent temperature value. The analysis concludes by implying that if the back-calculated temperature value of 250 °F can be met in-stream, then the permittee can discharge wastewater up to 250 °F with no limits. First of all, a value of 250 °F would be immediately lethal to all of the fish in the area. Any analysis concluding that this value is acceptable to discharge is misguided. Instead of conducting a hypothetical analysis, Department staff should have requested that the permittee provide actual thermal data. Without that data, the application is incomplete as it relates to characterizing the thermal component of the discharge, and as set forth in the regulations, the permit should not have been drafted/noticed given that the application is incomplete.*

The purpose of the thermal analysis in the permit fact sheet is to ensure that the thermal component of the discharge will not exceed what is allowed under the water quality standards. The water quality standards provide that a discharge must not cause the receiving water to have a temperature higher than 85^{O}F or cause an increase higher than 4^{O}F. The more stringent of these conditions was used in the calculation described in the permit fact sheet. The calculation illustrates that Nucor Steel's discharge, which according to the administrative record does not exceed 60 ^{O}F, would need to reach an actual discharge temperature of 250 ^{O}F in order to have a thermal impact on the receiving stream that would exceed what is allowed under the water quality standards. It is indeed true that a temperature of 250 ^{O}F would be lethal to fish, which is why a limit of 250 ^{O}F was never contemplated or proposed for the draft permit.

The permit fact sheet has been revised as follows on page 14 to more clearly distinguish between the calculated and actual discharge temperatures:

> **"Therefore, a calculated discharge temperature of >250ºF would raise the normal temperature of the receiving stream by >4 ºF.**
>
> **The actual discharge temperature, as indicated in the administrative record for this application, does not exceed 60ºF and would not cause an exceedance of the water quality criteria for the receiving stream. It is very unlikely that the actual temperature of the discharge would be as high as the calculated temperature."**

In addition, Table A in the draft permit has been updated to incorporate requirements for continuous temperature monitoring for Discharge Serial No. 001-1.

12. *Acute Toxicity: The discharge has routinely met an acute toxicity limit of LC50 >100%, but the draft permit provides for an LC50 limit of ≥36%, allowing for an unnecessary amount of toxicity in the discharge by way of limits that are less stringent than necessary.*

    The maximum daily limit for toxicity is based on the concentration that will prevent toxicity within the receiving stream as specified in section 22a-430-3(j)(7)(B)(i) of the RCSA. The Department calculated an acute toxicity limit that is more stringent than is required under section 22a-430-3(j)(7)(B)(i) of the RCSA and is consistent with the anti-backsliding rule, and considers an acceptable LC50 based on the non-acutely toxic effluent % at ZOI border.

    The toxicity limit calculation uses the Instream Waste Concentration (IWC) and the more conservative chronic toxicity multiplier = 20 as opposed to the acute multiplier = 3. However, the calculation yields a result that is still less stringent than the prior permit, as follows:

    <u>LC50 Limit</u> = IWC X 20 = 1.4 X 20 = 28% effluent.

    <u>Prior Permit:</u> The previous permit had an LC50 limit for acute toxicity of 36% effluent and the Permittee has been compliant with the limit without any exceedance. Therefore, based on best professional judgment and the anti-backsliding rule, an LC50 acute toxicity limit of 36% (effluent) was carried forward in the draft permit.

    No change to the draft permit or the permit fact sheet is necessary at this time.

13. *Mixing Zone: The allocation of the mixing zone is incorrect, inappropriate, and conflicts with guidance and training:*
    • Mixing Zone Allocation: The allocation of the mixing zone is excessive. The smallest mixing zone necessary is required to be allocated in order to generate permit limits that are as stringent as possible. Instead, the dilution has been over-allocated, generating permit limits that are higher than necessary. In the case of copper, the values in the data set provided in the fact sheet ranged from 0 to 58 µg/L, but the proposed copper limits in the permit are 320 µg/L and 650 µg/L, a value that is over 11 times higher than the historic values. The same holds for lead that has a proposed permit limit in excess of 27 times the highest data point and zinc which has a proposed permit limit of 17 times higher than the highest data point in the set. Allowing for limits that are this high when they are not necessary can lead to a reduction in controls on the pollutants and the potential for a higher than necessary level of pollution to enter the receiving water. The limits are not in keeping with RCSA 22a-430-3(l)(1)(A) which requires, among other things, that effluent limits and conditions protect the waters of the state from pollution.

    The effluent limits and conditions contained in the proposed permit are protective of the waters of the state consistent with RCSA Section 22a-430-4(l)(1)(A); [Note: RCSA 22a-430-3(l) is specific only to POTWs]. The previous permit had a zone of influence (ZOI) of 100,000 gallons per hour (gph). For this proposed permit renewal, 10% of the receiving stream's 7Q10 was allocated to Nucor Steel's discharge based on best professional judgment. The ZOI determination is documented in Attachment 1 of the fact sheet. The allocated ZOI of 86,391 gph is lower than the previous permit's ZOI of 100,000 gph and is consistent with the recommended thermal zone of influence in Section 22a-426-4(l)(8) of the Connecticut Water Quality Standards (CTWQS), which states that a thermal ZOI shall not exceed 25% of the cross sectional area or volume of flow of the receiving water. No change in the draft permit or the permit fact sheet is recommended at this time.

14. *Background Data: No background data was included in the fact sheet. The use of background river data should be transparent, but again, the data was not provided and from the summary table, it looks like incomplete data sets were used. In addition, the background data cited as being used is likely unrepresentative of the location immediately upstream of the subject outfall. Background data should have been collected immediately upstream of the permittee's outfall in order to accurately evaluate assimilative capacity at this location. Had that been done, it would likely indicate that there is no assimilative capacity for aluminum in the river. Additionally, allowing dilution for this pollutant also has implications with an upstream discharger.*

The background river data used in the reasonable potential evaluation is summarized in Table B of Attachment 1 in the fact sheet and is based on monitoring data submitted to the Department by the Wallingford Water Pollution Control Facility and Allnex in Wallingford. The associated data for each of the pollutant parameters: aluminum, cadmium, chlorine, copper, iron, lead, nickel and zinc, is on file with Department and, along with the permit application, is a public record that can be made available for review under FOIA by any interested party upon request. No change to the draft permit or permit fact sheet is necessary at this time.

15. *Section 3D of Draft permit: The statement in Section 3D is inconsistent with the information provided in the fact sheet concerning 316(a) as no determination concerning Section 316(a) appears to have been made. Section 316(a) involves implementing alterative thermal limits through a variance; there are no alternative thermal limits in the permit. In fact, there are no temperature limits/monitoring at all in Table A. A determination under Section 316(a) requires an evaluation that the alternative thermal limits assure the protection and propagation of a balanced indigenous population of shellfish, fish and wildlife in and on the receiving waters. The fact sheet provides no such evaluation. No thermal plume study or biothermal assessment is documented in the fact sheet to support the determination that was allegedly made.*

Section 316(a) of the Federal Clean Water Act applies to point sources with thermal discharges to surface waters. It authorizes the NPDES permitting authority to impose alternative effluent limitations for the control of the thermal component of a discharge in lieu of effluent limits that would otherwise be required under sections 301 or 306 of the CWA. For this proposed permit renewal, it was determined that an alternative thermal effluent limitation to the thermal effluent limitations already listed in Section 4(C) of the draft permit are not necessary. No change to the draft permit or the permit fact sheet is necessary at this time.

A new public notice is not necessary because the proposed changes do not make the permit less stringent.

ATTACHMENT 1: WATER QUALITY BASED LIMITS CALCULATION

The 7Q10 of Quinnipiac River at gage station 01196500 is 32.65 cfs[1] with a drainage area of 115 mi^2. The drainage area of Quinnipiac River around Nucor Steel's discharge is 113 mi^2 (See Attachment 5). Based on the above information, the 7Q10 of Quinnipiac River close to Nucor Steel discharge is $\frac{32.65\ X\ 113}{115} = 32.08\ cfs$.
Nucor Steel and about two other facilities discharge to the Quinnipiac River in the same drainage area. The discharge location of Wallingford WPCF, one of the discharges, is about 7200 feet upstream from Nucor Steel's discharge location. DMR data for Wallingford WPCF discharges showed that the discharges are not acutely or chronically toxic. In addition, water quality based limits for heavy metals were not necessary for the WPCF permit because the levels of heavy metals in the discharges are low.

Another permitted discharge to the drainage area is Allnex, previously known as Cytec Industries. The discharge is about 1300 feet from Nucor Steel's discharge and was allocated about 31% of the receiving stream's 7Q10. The zone of influence (ZOI) allocated to Allnex was based on the dilution pattern/ratio established in the dye study conducted by Allnex. In this permit renewal, 10% of the receiving stream's 7Q10 was allocated to Nucor Steel's discharge based on best professional judgment. This gives a ZOI of 86,391gallons per hour (gph) which is a little lower than the previous permit ZOI of 100,000 gph.

In the Attachment O of the renewal application, the average hours of discharge was stated as 12 hours while the maximum hours of discharge was stated as 24 hours. Since 12 hours is the average duration of discharge, 12 hours is used below for the calculation of water quality limits that are based on acute criteria.

$The\ permit\ average\ flow\ limit = 30{,}000\ gpd$
$10\%\ of\ 7Q10 = 3.208\ cfs = 86{,}391\ gph\ (where\ 1cfs = 26{,}930\ gph)$

$DF = \frac{AML+ZOI}{AML}$
$DF = \frac{2500+86{,}391}{2500} \approx 35.5 (for\ acute\ criteria),\ IWC = \frac{1}{DF}\ X\ 100\% = 2.8\%\ (for\ acute\ criteria)$
$DF = \frac{1250+86{,}391}{1250} \approx 70\ (for\ chronic\ criteria),\ IWC = \frac{1}{DF}\ X\ 100\% = 1.4\%\ (for\ chronic\ criteria)$

The maximum daily limit for toxicity is based on the concentration that will prevent toxicity within the receiving stream as specified in section 22a-430-3(j)(7)(B)(i) of the RCSA.
Chronically toxic LC50 = Acceptable LC50 X 0.05
I.e. toxicity test LC50/0.05 = non-chronically toxic effluent % at ZOI border

Therefore, chronic toxicity limit: LC50 = IWC X 20 = 1.4 X 20 = 28%.
The previous permit had a limit of 36% and the Permittee has been compliant with the limit without any exceedance. Therefore, based on best professional judgment and the anti-backsliding rule, the toxicity limit of 36% was carried forward.

THERMAL ANALYSIS

Section 22a-426-4(l)(8) of the Connecticut Water Quality Standards (CTWQS) states that a thermal ZOI shall not exceed 25% of the cross sectional area or volume of flow of the receiving water. 25% of the 7Q10 of the receiving water is more than the calculated ZOI above. Therefore, the ZOI allocated for chemical constituents was also applied for temperature.

Allocated ZOI is 86,391 gph = 86,391 gph X 24 hours = 2, 073,384 gpd, Permit maximum flow limit = 50,000 gpd
Based on a review of Quinnipiac River temperature data from USGS from June 1, 2014 – May 1, 2019, the maximum Quinnipiac River temperature is 26.8 °C ≈ 80.2 °F (see graph below) which was on August 12, 2016. (http://waterdata.usgs.gov/ct/nwis/)

[1]Cervione, M. A., Jr., Melvin, R.L., and Cyr, K.A., 1982, A method for estimating the 7-day, 10-year low flow of streams in Connecticut: Connecticut Water Resources Bulletin 34, 12 p.

Conditions in Section 22a-426-9(a)(1) of CTWQS of the Connecticut Water Quality Standards

- *The temperature of any discharge shall not increase the temperature of the receiving stream above 85°F*
- *The temperature of any discharge shall not raise the normal temperature of the receiving stream more than 4°F.*

Hypothetical River water temperature after a 4°F rise = 84.2 °F

Mixing equation

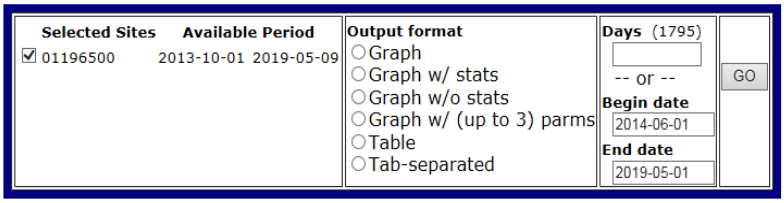
$$QT = Q_1T_1 + Q_2T_2$$

Where Q is the new river flow rate, ($Q = Q_1+Q_2$)
T is the new river temperature,
Q_1 is the effluent flowrate,
T_1 is the effluent temperature,
Q_2 is the ZOI
T_2 is the assumed river temperature in order to meet the proposed CTWQS.

$$Effluent\ temperature\ T_1 = \frac{QT - Q_2T_2}{Q_1} = \frac{(2{,}123{,}384)(84.2) - (2{,}073{,}384)(80.2)}{50{,}000} = \frac{178{,}788{,}932.8 - 166{,}285{,}396.8}{50{,}000} = \frac{12{,}503{,}536}{50{,}000} = 250^{o}\text{F}$$

Therefore, a calculated discharge temperature of >250°F would raise the normal temperature of the receiving stream by >4 °F.

The actual discharge temperature, as indicated in the administrative record for this application, does not exceed 60°F and would not cause an exceedance of the water quality criteria for the receiving stream. It is very unlikely that the actual temperature of the discharge would be as high as the calculated temperature. Therefore, a temperature limit is not necessary for Nucor Steel discharge but temperature monitoring requirement would be included in the permit.



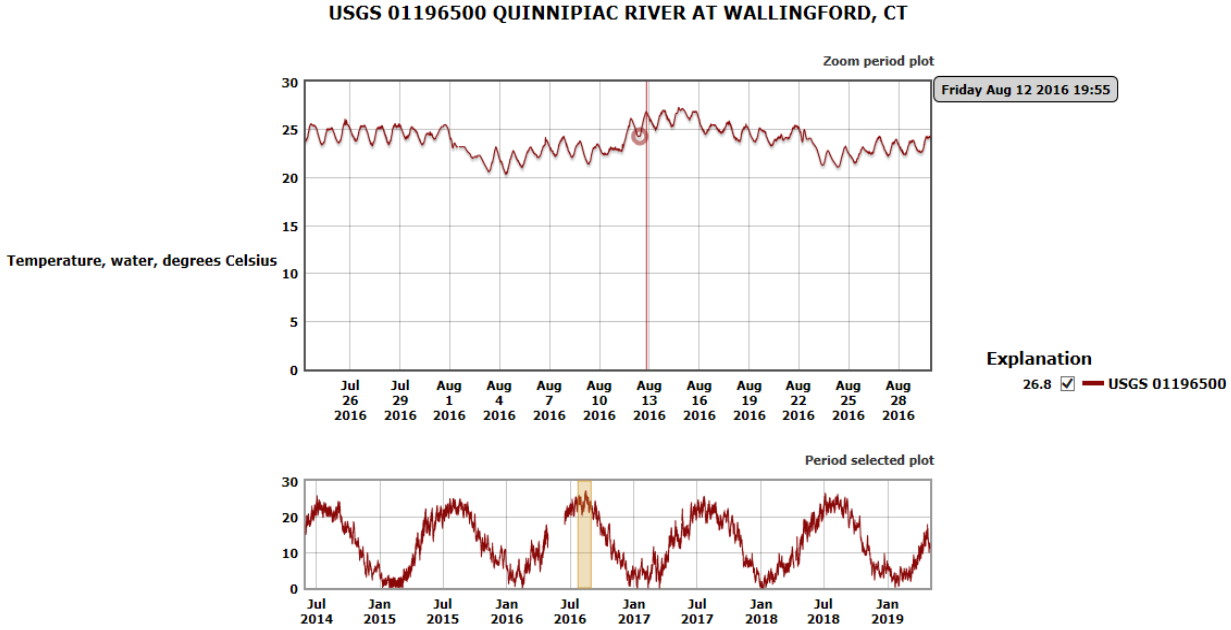


TABLE A: DMR analytical data from June 2014 – May 2019

Date	Aluminum (mg/l)	Cadmium (mg/l)	Copper (mg/l)	Chlorine (mg/l)	Iron (mg/l)	Lead (mg/l)	Nickel (mg/l)	Zinc(mg/l)
6/30/14	1.9		.045	.07		0		.021
7/31/14	.97		.022	.09		0		.02
8/31/14	.87	0	.027	.02	.28	0	.023	.01
9/30/14	.72		.02	.09		0		.01
10/31/14	.59		.058	.12		0		.019
11/30/14	.76	0	.039	.01	.34	0	.034	.02
12/31/14	.35		.038	0		0		.02
1/31/15	.67		.027	.01		0		.02
2/28/15	.55	0	.046	.09	.5	0	.05	.013
3/31/15	.33		.029	0		0		.01
4/30/15	.81		.029	0		0		.012
5/31/15	1.33	0	.023	.06	.3	0	.022	0
6/30/15	1.17		.029	.03		0		.022
7/31/15	.76		.013	.05		0		.025
8/31/15	1.45	0	.015	.02	.06	0	.016	.022
9/30/15	1.07		.009	0		0		.018
10/31/15	.74		.006	.01		0		.02
11/30/15	.78	0	.006	.04	.04	0	.008	.06
12/31/15	.96		.005	0		0		.036
1/31/16	1.01		.008	.03		0		.012
2/29/16	1.34	0	0	0	.05	0	.011	.014
3/31/16	.17		.011	0		0		.014
4/30/16	.2		.008	0		0		.01
5/31/16	.1	0	.006	.01	.06	0	.007	.02
6/30/16	.17		.009	0		0		.019
7/31/16	.1		.023	.03		0		.01
8/31/16	.18	0	.011	0	0	0	.022	.01
9/30/16	.05		.017	0		0		.013
10/31/16	.11		.026	0		0		.02
11/30/16	.22	0	.032	0	.32	0	.018	.014
12/31/16	.04		.036	.02		0		.031
1/31/17	.07		.01	0		0		.019
2/28/17	.03	0	.033	.01	.16	0	.042	.02
3/31/17	.05		.04	.03		0		.012
4/30/17	.1		.042	0		0		.015
5/31/17	.04	0	.052	.01	.71	0	.46	.013
6/30/17	.05		.034	0		0		.02
7/31/17	.06		.015	.01		0		.02
8/31/17	.05	0	.019	0	.25	0	.042	.01
9/30/17	.08		.049	.01		0		0
10/31/17	.06		.021	.01		0		.013
11/30/17	.06	0	.033	0	.12	0	.048	.01
12/31/17	.05		.047	.02		0		.01
1/31/18	.05		.019	0		0		.02
2/28/18	.032	0	.015	.02	.29	0	.051	.03
3/31/18	2.3		.018	0		0		.102
4/30/18	.09		.01			0		.01
5/31/18	.11	0	.012	0	.1	0	.037	.018
6/30/18	.15		.013	0		0		.02
7/31/18	.07		.006	.01		0		0
8/31/18	.11	0	.014	0	.07	0	.024	.015
9/30/18	.11		.026	0		0		.01
10/31/18	.17		.015	.01		0		0
11/30/18	.2	0	.023	0	.4	0	.053	0
12/31/18	.14		.027	0		0		0
1/31/19	.073		.023	0		0		.01
2/28/19	.166	0	.018	0	.42	0	.032	0
3/31/19	.12		.013	0		0		0
4/30/19	.09		.023	0		0		.05

5/31/19	.583	.00025	.049	0	1.6	.0025	.045	.057
$C_{v=\frac{SD}{Mean}}$	1.2	Assume 0.6	0.6	1.7	1.2	Assume 0.6	1.9	0.9

TABLE B: AVERAGE OF THE QUINNIPIAC RIVER CONCENTRATION DATA (in µg/l) BASED ON DATA FOR CHRONIC TOXICITY TESTING COLLECTED BY OTHER FACILITIES (YEARS: 2014 – 2019)	
Aluminum	*57 (Wallingford WPCF data, YEARS: 2016 & 2017)*
**Cadmium*	*0 (Wallingford WPCF data)*
Copper	*7.7 (Allnex data, YEARS: 2017 - 2019))*
Chlorine	*10 (Wallingford WPCF data)*
Iron	*570 (Wallingford WPCF and Allnex data)*
Lead	*0.3 (Wallingford WPCF data)*
Nickel	*1.0 (Wallingford WPCF and Allnex data)*
Zinc	*16.76 (Wallingford WPCF and Allnex data)*
**Below detection and therefore assumed to be zero*	

TABLE C: CONNECTICUT WATER QUALITY CRITERIA(WQC) (FRESHWATER)			
	Aquatic Life (Acute (µg/l))	*Aquatic Life (Chronic (µg/l))*	*Human Health (µg/l)*
Aluminum	*750*	*87*	*---*
Cadmium	*1.0*	*0.125*	*10,769*
Copper	*25.7 (site specific)*	*18.1 (site specific)*	*---*
Chlorine	*19*	*11*	*---*
Iron	*---*	*1000 (National WQC)*	*---*
Lead	*30*	*1.2*	*---*
Nickel	*260.5*	*28.9*	*4,600*
Zinc	*65*	*65*	*26,000*

TABLE D: REASONABLE POTENTIAL EVALUATION

(This analysis basically compares the projected maximum concentration in the effluent with the applicable water quality standard. When the projected maximum concentration is lower than the waste load allocation, this indicates that there is no potential for the discharge to exceed the water quality criteria. When the projected maximum concentration is higher than the waste load allocation, this indicates that there is potential for the discharge to exceed the water quality criteria and therefore limits are needed in the permit.)

$WLA = Waste\ load\ allocation,\ (QC)_d = Downstream\ data,\ (QC)_u = Upstream\ data\ and\ Q_e =\ the\ discharge\ flow$
$(refer\ to\ the\ ZOI\ calculation\ above\ for\ the\ downstream\ and\ effluent\ flow\ data)$
Discharge flow (acute) = 2,500 gph, Discharge flow (chronic) = 1,250 gph
Upstream flow = 86, 391 gph, Downstream flow (acute) = 88, 891 gph, Downstream flow (chronic) = 87, 641 gph

	$Maximum\ projected\ concentration\ in\ effluent\ Maximum\ measured\ concentration\ in\ effluent\ X\ multiplier\ in\ Table\ 3-1\ below$	$WLA_{acute} = \frac{(QC)_d - (QC)_u}{Q_e}$	$WLA_{chronic} = \frac{(QC)_d - (QC)_u}{Q_e}$	$WLA_{health} = \frac{(QC)_d - (QC)_u}{Q_e}$	$Is\ there\ reasonable\ potential\ to\ exceed\ WQC?$
Aluminum	2300 X 4.2 = 9660	24697.5	2160	*Health criteria will not be the governing LTAs** because they are a lot higher than acute and chronic criteria.*	Yes
Cadmium	0.25 X 2.3 = 0.575	35.5	8.76		No
Copper	58 X 2.3 = 133.4	647.7	736.9		No
Chlorine	120 X 5.8 = 696	330	80.1		Yes
Iron	1600 X 4.2 = 6720	---	30718.5		No
Lead	2.5 X 2.3 = 5.75	1056.3	63.4		No
Nickel	460 X 6.5 = 2990	9227.9	1957.1		Yes
Zinc	102 X 3.2 = 326.4	1732	3399		No

$(QC)_d\ are\ downstream\ data, (QC)_u are\ upstream\ data\ and\ Q_e is\ the\ discharge\ flow.$
$*\ Upstream\ concentration\ is\ higher\ than\ the\ water\ quality\ criteria.$

** See Table E below.

TABLE E: PERMIT LIMITS CALCULATION					
$LTA = Long\ term\ average,\ \ AML = Average\ monthly\ limit\ and\ MDL\ = Maximum\ daily\ limit$					
	$LTA_{acute} = WLA_{acute}\ X\ 99th\ percentile\ multiplier\ in\ the\ attached\ Table\ 5-1\ (\mu g/l)$	$LTA_{chronic} = WLA_{chronic}\ X\ 99th\ percentile\ multiplier\ in\ the\ attached\ Table\ 5-1\ (\mu g/l)$	$Governing\ LTA$	$AML =\ LTA\ X\ 95th\ percentile\ multiplier\ in\ the\ attached\ Table\ 5-2\ (\mu g/l)$	$MDL =\ LTA\ X\ 99th\ percentile\ multiplier\ in\ the\ attached\ Table\ 5-2\ (\mu g/l)$
Aluminum	*24698 X 0.174 = 4297.4*	*2160 X 0.321= 693.3*	*693.3*	*693.3 X 2.13 = 1476.7*	*693.3 X 5.76 = 3993*
	Mass limits: AML = 1476.7µg/l X 30,000gal/d X 3.785 = 167.6gr/d, MDL = 3993µg/l X 30,000gal/d X 3.785 = 453gr/d				
Chlorine	*330 X 0.131 = 43.2*	*80 X 0.236 = 18.88*	*18.88*	*18.88 X 2.56 = 48.3*	*18.88 X 7.63 = 144*
	Mass limits: AML = 48.3µg/l X 30,000gal/d X 3.785 = 5.48gr/d, MDL = 144µg/l X 30,000gal/d X 3.785 = 16.35gr/d				
Nickel	9227.9 *X 0.121 = 1116.5*	1957.1 *X 0.214 = 418.8*	*418.8*	*418.8 X 2.71 = 1134.9*	*418.8 X 8.26 = 3459.2*
	Mass limits: AML = 1134.9µg/l X 30,000gal/d X 3.785 = 128.9gr/d, MDL = 3459.2µg/l X 30,000gal/d X 3.785 = 392.8gr/d				
The reasonable potential analysis conducted above showed that limits are not needed for the following parameters. However, Nucor Steel discharge is a categorical discharge that requires limits in accordance with Section 22a-430-4(s)(2) of the Regulations of Connecticut State Agencies (RCSA). The limits in RCSA are less stringent than the limits in the previous permit and incorporating such limits would contravene the anti-backsliding rule. Therefore, the following water quality based limits would be incorporated in this permit renewal.					
Cadmium	*35.5 X 0.321 = 11.4*	*8.76 X 0.527 = 4.6*	*4.6*	*4.6 X 1.55 = 7.1*	*4.6 X 3.11 = 14.3*
	Mass limits: AML = 7.1µg/l X 30,000gal/d X 3.785 = 0.8gr/d, MDL = 14.3µg/l X 30,000gal/d X 3.785 = 1.62gr/d				
Copper	*647.7 X 0.321 = 207.9*	*736.9 X 0.527 = 388.3*	*207.9*	*207.9 X 1.55 = 322.2*	*207.9 X 3.11 = 646.6*
	Mass limits: AML = 322.2µg/l X 30,000gal/d X 3.785 = 36.6gr/d, MDL = 646.6µg/l X 30,000gal/d X 3.785 = 73.4gr/d				
Lead	*1056 X 0.321 = 339.0*	*63 X 0.527 = 33.2*	*33.2*	*44.3 X 1.55 = 68.7*	*44.3 X 3.11 = 137.8*
	Mass limits: AML = 68.7µg/l X 30,000gal/d X 3.785 = 7.8gr/d, MDL = 137.8µg/l X 30,000gal/d X 3.785 = 15.6gr/d				
Zinc	*1732 X 0.224 = 388.0*	*3399 X 0.404 = 1373.2*	*388*	*388 X 1.85 = 717.8*	*388 X 4.46 = 1730.4*
	Mass limits: AML = 717.8µg/l X 30,000gal/d X 3.785 = 81.5gr/d, MDL = 1730.4µg/l X 30,000gal/d X 3.785 = 196.4gr/d				

Table 3-1. Reasonable Potential Multiplying Factors: 99% Confidence Level and 99% Probability Basis

Number of	Coefficient of Variation																			
Samples	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
1	1.6	2.5	3.9	6.0	9.0	13.2	18.9	26.5	36.2	48.3	63.3	81.4	102.8	128.0	157.1	190.3	227.8	269.9	316.7	368.3
2	1.4	2.0	2.9	4.0	5.5	7.4	9.8	12.7	16.1	20.2	24.9	30.3	36.3	43.0	50.4	58.4	67.2	76.6	86.7	97.5
3	1.4	1.9	2.5	3.3	4.4	5.6	7.2	8.9	11.0	13.4	16.0	19.0	22.2	25.7	29.4	33.5	37.7	42.3	47.0	52.0
4	1.3	1.7	2.3	2.9	3.8	4.7	5.9	7.2	8.7	10.3	12.2	14.2	16.3	18.6	21.0	23.6	26.3	29.1	32.1	35.1
5	1.3	1.7	2.1	2.7	3.4	4.2	5.1	6.2	7.3	8.6	10.0	11.5	13.1	14.8	16.6	18.4	20.4	22.4	24.5	26.6
6	1.3	1.6	2.0	2.5	3.1	3.8	4.6	5.5	6.4	7.5	8.6	9.8	11.1	12.4	13.8	15.3	16.8	18.3	19.9	21.5
7	1.3	1.6	2.0	2.4	2.9	3.6	4.2	5.0	5.8	6.7	7.7	8.7	9.7	10.8	12.0	13.1	14.4	15.6	16.9	18.2
8	1.2	1.5	1.9	2.3	2.8	3.3	3.9	4.6	5.3	6.1	6.9	7.8	8.7	9.6	10.6	11.6	12.6	13.6	14.7	15.8
9	1.2	1.5	1.8	2.2	2.7	3.2	3.7	4.3	5.0	5.7	6.4	7.1	7.9	8.7	9.6	10.4	11.3	12.2	13.1	14.0
10	1.2	1.5	1.8	2.2	2.6	3.0	3.5	4.1	4.7	5.3	5.9	6.6	7.3	8.0	8.8	9.5	10.3	11.0	11.8	12.6
11	1.2	1.5	1.8	2.1	2.5	2.9	3.4	3.9	4.4	5.0	5.6	6.2	6.8	7.4	8.1	8.8	9.4	10.1	10.8	11.5
12	1.2	1.4	1.7	2.0	2.4	2.8	3.2	3.7	4.2	4.7	5.2	5.8	6.4	7.0	7.5	8.1	8.8	9.4	10.0	10.6
13	1.2	1.4	1.7	2.0	2.3	2.7	3.1	3.6	4.0	4.5	5.0	5.5	6.0	6.5	7.1	7.6	8.2	8.7	9.3	9.9
14	1.2	1.4	1.7	2.0	2.3	2.6	3.0	3.4	3.9	4.3	4.8	5.2	5.7	6.2	6.7	7.2	7.7	8.2	8.7	9.2
15	1.2	1.4	1.6	1.9	2.2	2.6	2.9	3.3	3.7	4.1	4.6	5.0	5.4	5.9	6.4	6.8	7.3	7.7	8.2	8.7
16	1.2	1.4	1.6	1.9	2.2	2.5	2.9	3.2	3.6	4.0	4.4	4.8	5.2	5.6	6.1	6.5	6.9	7.3	7.8	8.2
17	1.2	1.4	1.6	1.9	2.1	2.5	2.8	3.1	3.5	3.8	4.2	4.6	5.0	5.4	5.8	6.2	6.6	7.0	7.4	7.8
18	1.2	1.4	1.6	1.8	2.1	2.4	2.7	3.0	3.4	3.7	4.1	4.4	4.8	5.2	5.6	5.9	6.3	6.7	7.0	7.4
19	1.2	1.4	1.6	1.8	2.1	2.4	2.7	3.0	3.3	3.6	4.0	4.3	4.6	5.0	5.3	5.7	6.0	6.4	6.7	7.1
20	1.2	1.3	1.6	1.8	2.0	2.3	2.6	2.9	3.2	3.5	3.8	4.2	4.5	4.8	5.2	5.5	5.8	6.1	6.5	6.8

Table 5-1. Back Calculations of Long-Term Average

CV	WLA Multipliers $e^{[0.5\ \sigma^2 - z\sigma]}$	
	95th Percentile	99th Percentile
0.1	0.853	0.797
0.2	0.736	0.643
0.3	0.644	0.527
0.4	0.571	0.440
0.5	0.514	0.373
0.6	0.468	0.321
0.7	0.432	0.281
0.8	0.403	0.249
0.9	0.379	0.224
1.0	0.360	0.204
1.1	0.344	0.187
1.2	0.330	0.174
1.3	0.319	0.162
1.4	0.310	0.153
1.5	0.302	0.144
1.6	0.296	0.137
1.7	0.290	0.131
1.8	0.285	0.126
1.9	0.281	0.121
2.0	0.277	0.117

Acute

$$LTA_{a,c} = WLA_{a,c} \cdot e^{[0.5\ \sigma^2 - z\sigma]}$$

where $\sigma^2 = ln\,[CV^2 + 1]$,
z = 1.645 for 95th percentile occurrence probability, and
z = 2.326 for 99th percentile occurrence probability

Chronic
(4-day average)

$$LTA_c = WLA_c \cdot e^{[0.5\ \sigma_4^2 - z\sigma_4]}$$

where $\sigma_4^2 = ln\,[CV^2/4 + 1]$,
z = 1.645 for 95th percentile occurrence probability, and
z = 2.326 for 99th percentile occurrence probability

CV	WLA Multipliers $e^{[0.5\ \sigma_4^2 - z\sigma_4]}$	
	95th Percentile	99th Percentile
0.1	0.922	0.891
0.2	0.853	0.797
0.3	0.791	0.715
0.4	0.736	0.643
0.5	0.687	0.581
0.6	0.644	0.527
0.7	0.606	0.481
0.8	0.571	0.440
0.9	0.541	0.404
1.0	0.514	0.373
1.1	0.490	0.345
1.2	0.468	0.321
1.3	0.449	0.300
1.4	0.432	0.281
1.5	0.417	0.264
1.6	0.403	0.249
1.7	0.390	0.236
1.8	0.379	0.224
1.9	0.369	0.214
2.0	0.360	0.204

Table 5-2. Calculation of Permit Limits

CV	LTA multipliers $e^{[z\sigma - 0.5\sigma^2]}$ 95th Percentile	LTA multipliers $e^{[z\sigma - 0.5\sigma^2]}$ 99th Percentile
0.1	1.17	1.25
0.2	1.36	1.55
0.3	1.55	1.90
0.4	1.75	2.27
0.5	1.95	2.68
0.6	2.13	3.11
0.7	2.31	3.56
0.8	2.48	4.01
0.9	2.64	4.46
1.0	2.78	4.90
1.1	2.91	5.34
1.2	3.03	5.76
1.3	3.13	6.17
1.4	3.23	6.56
1.5	3.31	6.93
1.6	3.38	7.29
1.7	3.45	7.63
1.8	3.51	7.95
1.9	3.56	8.26
2.0	3.60	8.55

Maximum Daily Limit

$MDL = LTA \bullet e^{[z\sigma - 0.5\sigma^2]}$

where $\sigma^2 = ln[CV^2 + 1]$.
z = 1.645 for 95th percentile occurrence probability, and
z = 2.326 for 99th percentile occurrence probability

Average Monthly Limit

$AML = LTA \bullet e^{[z\sigma_n - 0.5\sigma_n^2]}$

where $\sigma_n^2 = ln[CV^2/n + 1]$.
z = 1.645 for 95th percentile,
z = 2.326 for 99th percentile, and
n = number of samples/month

CV	LTA Multipliers $e^{[z\sigma_n - 0.5\sigma_n^2]}$ 95th Percentile n=1	n=2	n=4	n=10	n=30	99th Percentile n=1	n=2	n=4	n=10	n=30
0.1	1.17	1.12	1.08	1.06	1.03	1.25	1.18	1.12	1.08	1.04
0.2	1.36	1.25	1.17	1.12	1.06	1.55	1.37	1.25	1.16	1.09
0.3	1.55	1.38	1.26	1.18	1.09	1.90	1.59	1.40	1.24	1.13
0.4	1.75	1.52	1.36	1.25	1.12	2.27	1.83	1.55	1.33	1.18
0.5	1.95	1.66	1.45	1.31	1.16	2.68	2.09	1.72	1.42	1.23
0.6	2.13	1.80	1.55	1.38	1.19	3.11	2.37	1.90	1.52	1.28
0.7	2.31	1.94	1.65	1.45	1.22	3.56	2.66	2.08	1.62	1.33
0.8	2.48	2.07	1.75	1.52	1.26	4.01	2.96	2.27	1.73	1.39
0.9	2.64	2.20	1.85	1.58	1.29	4.46	3.29	2.48	1.84	1.44
1.0	2.78	2.33	1.95	1.66	1.33	4.90	3.59	2.68	1.96	1.50
1.1	2.91	2.45	2.04	1.73	1.36	5.34	3.91	2.90	2.07	1.56
1.2	3.03	2.56	2.13	1.80	1.39	5.76	4.23	3.11	2.19	1.62
1.3	3.13	2.67	2.23	1.87	1.43	6.17	4.55	3.34	2.32	1.68
1.4	3.23	2.77	2.31	1.94	1.47	6.56	4.86	3.56	2.45	1.74
1.5	3.31	2.86	2.40	2.00	1.50	6.93	5.17	3.78	2.58	1.80
1.6	3.38	2.95	2.48	2.07	1.54	7.29	5.47	4.01	2.71	1.87
1.7	3.45	3.03	2.56	2.14	1.57	7.63	5.77	4.23	2.84	1.93
1.8	3.51	3.10	2.64	2.20	1.61	7.95	6.06	4.46	2.98	2.00
1.9	3.56	3.17	2.71	2.27	1.64	8.26	6.34	4.68	3.12	2.07
2.0	3.60	3.23	2.78	2.33	1.68	8.55	6.61	4.90	3.26	2.14

ATTACHMENT 2: FEDERAL AND STATE EFFLUENT LIMITATION COMPARATIVE ANALYSIS

40 CFR 420 Subpart G

40 CFR 420.74- New Source Performance Standards (NSPS) Discharges - (b)Section mills – (1) Carbon:

Pollutant or pollutant property	*AML (kg/kkg)*	*MDL (kg/kkg)*
Total Suspended Solids	*0.0125*	*0.0334*
Oil and Grease		*0.00834*
pH	*(1)*	*(1)*

[1] Within the pH range of 6.0 to 9.0

NSPS limits will be compared with Section 22a-430-4(s)(2) of the Regulations of Connecticut State Agencies (RCSA) limits. Based on information on Attachment O of permit application, Nucor Steel produces an average of 1,000 tons per day (907 kkg/day). Based on this measure of production, a mass-based effluent limitation is calculated from the production-normalized effluent guidelines and compared to the mass-based effluent limitation that might be calculated from the concentration-based effluent limitations in RCSA Section 22a-430-4(s)(2) and the average monthly and maximum daily flow of the discharge.

Total Suspended Solids

Based on federal effluent guidelines:

$$AML = \left(.0125\frac{Kg}{\cancel{kkg}}X1000\frac{\cancel{tons}}{day}X\ .907\frac{\cancel{kkg}}{\cancel{ton}}\right) = 11.3\ \frac{Kg}{day}$$

$$MDL = \left(.0334 \frac{Kg}{\cancel{kkg}} X1000 \frac{\cancel{tons}}{day} X\ .907 \frac{\cancel{kkg}}{\cancel{ton}}\right) = 30.3\ \frac{Kg}{day}$$

Compare with Section 22a-430-4(s)(2) of the RCSA

For the comparative analysis, a mass-based limit can be calculated from the concentration-based limits and average monthly flow:

Average monthly flow = 30,000 gallons per day X 3.785 liters/gallon = 113,550 liters per day (1 gallon = 3.785 liters)

$$AML = 20 \frac{mg}{l}\ X\ 113{,}550 \frac{liters}{day} = 2{,}271{,}000 \frac{mg}{day} = 2.271\ \frac{Kg}{day}$$

$$MDL = 30 \frac{mg}{l}\ X\ 113{,}550 \frac{liters}{day} = 3{,}406{,}500 \frac{mg}{day} = 3.406\ \frac{Kg}{day}$$

and

$$MIL = 45 \frac{mg}{l}\ X\ 113{,}550 \frac{liters}{day} = 5{,}109{,}750 = 5.109 \frac{Kg}{day}$$

Oil and Grease

Based on federal effluent guidelines:

$$MDL = \left(.00834 \frac{Kg}{\cancel{kkg}} X1000 \frac{\cancel{tons}}{day} X\ .907 \frac{\cancel{kkg}}{\cancel{ton}}\right) = 7.56 \frac{Kg}{day}$$

Compare with Section 22a-430-4(s)(2) of the RCSA

For the comparative analysis, a mass-based limit can be calculated from the concentration-based limits and average monthly flow:

Average daily flow = 30,000 gallons per day X 3.785 liters/gallon = 113,550 liters per day (1 gallon = 3.785 liters)

$$AML = 10 \frac{mg}{l}\ X\ 113{,}550 \frac{liters}{day} = 1{,}135{,}500 \frac{mg}{day} = 1.135\ \frac{Kg}{day}$$

$$MIL = 20 \frac{mg}{l}\ X\ 113{,}550 \frac{liters}{day} = 2{,}271{,}000 \frac{mg}{day} = 2.271\ \frac{Kg}{day}$$

COMPARISON OF CALCULATED LIMITS

Pollutants of concern	*Section 22a-430-4(s)(2) Effluent limits*			*Section 22a-430-4(s)(2) Effluent limits*			*Federal Effluent limits (NSPS)*		
	(Concentration Limits) mg/l			*(Mass limits) Kg/d*			*(Mass limits) Kg/d*		
	AML	*MDL*	*MIL*	*AML*	*MDL*	*MIL*	*AML*	*MDL*	*MIL*
Total Suspended Solids	*20*	*30*	*45*	*2.271*	*3.406*	*5.109*	*11.3*	*30.3*	---
Oil & Grease	*10*	---	*20*	*1.135*	---	*2.271*		*7.56*	---

The respective RCSA Section 22a-430-4(s)(2) effluent limitations for TSS and Oil and Grease are more protective that the federal standards. Therefore, the RCSA Section 22a-430-4(s)(2) effluent limitations are carried forwarded for further analysis and permit limit development.

ATTACHMENT 3: ASSESSED WATERBODY REPORT PURSUANT TO SECTIONS 305(b) and 303(d) OF THE FEDERAL CWA

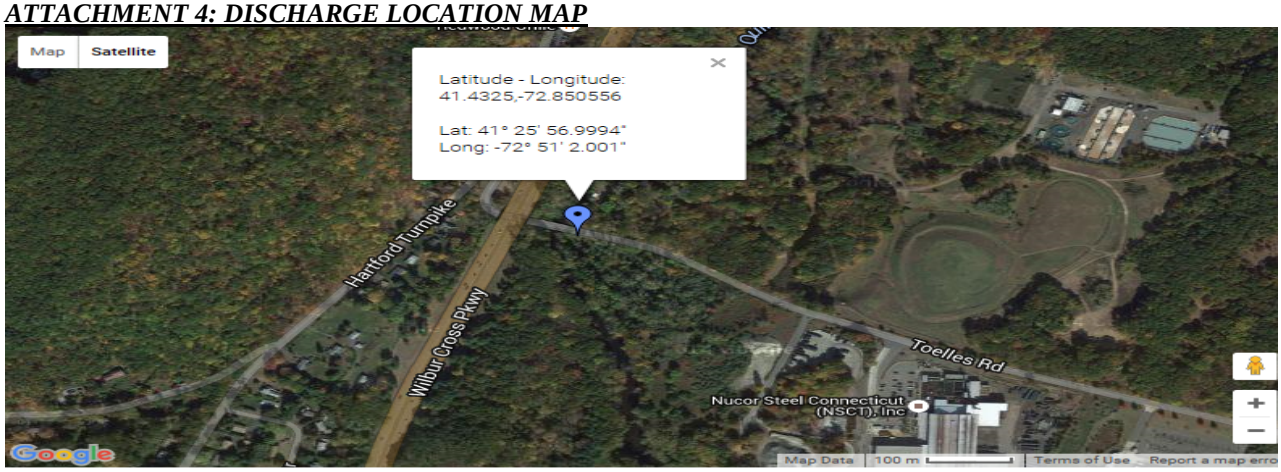
Connecticut 2016 305b Assessment Results — RIVERS — TABLE 2-3

Waterbody Segment ID	Waterbody Name	Location	Miles	Aquatic Life	Recreation
CT5111-00_02	Branford River-02	From confluence with Notch Hill Brook (US of School Ground Road crossing), Branford, US to Lake Gaillard outlet dam (southeast portion of lake), North Branford.	3.07	Not Supporting	Not Assessed
CT5112-00_01	Farm River (East Haven)-01	Saltwater limit at marsh, just DS of Main Street Anx. crossing, southwest of Lake Saltonstall outflow, East Haven, US parallel to lake around west side to confluence Burrs Brook parallel along Route 80 and DS of crossing), North Branford.	6.14	Not Supporting	Not Supporting
CT5112-00_02	Farm River (North Branford)-02	Confluence Burrs Brook just DS of Route 80 crossing, US to Pages Mill Pond outlet dam, US side of Mill Road crossing, North Branford.	1.24	Not Supporting	Not Supporting
CT5112-00_03b	Farm River (North Branford)-03b	Gulf Brook to HW just US of Hyla Lane crossing, and parallel to Route 17 (Middletown Avenue), North Branford. (Site15018)	4.87	Not Supporting	Not Assessed
CT5112-05_01	Gulf Brook (North Branford)-01	Mouth at confluence with Farm River, along Route 22 just south of the intersection of Route 22 and Route 17, US to HW just south of Reeds Gap Road (near Guilford town line, and Lanes Pond area), North Branford.	3.42	Not Supporting	Not Assessed
CT5112-10_01	Burrs Brook-01	From mouth at confluence with Farm River (just DS of Totoket Road crossing), US to Vic's Pond (on Tomasso property) outlet (part of hyro missing from NHD). Brook contributes to drinking water supply, Lake Saltonstall.	1.35	Not Supporting	Not Assessed
CT5200-00_01	Quinnipiac River (North Haven/Wallingford)-01	Sackett Point Road crossing (west of I91, and east of Route 15), North Haven, US to Toelles Road crossing (head of tide), Wallingford/North Haven town border.	5.05	Not Supporting	Not Supporting
CT5200-00_02	Quinnipiac River (North Haven/Meriden)-02	Toelles Road crossing (head of tide, just east Route 15), Wallingford/North Haven town border, US to Hanover Pond outlet dam, Meriden. (Segment includes Community Lake portion)	8.5	Not Supporting	Not Supporting

Table 3-4. Connecticut Impaired Waters List (EPA Category 5)

Waterbody Segment ID	Waterbody Name	Impaired Designated Use	Cause	Comment
CT5111-09-2-L3_01	Branford Supply Pond, Northwest (Branford)	Habitat for Fish, Other Aquatic Life and Wildlife	Turbidity	Potential sources include stormwater, streambank erosion
CT5112-00_01	Farm River (East Haven)-01	Habitat for Fish, Other Aquatic Life and Wildlife	Cause Unknown	Potential sources include stormwater, illicit discharges, remediation sites, groundwater impacts
CT5112-00_02	Farm River (North Branford)-02	Habitat for Fish, Other Aquatic Life and Wildlife	Cause Unknown	Potential sources include stormwater, illicit discharges, remediation sites, remediation sites, groundwater impacts, agricultural activities
CT5112-00_02	Farm River (North Branford)-02	Existing or Proposed Drinking Water	Escherichia coli	Potential sources include stormwater, illicit discharges, agricultural activities
CT5112-10_01	Burrs Brook-01	Habitat for Fish, Other Aquatic Life and Wildlife	Sodium	Potential sources include industrial discharges, groundwater impacts
CT5112-10_01	Burrs Brook-01	Habitat for Fish, Other Aquatic Life and Wildlife	Turbidity	Potential sources include stormwater, industrial discharges
CT5200-00_01	Quinnipiac River (North Haven/ Wallingford)-01	Habitat for Fish, Other Aquatic Life and Wildlife	Cause Unknown	Potential sources include stormwater, industrial discharges, municipal discharges, landfills, illicit discharges, remediation sites, groundwater impacts
CT5200-00_02	Quinnipiac River (North Haven/ Meriden)-02	Habitat for Fish, Other Aquatic Life and Wildlife	Cause Unknown	Potential sources include stormwater, industrial discharges, municipal discharges, landfills, illicit discharges, remediation sites, groundwater impacts,
CT5200-00_03	Quinnipiac River-03	Fish Consumption	Polychlorinated biphenyls	Point sources include industrial discharges, municipal discharges, landfills, illicit discharges, remediation sites, groundwater impacts

ATTACHMENT 4: DISCHARGE LOCATION MAP



Clear / Reset | Remove Last Blue Marker | Center Red Marker

Get the Latitude and Longitude of a Point

When you click on the map, move the marker or enter an address the latitude and longitude coordinates of the point are inserted in the boxes below.

Latitude:
Longitude:

	Degrees	Minutes	Seconds
Latitude:			
Longitude:			

Show Point from Latitude and Longitude

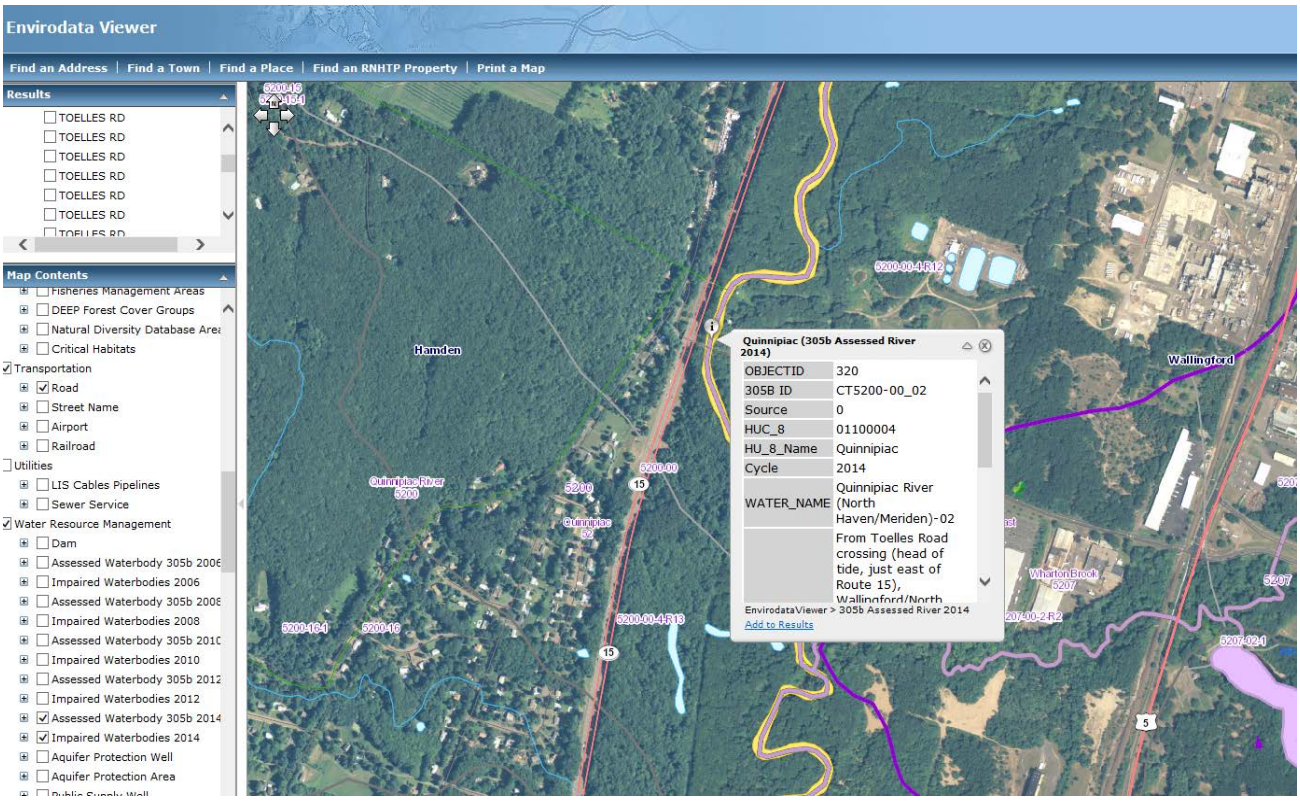
Use this if you know the latitude and longitude coordinates o a point and want to see where on the map the point is.
Use: + for *N* Lat or *E* Long − for *S* Lat or *W* Long.
Example: +40.689060 -74.044636
Note: Your entry should not have any embedded spaces.

Decimal Deg. Latitude:
Decimal Deg. Longitude:
Show Point

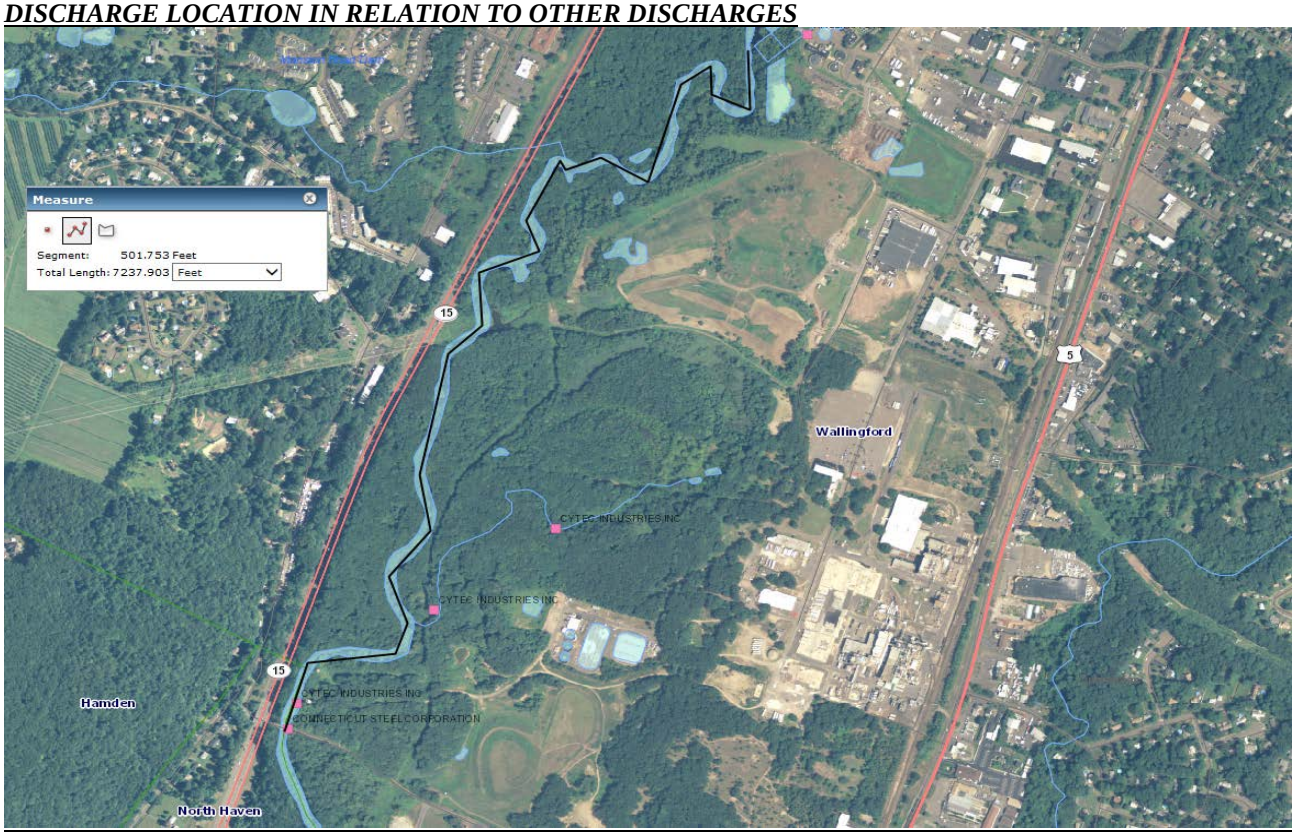
Example: **+34 40 50.12** for *34N 40' 50.12"*

	Degrees	Minutes	Seconds
Latitude:	41	25	57
Longitude:	-72	51	02

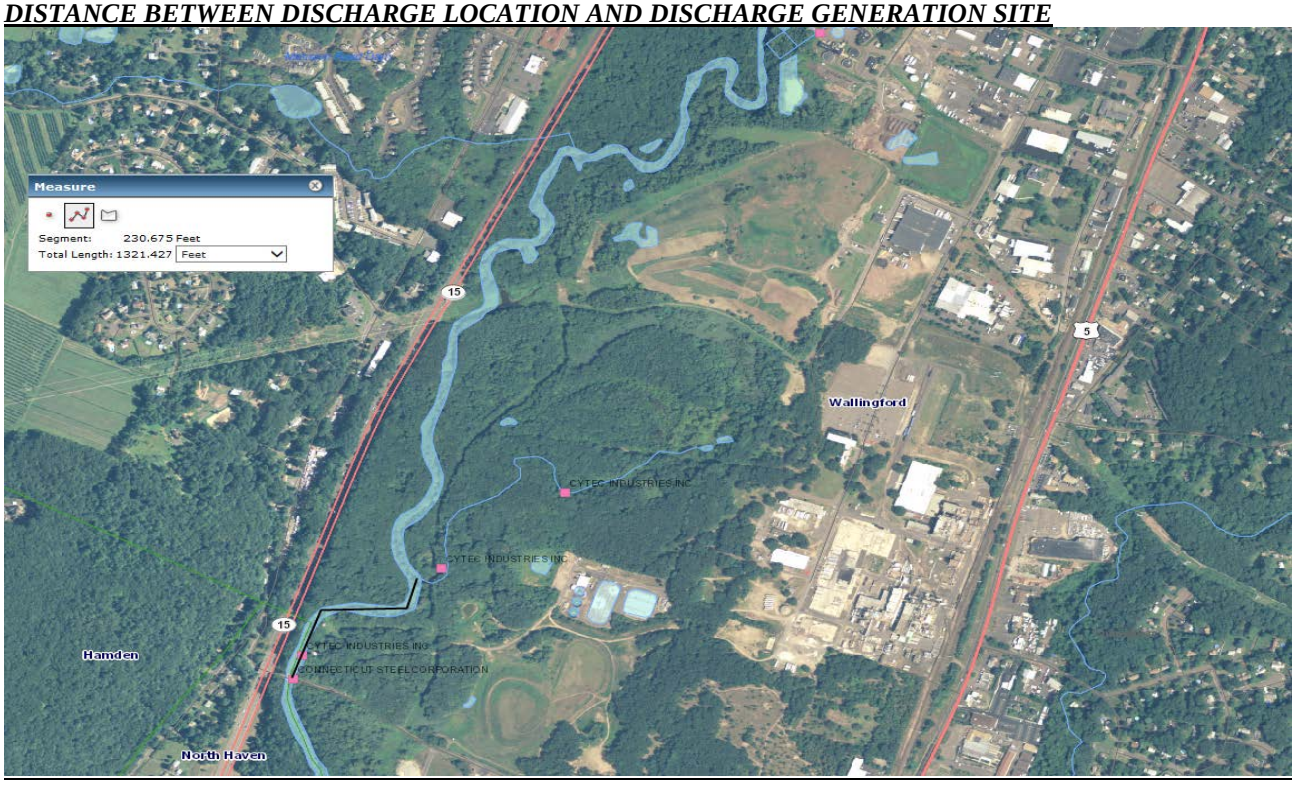
Show Point



DISCHARGE LOCATION IN RELATION TO OTHER DISCHARGES



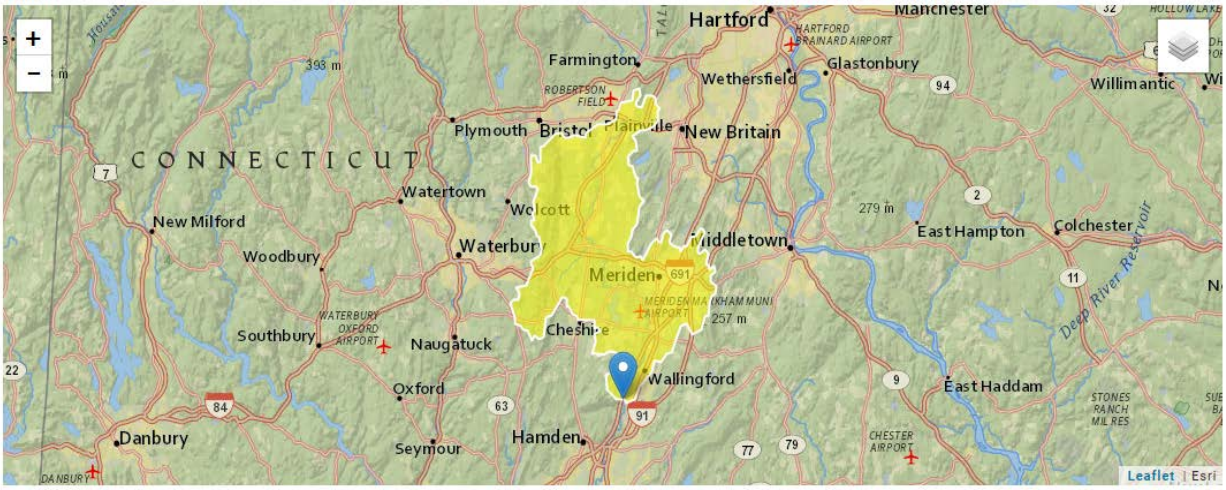
DISTANCE BETWEEN DISCHARGE LOCATION AND DISCHARGE GENERATION SITE



ATTACHMENT 5: DRAINAGE AREA OF QUINNIPIAC RIVER AROUND NUCOR STEEL'S DISCHARGE

StreamStats Report

Region ID:	CT
Workspace ID:	CT20190718181920217000
Clicked Point (Latitude, Longitude):	41.43224, -72.85096
Time:	2019-07-18 14:21:31 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	113	square miles