TCEQ Mechanical Sources

Historical Best Available Control Technology (BACT) Requirements

Galvanizing Operations

Year	Source Type	Pollutant	Minimum Acceptable Control	Control Efficiency or Details
2008	Zinc Kettle	Particulate Matter (PM)	Emissions capture system meets ACGIH design, 99% reduction of emissions and an outlet grain loading ≤ 0.01 gr/dscf, 5% opacity at stack, separate ammonia chloride preflux tank	Typically achieved with a fabric filter with lime precoated bags
	HCl Tanks	HCl	90% reduction	Typically achieved with fume suppressant or equivalent

SPOKANE GALVANIZING, INC.
NOC #1644 – GALVANIZING FURANCE WITH WASTE HEAT RECOVERY AND NEW ZINC KETTLE

Project Description

Spokane Galvanizing, a registered source, has filed a Notice of Construction application (NOC #1644) for installation and operation of a galvanizing furnace equipped with waste heat recovery for their galvanizing operation, located at 2727 S. Garfield Rd., Airway Heights, WA. The proposed galvanizing furnace will replace the existing, electric zinc kettle at the facility. The proposed furnace is a Western Technologies (Westech) Pulse-Fired 'Turbo' High Velocity galvanizing furnace. The zinc kettle will be replaced as part of this project.

The existing electric kettle has a volume of 500 cu. ft., and a capacity of 10,000 lbs per hour. The new kettle galvanizing furnace will have a volume of 1,440 cu. ft., and a capacity of 25,000 lbs per hour. The new furnace is equipped with a shell and tube heat exchanger, which will be used to recover heat from the flue gases of the new furnace, and use the heat to preheat the water for the two, existing 2.16 MMBTU/hr hot water boilers that are used to heat the dip tanks.

In addition to the zinc kettle, the galvanizing line also consists of one caustic soda dip tank, three water dip tanks, three sulfuric acid tanks, one zinc ammonium chloride tank, and a water quench tank. The galvanizing line does not contain any HCl and Spokane Galvainizing does not plan to use HCl for pickling. This part of the process will not change as part of this proposal. The current configuration has been in place since the late 1990's. All of the tanks have a capacity of 6,000 gallons.

In order for there to be an alloying reaction between the zinc and steel, the steel must be clean. The steel cleaned by the use of shot blasting, or by soaking it in a caustic soda solution. The steel article is then transferred to a water rinse tank. Once rinsed, the steel is then pickled using sulfuric acid. The sulfuric acid is used to remove rust from the surface of the metal. After pickling, the steel is thoroughly rinsed and then dipped in a fluxing tank containing zinc ammonium chloride. Finally, the steel is dipped into the molten zinc contained in the zinc kettle. After dipping, the steel is cooled in a water quench tank. Once cooled, steel is packaged and shipped to the customer.

Air Pollution Control System

No add-on air pollution controls are proposed for this project The new furnace will be equipped with 4 Eclipse Model TJ150 Natural Gas High Velocity low NOx burners. The burners are rated at a combined total of 6.0 MMBTU/hr heat input. The furnace has a manufacturer guaranteed emissions rate of $\leq$ 30 ppmv NOx and $\leq$ 50 ppmv CO (both @ 3% oxygen). The burner will regulate fuel and combustion air by a pressure controller.

Good furnace and burner design, operation, and maintenance will also contribute to additional emission reductions. Natural gas is the only fuel that will be burned in the furnace; no back-up fuels will be used. The exclusive use of natural gas, a relatively clean burning fuel, will help to minimize emissions. The conditions of approval will require the furnace to be properly operated and maintained, and will limit fuel to only natural gas.

At this time, Spokane Galvanizing does not plan to add a baghouse to control PM emissions from the zinc kettle. An economic analysis was performed to determine if a baghouse is required to meet BACT. A summary of the BACT economic analysis is below.

Process Data

# of Furnaces Affected:	1
Manufacturer/Model:	Westech Pulse-Fired 'Turbo' High Velocity Galvanizing Furnace
Burner Rating:	6.00 MMBTU/hr
Burner Manufacturer guaranteed emission rates:	≤ 30 ppmv NOx (@ 3% oxygen) ≤ 50 ppmv CO (@3% oxygen)
Average Load:	100% (conservative assumption)
Fuel:	Natural Gas (no back-up fuel)
Furnace PTE Operation Hours:	8,760 hrs/yr
Stack Height:	65'
Stack Diameter:	1.96'
Stack Flow Rate*:	16,377 acfm @ 168 °F
Stack Temperature*:	168 °F

*These values were scaled to estimate the exhaust flow rate and temperature from the heat exchanger at low fire.

Old Zinc Kettle (Based on Maximum Production Rate)

Maximum Hourly Production Rate:	5 tons/hr
Maximum Daily Production Rate:	120 tons/day
Maximum Annual Production Rate:	43,800 tons/yr

New Zinc Kettle (Based on Max. Allowable Increase)

Maximum Production Rate	12.5 tons/hr
Maximum Daily Production Rate:	126 tons/day
Maximum Annual Production Rate:	44,786 tons/yr

Emission Estimates

NOx and CO emissions for the proposed burners were calculated using the manufacturer supplied emission rates. PM, VOC, SO2, lead, and toxic air pollutant emissions were calculated using emission factors given in Section 1.4 of AP-42. PTE emissions are based on 8,760 hours of operation per year. Note that the AP-42 PM emission factors are considered representative of all PM emissions (both condensable and filterable) from natural gas combustion in external combustion heating units, and all PM emissions were assumed to be less than 1.0 micrometer in diameter. Therefore, the AP-42 PM emission factor was used to estimate both PM10 and PM2.5 emissions. Also, SRCAA has determined that hexavalent chromium emissions are not likely to occur from natural gas fired boilers and other natural gas fired external combustion units, and that any chromium emissions are likely to be trivalent chromium. This is based on SRCAA research regarding chromium emissions from natural gas combustion and the development of the AP-42 emission factor. Therefore, in this review, all chromium emissions from the furnace are considered to be trivalent chromium.

Fugitive emissions from the zinc kettle were estimated using a publication from the Texas Commission on Environmental Quality, titled, Calculations Guidance Package: Hot Dip Galvanizing. The guidance package provides details on how to estimate emissions from a galvanizing operation, including emissions from a caustic soda tank, hydrochloric acid or sulfuric acid tank, and a zinc kettle. It also provides information on the speciation of PM emission from the zinc kettle. Since the galvanizing operation is existing, only the increase in emissions from the zinc kettle were quantified to determine compliance with the NAAQS and WAC 173-460.

Criteria Pollutants: (based on PTE of 8,760 hrs/yr of furnace operation and 44,786 tons/yr of galvanized product):

Pollutant	PTE emissions (lbs/yr)	Source
PM10 (as PM)	904.08	AP-42
PM2.5 (as PM)	904.08	AP-42
CO	1,994.51	Mfg. Data
Lead	0.03	AP-42
VOC	283.41	AP-42
SO2	30.92	AP-42
NO2	98.30	Mfg. Data

Toxic Air Pollutants: (based on PTE of 8,760 hrs/yr of furnace operation and 44,786 tons/yr of galvanized product):

Pollutant	Emissions (lb/yr)	Source
ammonia	5.12E+00	TCEQ
benz(a)anthracene	9.28E-05	AP-42
benzene	1.08E-01	AP-42
benzo(a)pyrene	6.18E-05	AP-42
benzo(b)fluoranthene	9.28E-05	AP-42
benzo(k)fluoranthene	9.28E-05	AP-42
chrysene	9.28E-05	AP-42
dibenzo(a,h)anthracene	6.18E-05	AP-42
dichlorobenzene	6.18E-02	AP-42
formaldehyde	3.86E+00	AP-42
hexane	9.28E+01	AP-42
indeno(1,2,3-cd) pyrene	9.28E-05	AP-42
naphthalene	3.14E-02	AP-42
toluene	1.75E-01	AP-42
arsenic	1.03E-02	AP-42
beryllium	6.18E-04	AP-42
cadmium	5.67E-02	AP-42
cobalt	4.33E-03	AP-42
copper	4.38E-02	AP-42
lead	2.58E-02	AP-42
manganese	1.96E-02	AP-42
mercury	1.34E-02	AP-42
selenium	1.24E-03	AP-42

vanadium	1.19E-01	AP-42
CO	1.99E+03	Mfg. Data
NO2	9.83E+01	Mfg. Data
SO2	3.09E+01	AP-42

Applicable Regulations

I. SRCAA Regulation I, Article V applies. SRCAA Regulation I, Section 5.02.A states that a Notice of Construction application must be filed by the owner or operator and an order of approval issued by SRCAA prior to the establishment of any new source or source categories. Stationary sources or source categories subject to Section 5.02 include categories listed in Exhibit "R" of Article IV of this Regulation, except for those that are below emission thresholds listed therein. Since "fuel burning equipment with per unit heat inputs greater than or equal to 4 MMBTU/hr using gaseous fuels" and "metallurgical processing operations" are listed in Exhibit R of Article IV, a Notice of Construction is required for the proposed furnace. According to SRCAA Regulation I, Section 5.09.C, all new and modified stationary sources shall employ Best Available Control Technology (BACT), and if applicable, Toxic Best Available Control Technology (TBACT).

II. Chapter 173-400 WAC applies because it is an applicable rule adopted under Chapter 70.94 RCW. The rule requires all new sources that result in an increase in emissions, to use BACT (best available control technology). Emissions will increase as a result of this proposal. Chapter 173-400 WAC also requires that the source not cause or contribute to an ambient air quality violation in a nonattainment area, nor may it cause an ambient air quality violation anywhere.

III. New Source Performance Standards (NSPS) 40 CFR Part 60 do not apply. Subparts D, Da, Db, and Dc do not apply to boilers and external combustion heating units with less than 10 MBTU/hr heat inputs. No NSPSs apply to the zinc kettle.

IV. No National Emission Standards for Hazardous Air Pollutants (CFR 40 Part 61 - NESHAP) apply, including MACT or GACT standards.

V. This new source does not trigger Prevention of Significant Deterioration (PSD) review.

VI. Chapters 173-491 WAC (Gasoline Vapors) and 173-434 WAC (Solid Waste Incinerators) do not apply.

VII. Chapter 173-460 WAC (Air Toxics) applies. The furnace and associated zinc kettle will emit toxic air pollutants and therefore, TBACT must be used.

VIII. The State Environmental Policy Act (Chapter 43.21C RCW and Chapter 197-11 WAC) applies. An environmental checklist is required to address possible adverse environmental impacts.

IX. SRCAA Regulation I, Section 5.05 - Public Involvement, specifies requirements for public notice and public comment periods. A 15-day public notice period was initiated on 5/29/14, by placing an announcement on SRCAA's internet webpage. For this project, a 30-day public comment period is mandatory only if i) SRCAA receives a request, during the public notice period, for a public comment period, or ii) the project will result in a **10** tons per year

or greater increase in PTE air contaminant or precursor emissions for which ambient air quality standards have been established or toxic air pollutant. The estimated annual PTE emission tonnage for a criteria pollutant as a result of this NOC proposal is 1.0 ton/year of CO. The estimated annual potential-to-emit emission tonnage for a toxic air pollutant as a result of this NOC proposal is 1.0 ton/year of CO (note that Chapter 173-460 WAC lists CO as a toxic air pollutant). Therefore, the 30-day public comment period will be required only if SRCAA receives such a request during the 15-day public notice period.

Compliance with Applicable Regulations

BACT:

BACT and TBACT for boilers and other external combustion heating unit typically involve the use of lesser polluting fuels (i.e., natural gas) and automatic control of air-to-fuel ratio as outlined in the operations and maintenance manual. Burners capable of controlling NO_X emissions to 30 ppmv @ 3% O_2 are prevalent throughout the industry and have been commonly used in boilers and furnaces in the 4 - 20 MMBtu/hr size range. SRCAA's natural gas burning equipment policy considers 30 ppmv for NOx and 50 ppmv for CO (both @ 3% O_2)to be BACT for such unit when fired on natural gas. The furnace is equipped with a low NOx burner, and is guaranteed by the manufacturer to meet the BACT emission limits described above. As the unit is not subject to the boiler NSPS, an initial performance test will not be required. However, Spokane Galvanizing will be required to meet 30 ppmv NOx and 50 ppmv CO limits (both @ 3% O_2) and demonstrate compliance with these emission limits through periodic combustion analyzer testing. Spokane Galvanizing will also be required to prepare and follow an operation and maintenance (O&M) plan for the furnace and associated burners which incorporates manufacturer recommended practices for proper operation and maintenance.

Per review of general BACT determinations made by other agencies, BACT and TBACT for zinc galvanizing kettles typically involve the use of a baghouse collection system capable of capturing 95% of PM emissions from the kettle and controlling the captured PM to 0.01 gr/dscf. Additionally, BACT requires that the galvanizing operation has a separate ammonia chloride preflux tank, if applicable. SRCAA requested for Spokane Galvanizing to submit pricing information on a baghouse system. Based on PTE emissions, the capital cost of the baghouse, annual operating costs, and a life expectancy of 20 years, SRCAA determined that the annual cost of the baghouse is $6,164 per ton of PM controlled, which is greater than the $5,000-$6,000 per ton that is considered reasonable in SRCAA's BACT policy. Additionally, if no baghouse is installed, Spokane Galvanizing will be subject to a production limit to ensure compliance with the NAAQS. The production limit acts as a surrogate to an a emission limit, which makes the true cost per ton for PM control much higher than the economic analysis reveals. A copy of the economic analysis is included in the review file.

AERSCREEN MODELING/ IMPACTS TO HEALTH & SAFETY:

AERSCREEN air dispersion modeling was performed for cadmium impacts because cadmium PTE emissions from the furnace were above the small quantity emission rate (SQER) given in Chapter 173-460 WAC. Modeling was not performed for any of the other toxic air pollutants because their PTE emissions did not exceed their respective SQERs. The toxic air pollutants, PTE emissions, and their associated SQERs are given below:

Pollutant	Emissions (lb/yr)	SQER (lbs)	SQER Ave. time	Model?

ammonia	5.12E+00	9.31	24-hr	no
benz(a)anthracene	9.28E-05	1.74	annual	no
benzene	1.08E-01	6.62	annual	no
benzo(a)pyrene	6.18E-05	0.174	annual	no
benzo(b)fluoranthene	9.28E-05	1.74	annual	no
benzo(k)fluoranthene	9.28E-05	1.74	annual	no
chrysene	9.28E-05	17.4	annual	no
dibenzo(a,h)anthracene	6.18E-05	0.16	annual	no
dichlorobenzene	6.18E-02	17.4	annual	no
formaldehyde	3.86E+00	32	annual	no
hexane	9.28E+01	92	24-hr	no
indeno(1,2,3-cd) pyrene	9.28E-05	1.74	annual	no
naphthalene	3.14E-02	6	annual	no
toluene	1.75E-01	657	24-hr	no
arsenic	1.03E-02	0.0581	annual	no
beryllium	6.18E-04	0.08	annual	no
cadmium	5.67E-02	0.0457	annual	yes
cobalt	4.33E-03	0.013	24-hr	no
copper	4.38E-02	0.219	1-hr	no
lead	2.58E-02	16	annual	no
manganese	1.96E-02	0.00526	24-hr	no
mercury	1.34E-02	0.0118	24-hr	no
selenium	1.24E-03	2.63	24-hr	no
vanadium	1.19E-01	0.0263	24-hr	no
CO	1.99E+03	50.4	1-hr	no
NO2	9.83E+01	1.03	1-hr	no
SO2	3.09E+01	1.45	1-hr	no

Modeling for cadmium impacts predicted the acceptable source impact levels (ASIL) given in Chapter 173-460 WAC would not be exceeded at the furnace's PTE operation (8,760 hrs/yr). The relative value of the modeled cadmium concentration compared to the ASIL is given in the table below:

Pollutant	Modeled Impact (ug/m3)	ASIL (ug/m3)
Cadmium	2.52E-05 (annual)	2.38E-04 (annual)

NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS):
AERSCREEN air dispersion modeling of the PTE emissions from the furnace was performed to predict maximum concentrations for criteria pollutants. Modeling was performed to ensure that none of the NAAQS for criteria pollutants will be exceeded. Modeling results indicated that all of the NAAQS will be met. The results are given in the NOC review file.

SEPA/PUBLIC INVOLVEMENT:
An Environmental Checklist was completed for the Spokane Galvanizing facility on 10/16/93. A Determination of Non-Significance (DNS) was issued by Spokane County Air Pollution Control Authority (now SRCAA) on 11/12/93. The environmental checklist and DNS have been

reviewed and determined to adequately address the impacts from this proposal. SEPA requirements have been met, and an additional SEPA comment period is not required. Spokane Galvanizing will be given 15 days to review the draft conditions of approval.

A 15-day public notice period is required, per SRCAA Public Involvement requirements. A 15-day public notice period was initiated on 5/29/14, by placing an announcement on SRCAA's internet webpage. The public notice period ended on 6/13/14, and SRCAA did not receive a request for a public comment period during the public notice period. Since no request for a public comment period was made, SRCAA may make a final determination on the NOC application without further public notice.

PRELIMINARY DETERMINATION

A preliminary determination has been made, based on review of the Notice of Construction and Application for Approval (NOC) #1644. The proposed project, if constructed and operated as described in the NOC application, will be in compliance with the applicable rules and regulations, as adopted pursuant to Chapter 70.94 RCW, including Chapters 173-400 WAC and 173-460 WAC and SRCAA Regulation I, provided that the following conditions are met:

One-time requirements:

1. SRCAA shall be notified at least seven days prior to the anticipated start-up date of the furnace and associated zinc kettle.

2. This order of approval shall become invalid if any of the following occur:
   a. Construction of the approved equipment is not commenced within eighteen months after the receipt of the approval, or
   b. Construction of the approved equipment is discontinued for a period of eighteen months or more, or
   c. Construction of the approved equipment is not completed within eighteen months of commencement.

   SRCAA may extend any of the eighteen-month periods referenced above, provided the proponent demonstrates that an extension is justified and the criteria given in SRCAA Regulation I, Section 5.13.B are met.

On-going requirements:

3. A copy of the Notice of Construction application and the final order of approval shall be kept on-site and made available to SRCAA personnel upon request.

4. The furnace shall be maintained in good operating condition. An operation and maintenance (O&M) plan shall be developed for the furnace no later than 30 days after startup of the furnace. Manufacturer O&M manuals, that include the information described in Conditions 4.a – 4.d below, are acceptable. Once developed, the O&M plan shall be followed. The O&M plan shall be kept on-site and made available to SRCAA personnel upon request.

   The O&M plan shall, at a minimum, contain the following:

   a. A description of the periodic maintenance activities that will be performed;

b. The frequency each maintenance activity will be performed;

c. Sample recordkeeping form(s) to be used to document the date and nature of maintenance activities performed; and

d. Corrective actions to be taken if any operating parameter is outside of the normal range.

Maintenance records, including the recordkeeping forms used to document maintenance activities, shall be kept in accordance with Condition #13 below.

5. The furnace shall meet the following emission limits when firing with natural gas at high fire:

OXIDES OF NITROGEN (NO_X) PPMV @ 3% O_2	CARBON MONOXIDE (CO) PPMV @ 3% O_2
30	50

6. Compliance with the NO_X, and CO emission limits shall be verified by performing a combustion test at the average operating load or higher, using a combustion analyzer or other SRCAA approved test method. The combustion test shall reflect furnace operation under actual conditions. Testing shall be done per the following requirements:

   a. An initial combustion test must be conducted on the furnace no later than 30 days after the furnace is placed in service.

   b. After completion of the initial combustion test, a combustion test must be conducted on the furnace at least once each calendar year, unless SRCAA approves a less frequent testing schedule.

   b. The combustion analyzer shall be capable of analyzing for NO_X and CO emissions.

   c. The combustion analyzer shall be calibrated using the manufacturer recommended calibration procedures immediately prior to the test.

   d. During each combustion test, the following operational parameters shall be measured and recorded:

      i) NOx and CO concentrations (ppmv) in the exhaust stream;
      ii) Temperature;
      iii) Percent O_2 for each NOx and CO reading; and
      iv) Average load.

   e. A report documenting the results of each combustion test shall be submitted to SRCAA within 30 days of each test. The report shall include:

      i) A calibration report for the combustion analyzer;
      ii) A summary of the NO_X and CO emissions given in ppmv and corrected to 3% oxygen;

      [NO_X, or CO] ppmv (@ 3% O_2) =Measured [NO_X, or CO] ppmv x (20.9-3)/(20.9-Measured [NO_X, or CO] %O_2)

(Example: Measured NO_X = 20 ppmv @ 7.5% O_2, & CO =30 ppmv @ 8.5% O_2;

therefore, NO_x @ 3% O_2 = 20 x $\frac{(20.9-3)}{(20.9-7.5)}$ = **26.7** ppmv NO_x @ 3% O_2, and

CO @ 3% O_2 = 30 x $\frac{(20.9-3)}{(20.9-8.5)}$ = **43.3** ppmv CO @ 3% O_2

iii) The parameters listed under Conditions 6.d above.; and
iv) Copies of actual data sheets.

Records of each combustion test result shall be kept in accordance with Condition #13 below.

7. The furnace exhaust stack shall have a minimum height of **65** feet above ground level and shall exhaust vertically. No elbows, tees, or stack caps that impede exhaust air vertical flow shall be installed at the end of the stack.

8. Visible emissions from the furnace exhaust stack shall not exceed 10% opacity during any six-minute average, as determined using EPA Reference Method 9.

9. SRCAA approval must be obtained before any fuel other than natural gas is burned in the furnace.

10. Annual records shall be kept of the total amount of natural gas burned in the furnace. Records shall be kept in accordance with Condition #13 below. Annual natural gas usage shall be reported annually to SRCAA on forms provided by SRCAA.

On-going requirements for Zinc Kettle:

11. The total daily galvanized material production rate shall not exceed 126 tons per day. Records of the daily total weight of galvanized material shall be kept in accordance with Condition #13 below.

12. The total annual galvanized material production rate shall not exceed 44,786 tons per calendar year. Records of the annual total weight of galvanized material shall be kept in accordance with Condition #13 below.

Facility-wide requirements:

13. The following records shall be kept on-site for the most recent 24 months of operation and made available to SRCAA personnel upon request:
    a. Completed recordkeeping forms used to document maintenance activities performed on the furnace (described in Condition #4);
    b. Copies of annual combustion test results (described in Condition #6);
    c. Fuel usage records (described in Condition #10);
    d. Daily production records for the total quantity of material galvanized each day(described in Condition #11); and
    e. Annual production records for the total quantity of material galvanized per calendar year (described in Condition #12).

14. The galvanizing preparation process shall remain unchanged. Spokane Galvanizing shall contact SRCAA prior to modifying the preparation process to determine if a Notice of Construction permit is required.

15. The Control Officer, or duly authorized representative, shall be allowed to enter the facility premises at reasonable times to inspect equipment and/or records specific to the control, recovery, or release of contaminants into the atmosphere, in accordance with SRCAA Regulation I, Article II and RCW 70.94.200. For the purposes of this NOC approval, reasonable times include, but are not limited to, any of the following: normal business and/or equipment operating hours, periods of equipment breakdown or malfunction, and times when the Control Officer, or duly authorized representative are investigating air quality complaints filed with agency and/or have reason to believe that air quality violations have occurred or may be occurring. No person shall obstruct, hamper or interfere with any such inspection.

16. It is an ongoing condition of this NOC approval that the source be registered with the agency. Registration includes the following:

    a. Submittal of updated registration information at least annually as required by SRCAA, using forms provided by SRCAA. The forms provided by the Authority shall be completed and returned to the Authority within 45 days of issuance.

    b. Timely payment of annual registration fees to SRCAA in the amount required by SRCAA Regulations, as periodically amended. Failure to pay registration fees and other related fees within 120 days of the annual registration billing due date will result in an administrative closure of the facility. Re-opening will be governed by SRCAA Regulation I, Section 4.02.F.2, and may include resubmission of a Notice of Construction and Application for Approval.

    This condition is in addition to any other remedies available to the agency for non-compliance with agency regulations, state law or federal law.

PREPARED BY: _____
Jacob Blanchette, Environmental Engineer
DATE: _____

REVIEWED BY: _____, P.E.
Joe Southwell, Professional Engineer
DATE: _____

REVIEWED BY: _____
William Dameworth, Control Officer
DATE: _____

Technology Transfer Network
Clean Air Technology Center - RACT/BACT/LAER Clearinghouse

Pollutant Information

Click on the Process Information button to see more information about the process associated with this pollutant.
Or click on the Process List button to return to the list of processes.

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Help

FINAL

RBLC ID: KY-0115
Corporate/Company: NUCOR STEEL GALLATIN, LLC
Facility Name: NUCOR STEEL GALLATIN, LLC
Process: Pickling Line #2 (including storage tanks) (EP 21-02)

Pollutant: Hydrochloric Acid **CAS Number:** 7647-01-0

Pollutant Group(s): InOrganic Compounds, Acid Gasses/Mist, Hazardous Air Pollutants (HAP), Particulate Matter (PM),

Substance Registry System: Hydrochloric Acid

Pollution Prevention/**A**dd-on Control Equipment/**B**oth/**N**o Controls Feasible: A

P2/Add-on Description: Wet Scrubber for HCl control

Test Method: EPA/OAR Mthd 26A EPA/OAR Methods | All Other Methods

Percent Efficiency: 98.000
Compliance Verified: Unknown
EMISSION LIMITS:
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements: NESHAP , SIP , OPERATING PERMIT
Other Factors Influence Decision: Unknown
Emission Limit 1: 6.0000 PPMV
Emission Limit 2: 0
Standard Emission Limit: 0
COST DATA:
Cost Verified? No
Dollar Year Used in Cost Estimates:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Pollutant Notes: This unit is equipped with a wet scrubbing system that relies on conductivity and recirculation water flow rate to determine continuous compliance.

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Pollutant Information

Click on the Process Information button to see more information about the process associated with this pollutant.
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FINAL

RBLC ID: KY-0115
Corporate/Company: NUCOR STEEL GALLATIN, LLC
Facility Name: NUCOR STEEL GALLATIN, LLC
Process: Galv Line #2 Zinc Dip (EP 21-10)

Pollutant: Particulate matter, total < 2.5 µ (TPM2.5)
CAS Number: PM

Pollutant Group(s): Particulate Matter (PM),
Substance Registry System: Particulate matter, total < 2.5 µ (TPM2.5)

Pollution Prevention/**A**dd-on Control Equipment/**B**oth/**N**o Controls Feasible: P

P2/Add-on Description: The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions.

Test Method: Unspecified — EPA/OAR Methods | All Other Methods

Percent Efficiency: 0
Compliance Verified: Unknown
EMISSION LIMITS:
Case-by-Case Basis: BACT-PSD
Other Applicable Requirements:
Other Factors Influence Decision: Unknown
Emission Limit 1: 0.1000 LB/HR
Emission Limit 2: 0.4400 TON/YR 12-MONTH ROLLING
Standard Emission Limit: 0
COST DATA:
Cost Verified? No
Dollar Year Used in Cost Estimates:
Cost Effectiveness: 0 $/ton
Incremental Cost Effectiveness: 0 $/ton
Pollutant Notes: The permittee shall prepare and implement a Good Work Practices (GWP) plan that includes written operating instructions and procedures that specify good operating and maintenance practices and includes, at a minimum, the following specific practices targeting emission minimization, and a means of verifying the practices have occurred: i. Performing periodic maintenance to minimize leaks of oil and grease from seals and bearings. ii. Tracking material usage to ensure that equipment is operated as designed and correcting any operating or design issues as quickly as possible.