SCS ENGINEERS Environmental Consultants & Contractors

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File No. 27224242.00

Indiana Department of Environmental Management
Office of Air Quality – Permits Branch
100 North Senate Avenue, IGCN 1003
Indianapolis, IN 46204-2251

Subject: Minor Source Operating Permit Application
ZINKPOWER – Terre Haute, LLC
Terre Haute, Indiana

To Whom It May Concern:

On behalf of ZINKPOWER – Terre Haute, LLC (ZINKPOWER), SCS Engineers (SCS) is submitting this Indiana Department of Environmental Management (IDEM) Minor Source Operating Permit application to construct and operate a hot dip galvanizing plant in Terre Haute, Indiana. Application forms for a Minor Source Operating Permit are included as **Attachment A**. Provided herein is a discussion of the process description, emission calculations, and resulting permit applicability.

PROCESS DESCRIPTION

Hot dip galvanizing is a metallurgical process in which steel is submerged in a molten zinc bath. The molten zinc reacts with the steel through diffusion to create a corrosion resistant zinc-iron alloy. For the reaction to occur, the steel must be free of organic material (paint, oil, grease, etc.) and oxidation (i.e., rust). Therefore, prior to galvanizing, the surface of the steel must undergo a pre-treatment process known as 'pickling'. Proper pickling procedures will ensure that the steel is clean and ready for immersion into the molten zinc.

The pickling process begins with incoming steel being immersed in the acid degreaser tanks (EP-01). The acid degreaser tanks contain a degreasing agent which is a solution of diluted phosphoric acid and hydrochloric acid (HCl). The tank make-up is approximately 90% tap water and 10% degreasing agent. The temperature range of the Acid Degreaser Tanks is 64.4°F - 104°F.

Prior to the next pickling process tank, the steel is immersed in a water rinse. After the rinse, the steel is transferred to the HCl tanks (EP-02). The HCl tanks contain an acidic solution that ranges from 6-18% HCl and averages 12% HCl. The optimum temperature range for the HCl Tanks is 70°F - 80°F. Following the HCl tanks, the steel is immersed in another water rinse tank. The water acts as a neutralizer by rinsing off residual acid solution from the steel in addition to minimizing the potential for the carryover of free iron to the flux tank.

The final step in pickling steel for galvanizing is to immerse the steel in a zinc ammonium chloride ($ZnNH_4Cl$) solution in the flux tank. The $ZnNH_4Cl$ is added to the solution as a solid; therefore, negligible emissions are expected to occur and have not been included in the emission calculations.

The flux acts as a final pickling agent and prevents oxidation of pickled steel before immersion into the molten zinc. A wet scrubber (CD-01) controls the pickling tank emissions (EP-01 and EP-02). The water from the wet scrubber is recycled as make-up water.

Following the pickling process, the steel passes through a natural gas-fired dryer (EP-04) prior to entering the zinc kettle (EP-03). An electric furnace heats the kettle. The kettle is filled with special high-grade zinc with trace additions of aluminum, bismuth, and nickel. When pickled steel is immersed in the molten zinc, the moisture on the steel goes to superheated steam, volatizing NH_4Cl from the fluxing agent into white smoke.

Two by-products are generated in the galvanizing reaction, commonly known as dross and skims. Dross is a zinc iron (ZnFe) crystal that is formed by the reaction of free iron with zinc. Dross is denser than molten zinc and falls to the bottom of the kettle. The dross is dredged out monthly and sold to re-processors. Skims are primarily composed of zinc oxide (ZnO) which forms on the surface of the zinc bath. Skims are created by the reaction of molten zinc with atmospheric oxygen and the release of the fluxing agent. ZINKPOWER will use a natural gas-fired zinc recovery unit (EP-05) to recover zinc from skims. The skims are loaded into the recovery units, and heat is applied to separate the zinc from the skims. Skims are also sold to re-processors or reused in the zinc kettle. A baghouse (CD-02) controls emissions from the zinc kettle (EP-03), and the collected particulate matter (PM) is sold to re-processors.

When the galvanizing process is complete, the steel is removed from the kettle, and immersed into a freshwater quench tank to cool the steel so that it can be handled. Finally, the galvanized steel undergoes passivation. Passivation is a quenching process which prohibits the formation of excessive zinc oxides and zinc hydroxides in the first several weeks after the galvanizing process. The passivation process occurs in a separate quench tank that contains water and an aqueous based coating.

Site figures and a process flow diagram are provided in **Attachment B**.

EMISSION CALCULATIONS

The acid degreaser tanks (EP-01) and the HCl tanks (EP-02) are sources of HCl emissions. Emissions were calculated using the HCl acid tank emission equation in the Texas Commission on Environmental Quality's (TCEQ's) *Calculations Guidance Package for Hot Dip Galvanizing* (**Attachment D**). The equation uses the vapor pressure of the HCl solution determined by the percentage HCl in the tank solution and the temperature of the solution. The solution in the acid degreaser tanks has approximately 10% degreasing agent, which has 0.35% HCl content, and a maximum temperature of 104°F. The HCl tanks contain an average of 12% HCl and operate at a maximum temperature of approximately 80°F. Both pickling tanks are controlled by a wet scrubber (CD-01), which has a 90% control efficiency per manufacturer specifications.

Particulate matter (PM) emissions for the zinc kettle (EP-03) were calculated using emission factors and speciated emission information from the galvanizing/zinc kettle emission equations in TCEQ's *Calculations Guidance Package for Hot Dip Galvanizing*. Emissions from the zinc kettle are controlled by a baghouse (CD-02) which has an assumed 99.5% minimum control efficiency in

accordance with AP-42 Appendix B.2 Table B.2-3 *Typical Collection Efficiencies of Various Particulate Control Devices.*

The combustion of natural gas from the dryer (EP-04) and zinc recovery unit (EP-05) will emit PM, sulfur dioxide (SO_2), volatile organic compounds (VOC), carbon monoxide (CO), nitrogen oxides (NO_x), and hazardous air pollutants (HAPs). Emissions were calculated using the provided maximum hourly throughput and emission factors from AP-42 Table 1.4-2 *Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion.*

Backup electrical power will be provided by a diesel-fueled emergency generator (EP-06) at the proposed facility. The combustion of diesel fuel from the generator will emit PM, SOx, VOC, CO, NOx, and HAPs. Emissions were calculated using the provided horsepower for the engine and emission factors from AP-42 Table 3.4-1, 3.4-2, and 3.4-3 *for Large Uncontrolled Stationary Diesel Engines.*

Detailed calculations can be found in **Attachment C.**

PERMIT APPLICIBILITY

In accordance with the IDEM Registration requirements, applicability is based on the uncontrolled potential emissions compared to the emission thresholds found at 326 IAC 2-5.1-3(a)(1) and 326 IAC 2-7-1(22). Any source with uncontrolled potential emissions greater than or equal to the minor source emission thresholds and below major source (Part 70) levels is required to obtain a minor source operating permit. A comparison of the emission thresholds to the uncontrolled potential annual emissions generated by ZINKPOWER is shown in the table below.

Pollutant	Minor Source Permit Threshold (TPY)	Part 70 Permit Threshold (TPY)	Uncontrolled Potential Emissions (TPY)
PM	25	100	34.63
PM_{10}	25	100	34.56
$PM_{2.5}$	25	100	33.18
SO_2	25	100	0.014
VOC	25	100	0.55
CO	100	100	5.55
NO_x	25	100	18.68
HAPs	10/25	10/25	1.33

TPY: tons per year

The emission calculations indicate that the uncontrolled potential emissions generated by the equipment and processes described will exceed the applicable Minor Source Operating Permit thresholds but are less than the Part 70 Permit threshold.

We appreciate your review of this Minor Source Operating Permit application. If you have any questions regarding this submittal or require additional information, please contact Stephanie Taylor at 913-749-0733 or staylor@scsengineers.com.

Sincerely,

Priya Hrenko, P.E.
Senior Project Professional
SCS Engineers

Stephanie Taylor
Project Manager
SCS Engineers

PH/SLT

cc: Tim Pendley, ZINKPOWER – USA
Craig Hamilton, ZINKPOWER – USA

Attachment A IDEM Application Forms
Attachment B Site Figures and Process Flow Diagram
Attachment C Summary of Emissions and Emission Calculations
Attachment D TCEQ Calculations Guidance Package – Hot Dip Galvanizing

AIR PERMIT APPLICATION COVER SHEET

State Form 50639 (R4 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this cover sheet is to obtain the core information needed to process the air permit application. This cover sheet is required for all air permit applications submitted to IDEM, OAQ. Place this cover sheet on top of all subsequent forms and attachments that encompass your air permit application packet.
- Submit the completed air permit application packet, including all forms and attachments, to **IDEM Air Permits Administration** using the address in the upper right hand corner of this page.
- IDEM will send a bill to collect the filing fee and any other applicable fees.
- Detailed instructions for this form are available on the Air Permit Application Forms website.

FOR OFFICE USE ONLY
PERMIT NUMBER:
– –
DATE APPLICATION WAS RECEIVED:

1. Tax ID Number: [redacted]

PART A: Purpose of Application

Part A identifies the purpose of this air permit application. For the purposes of this form, the term "source" refers to the plant site as a whole and NOT to individual emissions units.

2. Source / Company Name: ZINKPOWER - Terre Haute, LLC **3. Plant ID:** –

4. Billing Address: P.O. Box 2140

City: Weatherford **State:** TX **ZIP Code:** 76086 –

5. Permit Level: ☐ Exemption ☐ Registration ☐ SSOA ☒ MSOP ☐ FESOP ☐ TVOP ☐ PBR

6. Application Summary: *Check all that apply. Multiple permit numbers may be assigned as needed based on the choices selected below.*

☒ Initial Permit
☐ Renewal of Operating Permit
☐ Asphalt General Permit
☐ Review Request
☐ Revocation of Operating Permit
☐ Alternate Emission Factor Request
☐ Interim Approval
☐ Relocation of Portable Source
☐ Acid Deposition (Phase II)
☐ Site Closure
☐ Emission Reduction Credit Registry

☐ Transition (between permit levels) *From:* *To:*

☐ Administrative Amendment:
☐ *Company Name Change*
☐ *Change of Responsible Official*
☐ *Correction to Non-Technical Information*
☐ *Notice Only Change*
☐ *Other (specify):*

☐ Modification:
☐ *New Emission Unit or Control Device*
☐ *Modified Emission Unit or Control Device*
☐ *New Applicable Permit Requirement*
☐ *Change to Applicability of a Permit Requirement*
☐ *Prevention of Significant Deterioration*
☐ *Emission Offset*
☐ *MACT Preconstruction Review*
☐ *Minor Source Modification*
☐ *Significant Source Modification*
☐ *Minor Permit Modification*
☐ *Significant Permit Modification*
☐ *Other (specify):*

7. Is this an application for an initial construction and/or operating permit for a **"Greenfield" Source?** ☒ Yes ☐ No

8. Is this an application for construction of a new emissions unit at an **Existing Source?** ☐ Yes ☒ No

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Attachment A

IDEM Application Forms

PART B: Pre-Application Meeting

Part B specifies whether a meeting was held or is being requested to discuss the permit application.

9. Was a meeting held between the company and IDEM prior to submitting this application to discuss the details of the project?

☒ No ☐ Yes: *Date:*

10. Would you like to schedule a meeting with IDEM management and your permit writer to discuss the details of this project?

☒ No ☐ Yes: *Proposed Date for Meeting:*

PART C: Confidential Business Information

Part C identifies permit applications that require special care to ensure that confidential business information is kept separate from the public file.

Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in the Indiana Administrative Code (IAC). To ensure that your information remains confidential, refer to the IDEM, OAQ information regarding submittal of confidential business information. For more information on confidentiality for certain types of business information, please review IDEM's Nonrule Policy Document Air-031-NPD regarding Emission Data.

11. Is any of the information contained within this application being claimed as **Confidential Business Information**?

☒ No ☐ Yes

PART D: Certification Of Truth, Accuracy, and Completeness

Part D is the official certification that the information contained within the air permit application packet is truthful, accurate, and complete. Any air permit application packet that we receive without a signed certification will be deemed incomplete and may result in denial of the permit.

For a Part 70 Operating Permit (TVOP) or a Source Specific Operating Agreement (SSOA), a "responsible official" as defined in 326 IAC 2-7-1(34) must certify the air permit application. For all other applicants, this person is an "authorized individual" as defined in 326 IAC 2-1.1-1(1).

☒ *I certify under penalty of law that, based on information and belief formed after reasonable inquiry, the statements and information contained in this application are true, accurate, and complete.*

Tim Pendley
Name *(typed)*

CEO
Title

Signature

4/27/2024
Date

OAQ AIR PERMIT APPLICATION – FORMS CHECKLIST

State Form 51607 (R5 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this checklist is to help the applicant and IDEM, OAQ ensure that the air permit application packet is administratively complete. This checklist is a required form.
- Check the appropriate box indicating whether each application form is applicable for the current permit application. The source must submit only those forms pertinent to the current permit application.
- Place this checklist between the cover sheet and all subsequent forms and attachments that encompass your air permit application packet.

Part A: General Source Data				
Applicable?	**Form ID**	**Title of Form**	**State Form Number**	**When should this form be included in my application packet?**
☒ Y ☐ N	COVER	Application Cover Sheet	50639	Include for every application, modification, and renewal, including source specific operating agreements (SSOA).
☒ Y ☐ N	CHECKLIST	Forms Checklist	51607	Include for every application, modification, and renewal, including SSOA.
☒ Y ☐ N	GSD-01	Basic Source Level Information	50640	Include for every application, modification, and renewal, including SSOA.
☒ Y ☐ N	GSD-02	Plant Layout Diagram	51605	Include for every new source application, and modification.
☒ Y ☐ N	GSD-03	Process Flow Diagram	51599	Include one for every process covered by the application.
☒ Y ☐ N	GSD-04	Stack / Vent Information	51606	Include for every new source application, and modification.
☒ Y ☐ N	GSD-05	Emissions Unit Information	51610	Include for every process covered by the application.
☒ Y ☐ N	GSD-06	Particulate Emissions Summary	51612	Include if the process has particulate emissions (PM).
☒ Y ☐ N	GSD-07	Criteria Pollutant Emissions Summary	51602	Include if the process has criteria pollutant emissions.
☒ Y ☐ N	GSD-08	HAP Emissions Summary	51604	Include if the process has hazardous air pollutant emissions (HAP).
☐ Y ☒ N	GSD-09	Summary of Additional Information	51611	Include if the additional information is included.
☐ Y ☒ N	GSD-10	Insignificant Activities	51596	Include if there are unpermitted insignificant activities.
☐ Y ☒ N	GSD-11	Alternative Operating Scenario	51601	Include if an AOS is requested.
☐ Y ☒ N	GSD-12	Affidavit of Nonapplicability	51600	Include if the standard notification requirements do not apply.
☐ Y ☒ N	GSD-13	Affidavit of Applicability	51603	Include if the standard notification requirements apply.
☒ Y ☐ N	GSD-14	Owners and Occupants Notified	51609	Include if the standard notification requirements apply.
☒ Y ☐ N	GSD-15	Government Officials Notified	51608	Include if the standard notification requirements apply.
☐ Y ☒ N	RENEWAL	Renewal Checklist	51755	Include with every operating permit renewal packet.

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Part B: Process Information				
Applicable?	**Form ID**	**Title of Form**	**State Form Number**	**When should this form be included in my application packet?**
☒ Y ☐ N	AEF-01	Alternate Emission Factor Request	51860	Submit if you are requesting to use an emission factor other than AP-42.
☒ Y ☐ N	PI-01	Miscellaneous Processes	52534	Include one form for each process for which there is not a specific PI form.
☒ Y ☐ N	PI-02A	Combustion Unit Summary	52535	Include one form to summarize all combustion units *(unless SSOA)*.
☒ Y ☐ N	PI-02B	*Combustion:* Boilers, Process Heaters, & Furnaces	52536	Include one form for each boiler, process heater, or furnace *(unless SSOA)*.
☒ Y ☐ N	PI-02C	*Combustion:* Turbines & Internal Combustion Engines	52537	Include one form for each turbine or internal combustion engine *(unless SSOA)*.
☐ Y ☒ N	PI-02D	*Combustion:* Incinerators & Combustors	52538	Include one form for each incinerator or combustor *(unless SSOA)*.
☐ Y ☒ N	PI-02E	*Combustion:* Kilns	52539	Include one form for each kiln *(unless SSOA)*.
☒ Y ☐ N	PI-02F	*Combustion:* Fuel Use	52540	Include one form for each combustion unit *(unless SSOA)*.
☒ Y ☐ N	PI-02G	*Combustion:* Emission Factors	52541	Include one form for each combustion unit *(unless SSOA)*.
☒ Y ☐ N	PI-02H	*Combustion:* Federal Rule Applicability	52542	Include one form for each combustion unit *(unless SSOA)*.
☐ Y ☒ N	PI-03	Storage and Handling of Bulk Material	52543	Include if the process involves the storage and handling of bulk materials.
☐ Y ☒ N	PI-04	Asphalt Plants	52544	Include for each asphalt plant process (*unless general permit*).
☐ Y ☒ N	PI-05	Brick / Clay Products	52545	Include for each brick and/or clay products process.
☐ Y ☒ N	PI-06	Electroplating Operations	52546	Include for each electroplating process.
☐ Y ☒ N	PI-07	Welding Operations	52547	Include for each welding process.
☐ Y ☒ N	PI-08	Concrete Batchers	52548	Include for each concrete batcher *(unless SSOA)*.
☐ Y ☒ N	PI-09	Degreasing	52549	Include for each degreasing process *(unless SSOA)*.
☐ Y ☒ N	PI-10	Dry Cleaners	52550	Include for each dry cleaning process
☐ Y ☒ N	PI-11	Foundry Operations	52551	Include for each foundry process
☐ Y ☒ N	PI-12	Grain Elevators	52552	Include for each grain elevator *(unless SSOA)*.
☐ Y ☒ N	PI-13	Lime Manufacturing	52553	Include for each lime manufacturing process.
☐ Y ☒ N	PI-14	Liquid Organic Compound Storage	52554 (doc)	Include if the process involves the storage of liquid organic compounds.
☐ Y ☒ N	PI-14ALT	Alternate version of Liquid Organic Compound Storage	52555 (xls)	Include if the process involves the storage of liquid organic compounds and there are several storage vessels.
☐ Y ☒ N	PI-15	Portland Cement Manufacturing	52556	Include for each Portland cement manufacturing process.
☐ Y ☒ N	PI-16	Reinforced Plastics & Composites	52557	Include for each reinforced plastics and composites process.

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Part B: Process Information				
Applicable?	**Form ID**	**Title of Form**	**State Form Number**	**When should this form be included in my application packet?**
☐ Y ☒ N	PI-17	Blasting Operations	52558	Include for each blasting process *(unless SSOA)*.
☐ Y ☒ N	PI-18	Mineral Processing	52559	Include if the process involves mineral processing *(unless SSOA)*.
☐ Y ☒ N	PI-19	Surface Coating & Printing Operations	52560	Include for each surface coating or printing process *(unless SSOA)*.
☐ Y ☒ N	PI-20	Woodworking / Plastic Machining	52561	Include for each woodworking or plastic machining process *(unless SSOA)*.
☐ Y ☒ N	PI-21	Site Remediation	52570	Include for each soil remediation process.
☐ Y ☒ N	PI-22	Ethanol Plants *(Under Development)*	None	Include for each ethanol plant.

Part C: Control Equipment				
Applicable?	**Form ID**	**Title of Form**	**State Form Number**	**When should this form be included in my application packet?**
☒ Y ☐ N	CE-01	Control Equipment Summary	51904	Include if add-on control equipment will be used for the process.
☒ Y ☐ N	CE-02	Particulates – Baghouse / Fabric Filter	51953	Include for each baghouse or fabric filter.
☐ Y ☒ N	CE-03	Particulates – Cyclone	52620	Include for each cyclone.
☐ Y ☒ N	CE-04	Particulates – Electrostatic Precipitator	52621	Include for each electrostatic precipitator.
☒ Y ☐ N	CE-05	Particulates – Wet Collector / Scrubber / Absorber	52622	Include for each wet collector, scrubber, or absorber.
☐ Y ☒ N	CE-06	Organics – Flare / Oxidizer / Incinerator	52623	Include for each flare, oxidizer, or incinerator.
☐ Y ☒ N	CE-07	Organics – Adsorbers	52624	Include for each adsorber.
☐ Y ☒ N	CE-08	Organics – Condenser	52625	Include for each condenser.
☐ Y ☒ N	CE-09	Reduction Technology	52626	Include for each control device using reduction technology (e.g., SCR, SNCR).
☐ Y ☒ N	CE-10	Miscellaneous Control Equipment	52436	Include one form for equipment for which there is not a specific CE form.

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Part D: Compliance Determination for Part 70 Sources				
Applicable?	**Form ID**	**Title of Form**	**State Form Number**	**When should this form be included in my application packet?**
☐ Y ☒ N	CD-01	Emissions Unit Compliance Status	51861	Include for every Title V application, including modifications.
☐ Y ☒ N	CD-02	Compliance Plan by Applicable Requirement	51862	Include for every Title V application, including modifications.
☐ Y ☒ N	CD-03	Compliance Plan by Emissions Unit	51863	Include for every Title V application, including modifications.
☐ Y ☒ N	CD-04	Compliance Schedule and Certification	51864	Include for every Title V application, including modifications and renewal.
☐ Y ☒ N	FED-03	Compliance Assurance Monitoring	53377	Include for every Title V application, including modifications.

Part E: Best Available Control Technology				
Applicable?	**Form ID**	**Title of Form**	**State Form Number**	**When should this form be included in my application packet?**
☐ Y ☒ N	BACT-01	Analysis of Best Available Control Technology	None	Include for every BACT application.
☐ Y ☒ N	BACT-01a	Background Search: Existing BACT Determinations	None	Include for every BACT application.
☐ Y ☒ N	BACT-01b	Cost/Economic Impact Analysis	None	Include for every BACT application.
☐ Y ☒ N	BACT-02	Summary of Best Available Control Technology	None	Include for every BACT application.
☐ Y ☒ N	PSD / EO-01	PSD / Emission Offset Checklist	None	Include for every PSD application and every NSR application that requires emission offsets.

Part F: Emission Credit Registry				
Applicable?	**Form ID**	**Title of Form**	**State Form Number**	**When should this form be included in my application packet?**
☐ Y ☒ N	EC-01	Generation of Emission Credits	51783	Include if the modification results in emission reductions.
☐ Y ☒ N	EC-02	Transfer of Emission Credits	51784	Submit whenever registered emission credits are transferred.
☐ Y ☒ N	EC-03	Use of Emission Credits	51785	Include if the modification requires the use of emission credits for offsets.
☐ Y ☒ N	EC-04	Emission Credit Request	51906	Submit if you are looking for emission credits for offsets.

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Part G: Plantwide Applicability Limits				
Applicable?	**Form ID**	**Title of Form**	**State Form Number**	**When should this form be included in my application packet?**
☐ Y ☒ N	PAL-01	Actuals Plantwide Applicability Limit	52451	Include if the modification results in emission reductions.
☐ Y ☒ N	PAL-02	Revised Plantwide Applicability Limit	52452	Submit whenever registered emission credits are transferred.
☐ Y ☒ N	PAL-03	Plantwide Applicability Limit Renewal	52453	Include if the modification requires the use of emission credits for offsets.
☐ Y ☒ N	PAL-04	Request for Termination of Plantwide Applicability Limit	52454	Submit if you are looking for emission credits for offsets.

Part H: Air Toxics				
Applicable?	**Form ID**	**Title of Form**	**State Form Number**	**When should this form be included in my application packet?**
☒ Y ☐ N	FED-01	Summary of Federal Requirements – NSPS & NESHAP	53512	Include for each 40 CFR Part 60 NSPS, 40 CFR Part 61 NESHAP, and 40 CFR Part 63 NESHAP applicable to the process.
☐ Y ☒ N	FED-02	MACT Pre-Construction Review	51905	Include if constructing or modifying a process subject to a Part 63 NESHAP.
☐ Y ☒ N	No Form ID	MACT Initial Notification	None	This form is available on the U.S. EPA website. Completed notifications should be submitted to the IDEM Compliance Branch.

Part I: Special Permits				
Applicable?	**Form ID**	**Title of Form**	**State Form Number**	**When should this form be included in my application packet?**
☐ Y ☒ N	INTERIM	Interim Approval	None	Submit if you are applying for interim operating approval.
☐ Y ☒ N	ASPHALT	Asphalt General Permit	None	Submit if you are applying for or modifying an asphalt plant general permit.
☐ Y ☒ N	NOXBTP	NO_x Budget Permit	None	Submit if you are a power plant or if you have opted in to the NO_x budget trading program.
☐ Y ☒ N	ACIDRAIN	Phase 2 Acid Rain Permit	None	Submit if you are applying for, modifying, or renewing a Phase 2 Acid Rain permit.

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Part J: Source Specific Operating Agreements (SSOA)				
Applicable?	**Form ID**	**Title of Form**	**State Form Number**	**When should this form be included in my application packet?**
☐ Y ☒ N	OA-01	Summary of Application and Existing Agreements	53438	Submit if you are applying for or modifying a Source Specific Operating Agreement.
☐ Y ☒ N	OA-02	Industrial / Commercial Surface Coating Operations -OR- Graphic Arts Operations (326 IAC 2-9-2.5)	53439	Submit if you are applying for or modifying a SSOA for industrial or commercial surface coating operations not subject to 326 IAC 8-2; or graphic arts operations not subject to 326 IAC 8-5-5.
☐ Y ☒ N	OA-03	Surface Coating or Graphic Arts Operations (326 IAC 2-9-3)	53440	Submit if you are applying for or modifying a SSOA for surface coating or graphic arts operations.
☐ Y ☒ N	OA-04	Woodworking Operations (326 IAC 2-9-4)	53441	Submit if you are applying for or modifying a SSOA for woodworking operations.
☐ Y ☒ N	OA-05	Abrasive Cleaning Operations (326 IAC 2-9-5)	53442	Submit if you are applying for or modifying a SSOA for abrasive cleaning operations.
☐ Y ☒ N	OA-06	Grain Elevators (326 IAC 2-9-6)	53443	Submit if you are applying for or modifying a SSOA for grain elevators.
☐ Y ☒ N	OA-07	Sand And Gravel Plants (326 IAC 2-9-7)	53444	Submit if you are applying for or modifying a SSOA for sand and gravel plants.
☐ Y ☒ N	OA-08	Crushed Stone Processing Plants (326 IAC 2-9-8)	53445	Submit if you are applying for or modifying a SSOA for crushed stone processing plants.
☐ Y ☒ N	OA-09	Ready-Mix Concrete Batch Plants (326 IAC 2-9-9)	53446	Submit if you are applying for or modifying a SSOA for ready-mix concrete batch plants.
☐ Y ☒ N	OA-10	Coal Mines And Coal Preparation Plants (326 IAC 2-9-10)	53447	Submit if you are applying for or modifying a SSOA for coal mines and coal preparation plants.
☐ Y ☒ N	OA-11	Automobile Refinishing Operations (326 IAC 2-9-11)	53448	Submit if you are applying for or modifying a SSOA for automobile refinishing operations.
☐ Y ☒ N	OA-12	Degreasing Operations (326 IAC 2-9-12)	53449	Submit if you are applying for or modifying a SSOA for degreasing operations.
☐ Y ☒ N	OA-13	External Combustion Sources (326 IAC 2-9-13)	53450	Submit if you are applying for or modifying a SSOA for external combustion sources.
☐ Y ☒ N	OA-14	Internal Combustion Sources (326 IAC 2-9-14)	53451	Submit if you are applying for or modifying a SSOA for internal combustion sources.

OAQ GENERAL SOURCE DATA APPLICATION
GSD-01: Basic Source Level Information

State Form 50640 (R5 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of GSD-01 is to provide essential information about the entire source of air pollutant emissions. GSD-01 is a required form.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for public inspection.

PART A: Source / Company Location Information

1. Source / Company Name: ZINKPOWER-TERRE HAUTE, LLC | **2. Plant ID**: –

3. Location Address: 2109 Park Avenue

City: Terre Haute | **State**: IN | **ZIP Code**: 47805 –

4. County Name: Vigo | **5. Township Name**: Otter Creek

6. Geographic Coordinates:

Latitude: 39.527704 | **Longitude**: -87.385118

7. Universal Transferal Mercadum Coordinates *(if known)*:

Zone: 16 | **Horizontal**: 466901.00 | **Vertical**: 4375410.00

8. Adjacent States: Is the source located within 50 miles of an adjacent state?

☐ No ☒ Yes – *Indicate Adjacent State(s):* ☒ Illinois (IL) ☐ Michigan (MI) ☐ Ohio (OH) ☐ Kentucky (KY)

9. Attainment Area Designation: Is the source located within a non-attainment area for any of the criteria air pollutants?

☒ No ☐ Yes – *Indicate Nonattainment Pollutant(s):* ☐ CO ☐ Pb ☐ NO_x ☐ O_3 ☐ PM ☐ PM_{10} ☐ $PM_{2.5}$ ☐ SO_2

10. Portable / Stationary: Is this a portable or stationary source? ☐ Portable ☒ Stationary

PART B: Source Summary

11. Company Internet Address *(optional)*:

12. Company Name History: Has this source operated under any other name(s)?

☒ No ☐ Yes – *Provide information regarding past company names in Part I, Company Name History.*

13. Portable Source Location History: Will the location of the portable source be changing in the near future?

☒ Not Applicable ☐ No ☐ Yes – *Complete Part J, Portable Source Location History, and Part K, Request to Change Location of Portable Source.*

14. Existing Approvals: Have any exemptions, registrations, or permits been issued to this source?

☒ No ☐ Yes – *List these permits and their corresponding emissions units in Part M, Existing Approvals.*

15. Unpermitted Emissions Units: Does this source have any unpermitted emissions units?

☒ No ☐ Yes – *List all unpermitted emissions units in Part N, Unpermitted Emissions Units.*

16. New Source Review: Is this source proposing to construct or modify any emissions units?

☐ No ☒ Yes – *List all proposed new construction in Part O, New or Modified Emissions Units.*

17. Risk Management Plan: Has this source submitted a Risk Management Plan?

☒ Not Required ☐ No ☐ Yes → Date submitted: EPA Facility Identifier: – –

Continued on Next Page

PART C: Source Contact Information

IDEM will send the original, signed permit decision to the person identified in this section. This person MUST be an employee of the permitted source.

18. Name of Source Contact Person: Craig Hamilton

19. Title *(optional)*: EHS Manager

20. Mailing Address: P.O. Box 2140

City: Weatherford	**State**: TX	**ZIP Code**: 76086 –

21. Electronic Mail Address *(optional)*: Craig.Hamilton@zinkpower.com

22. Telephone Number: (503) 708 – 5926	**23. Facsimile Number** *(optional)*: ( ) –

PART D: Authorized Individual/Responsible Official Information

IDEM will send a copy of the permit decision to the person indicated in this section, if the Authorized Individual or Responsible Official is different from the Source Contact specified in Part C.

24. Name of Authorized Individual or Responsible Official: Tim Pendley

25. Title: CEO

26. Mailing Address: P.O. Box 2140

City: Weatherford	**State**: TX	**ZIP Code**: 76086 –

27. Telephone Number: (682) 412 – 9288	**28. Facsimile Number** *(optional)*: ( ) –

29. Request to Change the Authorized Individual or Responsible Official: Is the source officially requesting to change the person designated as the Authorized Individual or Responsible Official in the official documents issued by IDEM, OAQ? *The permit may list the title of the Authorized Individual or Responsible Official in lieu of a specific name.*

☒ No ☐ Yes – ***Change Responsible Official to:***

PART E: Owner Information

30. Company Name of Owner: ZINKPOWER-TERRE HAUTE, LLC

31. Name of Owner Contact Person: Craig Hamilton

32. Mailing Address: P.O. Box 2140

City: Weatherford	**State**: TX	**ZIP Code**: 76086 –

33. Telephone Number: (503) 708 – 5926	**34. Facsimile Number** *(optional)*: ( ) –

34. Operator: Does the "Owner" company also operate the source to which this application applies?

☐ No – *Proceed to Part F below.*	☒ Yes – *Enter "SAME AS OWNER" on line 35 and proceed to Part G below.*

PART F: Operator Information

35. Company Name of Operator: ZINKPOWER-TERRE HAUTE, LLC

36. Name of Operator Contact Person: Ken Morgan

37. Mailing Address: P.O. Box 2140

City: Weatherford	**State**: TX	**ZIP Code**: 76086 –

38. Telephone Number: (682) 258 – 1280	**39. Facsimile Number** *(optional)*: ( ) –

Continued on Next Page

PART G: Agent Information

40. Company Name of Agent: SCS Engineers

41. Type of Agent: ☒ Environmental Consultant ☐ Attorney ☐ Other (specify):

42. Name of Agent Contact Person: Stephanie Taylor

43. Mailing Address: 8575 West 110th Street, Suite 100

City: Overland Park	**State**: KS	**ZIP Code**: 66210 –

44. Electronic Mail Address *(optional)*: staylor@scsengineers.com

45. Telephone Number: (913) 749 – 0733	**46. Facsimile Number** *(optional)*: (913) 681 – 0012

47. Request for Follow-up: Does the "Agent" wish to receive a copy of the preliminary findings during the public notice period (if applicable) and a copy of the final determination? ☐ No ☒ Yes

PART H: Local Library Information

48. Date application packet was filed with the local library: Mailed to library on 6/27/24

49. Name of Library: Vigo County Public Library

50. Name of Librarian *(optional)*: Kristi Howe

51. Mailing Address: 680 Poplar St

City: Terre Haute	**State**: IN	**ZIP Code**: 47807 –

52. Internet Address *(optional)*: https://www.vigo.lib.in.us

53. Electronic Mail Address *(optional)*: questions@vigo.lib.in.us

54. Telephone Number: (812) 232 – 1113	**55. Facsimile Number** *(optional)*: ( ) –

PART I: Company Name History *(if applicable)*

Complete this section only if the source has previously operated under a legal name that is different from the name listed above in Section A.

56. Legal Name of Company	**57. Dates of Use**
	to
	to
	to
	to
	to
	to
	to
	to
	to
	to

58. Company Name Change Request: Is the source officially requesting to change the legal name that will be printed on all official documents issued by IDEM, OAQ?

☐ No ☐ Yes – ***Change Company Name to:***

Continued on Next Page

PART J: Portable Source Location History *(if applicable)*

Complete this section only if the source is portable and the location has changed since the previous permit was issued. The current location of the source should be listed in Section A.

59. Plant ID	60. Location of the Portable Source	61. Dates at this Location
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to

PART K: Request to Change Location of Portable Source *(if applicable)*

Complete this section to request a change of location for a portable source.

62. Current Location:

Address:

City: | **State**: | **ZIP Code**: –

County Name:

63. New Location:

Address:

City: | **State**: | **ZIP Code**: –

County Name:

Continued on Next Page

PART L: Source Process Description

Complete this section to summarize the main processes at the source.

64. Process Description	65. Products	66. SIC Code	67. NAICS Code
Hot Dip Galvanizing	Galvanized Steel	3479	332812

PART M: Existing Approvals *(if applicable)*

Complete this section to summarize the approvals issued to the source since issuance of the main operating permit.

68. Permit ID	69. Emissions Unit IDs	70. Expiration Date

PART N: Unpermitted Emissions Units *(if applicable)*

Complete this section only if the source has emission units that are not listed in any permit issued by IDEM, OAQ.

71. Emissions Unit ID	72. Type of Emissions Unit	73. Actual Dates		
		Began Construction	Completed Construction	Began Operation

PART O: New or Modified Emissions Units *(if applicable)*

Complete this section only if the source is proposing to add new emission units or modify existing emission units.

74. Emissions Unit ID	75. NEW	76. MOD	77. Type of Emissions Unit	78. Estimated Dates		
				Begin Construction	Complete Construction	Begin Operation
EP-01	X		Acid Degreaser Tanks	8/1/2024	10/31/2025	10/31/2025
EP-02	X		HCl Tanks	8/1/2024	10/31/2025	10/31/2025
EP-03	X		Zinc Kettle	8/1/2024	10/31/2025	10/31/2025
EP-04	X		Dryers	8/1/2024	10/31/2025	10/31/2025

EP-05	X		Zinc Recovery Units	8/1/2024	10/31/2025	10/31/2025

Continued on Next Page

PART L: Source Process Description

Complete this section to summarize the main processes at the source.

64. Process Description	65. Products	66. SIC Code	67. NAICS Code
Hot Dip Galvanizing	Galvanized Steel	3479	332812

PART M: Existing Approvals *(if applicable)*

Complete this section to summarize the approvals issued to the source since issuance of the main operating permit.

68. Permit ID	69. Emissions Unit IDs	70. Expiration Date

PART N: Unpermitted Emissions Units *(if applicable)*

Complete this section only if the source has emission units that are not listed in any permit issued by IDEM, OAQ.

71. Emissions Unit ID	72. Type of Emissions Unit	73. Actual Dates		
		Began Construction	Completed Construction	Began Operation

PART O: New or Modified Emissions Units *(if applicable)*

Complete this section only if the source is proposing to add new emission units or modify existing emission units.

74. Emissions Unit ID	75. NEW	76. MOD	77. Type of Emissions Unit	78. Estimated Dates		
				Begin Construction	Complete Construction	Begin Operation
EP-06	X		Emergency Generators	8/1/2024	10/31/2025	10/31/2025

OAQ GENERAL SOURCE DATA APPLICATION
GSD-02: Plant Layout Diagram

State Form 51605 (R3 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of GSD-02 is to provide a diagram of the entire plant site. This form and a Plant Layout diagram are required for all air permit applications. If you do not provide the necessary information, applicable to your source, the application process may be stopped.
- IDEM, OAQ has provided detailed instructions for this form and an example of a basic plant layout diagram on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for public inspection.

Part A: Basic Plant Layout

Part A provides IDEM, OAQ with the appropriate information about all buildings and access-limiting features in and around the plant site. **Please use this table as a checklist.** You must provide scaled drawings, with the actual scale shown. All dimensions and units must be clearly indicated with a brief explanation of what is being shown. Include the following (*All measurements should be given in feet.*):

1.	☒ Building Location and Dimensions				
2.	☒ Property Lines and Access-Limiting Features				
3.	☒ Surrounding Building Location and Dimensions				
4.	☒ Distances to Property Lines and Access-Limiting Features				
5.	☐ UTM Location Coordinates	**6.**	☒ Compass (pointing North)	**7.**	☒ Scale

Part B: Stack Information

Part B provides IDEM, OAQ with the appropriate information about all stacks, roof monitors, control devices, and process vents at the plant site. **Please use this table as a checklist.** You must show the location of all applicable emission points and include all relevant stack and emissions unit identification numbers for each. In addition, you will need to identify each of these emission points under "Stack Identification" on form GSD-04, Stack/Vent Information. Include the following (*All measurements should be in feet.*):

8.	☒ Exhaust Stacks			
9.	☐ Process Vents			
10.	☐ Roof Monitors	☒ *No Roof Monitors*		
11.	☒ Control Devices	☐ *No Control Devices*		
12.	☐ Interior Vents	☐ *No Interior Vents*	☒ Doors and Windows *(for processes vented inside a building)*	

Part C: Roadway Information

Part C provides IDEM, OAQ with the appropriate information about the roadways in and around the plant site. **Please use this table as a checklist.** Include the following (*All measurements should be in feet.*):

13.	☒ Adjacent Roadways	☒ Interior Roadways
14.	☒ Roadway Surface Description (gravel, dirt, paved, etc.)	
15.	☒ Number of Lanes	

Continued on Next Page

Part D: Source Building Information

This table provides detailed information about each building at the plant site that is part of the source. If additional space is needed, you may make a copy of this table. (*All measurements should be given in feet.*)

16. Building ID	17. Building Description	18. Building Dimensions			19. Distance & direction to the nearest property line or access limiting feature (feet & compass coordinate)	20. Distance & direction to the nearest residence (feet & compass coordinate)
		Length (feet)	Width (feet)	Height (feet)		
FAC1	Facility	366.75	358.75	60.5	135 North	270 North-northwest

Continued on Next Page

Part E: Surrounding Building / Residence Information

This table provides detailed information about each building or residence surrounding the plant site. If additional space is needed, you may make a copy of this table. (*All measurements should be given in feet.*)

21. Surrounding Building / Residence Description	22. Surrounding Building / Residence Property Dimensions			23. Distance & direction to the nearest property line or access limiting feature (feet & compass coordinate)	24. Building ID of nearest building on the plant site	25. Distance & direction to the nearest building on the plant site (feet & compass coordinate)
	Length (feet)	Width (feet)	Height (feet)			
Residence (2010 E Park Ave)	57.00	32.00	30.00	122.00 South-southeast	FAC1	350.00 Southeast
Residence (2016 E Park Ave)	29.00	53.00	20.00	88.00 South	FAC1	325.00 South-southeast
Residence (2104 Park Ave)	50.00	30.00	21.00	98.00 South	FAC1	270.00 South-southeast
Residence (2110 Park Ave)	61.00	29.00	20.00	100.00 South	FAC1	275.00 Southwest
Industrial	35.00	24.00	8.00	560.00 East	FAC1	760.00 East
Warehouse	50.00	100.00	15.00	660.00 East	FAC1	875.00 East-southeast

Continued on Next Page

Part F: Plant Layout Diagram

This space provides a place for a hand drawn plant layout diagram. It is **optional** to use this space to create your plant layout, but you must include the diagram with your application. If you choose to submit the plant layout in a different format, state "plant layout attached" in the space provided, and submit the information with your completed application. IDEM, OAQ has provided an example of a basic plant layout diagram on the Air Permit Applications Forms website.

Plant layout is attached in Attachment B.

OAQ GENERAL SOURCE DATA APPLICATION
GSD-03: Process Flow Diagram

State Form 51599 (R3 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of GSD-03 is to provide a checklist for identifying the information to be included on each Process Flow diagram.
- Complete this form and submit a process flow diagram for each process included in your air permit application.
- IDEM, OAQ has provided detailed instructions for this form and an example of a basic process flow diagram on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for public inspection.

Part A: Process Flow Diagram

Part A provides basic information to understanding the nature of the process. Please use this table as a checklist to indicate that you have included the following items on your process flow diagram (*All throughputs should be given in pounds per hour.*):

1. ☒ **Process Description:** Hot Dip Galvanizing		
2. ☒ Process Equipment	3. ☒ Raw Material Input	4. ☒ Process Throughput
5. ☒ Additions ☐ Deletions ☐ Modifications		

Use the space below to briefly explain the impacts of the additional equipment, the reason for removing any equipment, and/or the reason for the proposed modification. (*If additional space is needed, please attach a separate sheet with the information and indicate in the space below that additional information is attached.*)

Installation of a new hot dip galvanizing plant.

Part B: Process Operation Schedule

Part B indicates the actual (or estimated actual) hours of operation for the process.

6. ☒ Process Operation Schedule 24 Hours per Day 6 Days per Week 52 Weeks Per Year

7. **Scheduled Downtime:** Use the space below to include as much information as is known about scheduled periods of downtime for this process. (*If additional space is needed, please attach a separate sheet with the information and indicate in the space below that additional information is attached.*)

Part C: Emissions Point Information

Part C provides information about each potential outlet of air pollutant emissions to the atmosphere. Please use this table as a checklist to indicate that you have included the following items on your process flow diagram (*All throughputs should be given in pounds per hour.*):

8. ☒ Stack / Vent Information
9. ☒ Pollutants Emitted
10. ☒ Air Pollution Control

Continued on Next Page

Part D: Process Flow Diagram

This space provides a place for a hand drawn process flow diagram. It is **optional** to use this space to create your process flow diagram, but you must include the diagram with your application. If you choose to submit the process flow diagram in a different format, state "process flow diagram attached" in the space provided, and submit the information with your completed application. IDEM, OAQ has provided an example of a basic process flow diagram on the Air Permit Applications Forms website.

Process flow diagram included in Attachment B.

OAQ GENERAL SOURCE DATA APPLICATION
GSD-04: Stack / Vent Information
State Form 51606 (R3 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this form is to provide basic information about each stack or vent that has the potential to emit air pollutants. If you do not provide enough information to adequately describe each process vent and/or stack, the application process may be stopped. This form is required for all air permit applications.
- Detailed instructions for this form are available online on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for public inspection.

Stack / Vent Information

This table provides detailed information about each stack or vent through which air pollutants could be released into the atmosphere. If an air stream is vented inside a building, the vent does not need to be listed on this form. If additional space is needed, you may make a copy of this form.

1. Stack / Vent ID	2. Type (V H W O)	3. Shape (C R O)	4. Outlet Dimensions (feet)	5. Height (feet)	6. Maximum Outlet Flow Rate (acfm)	7. Outlet Gas Temperature (Degrees F)	8. Related Stacks / Vents (B P O)
CD-01 & EP-04	H	C	4.10	70.17	41199.00	100.0	
CD-02	H	C	5.25	70.17	49440.00	100.0	
EP-05	V	R	2.21 x 2.21	Unknown	2740.00	Unknown	
EP-06	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	

OAQ GENERAL SOURCE DATA APPLICATION
GSD-05: Emissions Unit Information

State Form 51610 (R3 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this form is to provide basic information about each emissions unit that has the potential to emit air pollutants. This form is required for all air permit applications.
- Detailed instructions for this form are available online on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for public inspection.

Emissions Unit Information

This table provides detailed information about each emissions unit that has the potential to emit air pollutants to the atmosphere. Accurate information is needed to determine the total potential to emit. If you do not provide enough information to adequately describe each emissions unit, the application process may be stopped. If additional space is needed, you may make a copy of this form.

1. Unit ID	2. Model Number	3. Serial Number	4. Description	5. Manufacturer	6. Installation Date	7. Maximum Capacity	8. Stack / Vent ID
EP-01	PE Tank 100 Resistant Crack	N/A	Acid Degreaser Tanks	Imfitex	10/31/25	646.00 ft2	CD-01 & EP-04
EP-02	PE Tank 100 Resistant Crack	N/A	HCl Tanks	Imfitex	10/31/25	2260.00 ft2	CD-01 & EP-04
EP-03	ACS-1645/1	Unknown	Zinc Kettle	W. Pilling	10/31/25	30000.00 lb/hr	CD-02
EP-04	BBB – Twin	910-8911.00	Dryer	ZP Services GmbH&Co.KG	10/31/25	2119 ft3/hr	CD-01 & EP-04
EP-05	N/A	Unknown	Zinc Recovery Unit	ZINKPOWER	10/31/25	836.5 ft3/hr	EP-05
EP-06	Unknown	Unknown	Emergency Generators (2)	Unknown	10/31/25	2000 KW	EP-06

OAQ GENERAL SOURCE DATA APPLICATION
GSD-06: Particulate Emissions Summary

State Form 51612 (R3 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this form is to provide basic information about each source of particulate emissions. This form is required for all air permit applications.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for public inspection.

Part A: Particulate Matter Emissions

Part A provides a summary of the type and amount of particulate emissions at the source. The state rules on particulate emissions are found in Title 326 of the Indiana Administrative Code, Article 6, Particulate Rules. If you do not provide enough information to adequately describe each source of particulate emissions, the application process may be stopped. If additional space is needed, you may make a copy of this table.

Emissions Point		**Potential To Emit** (tons per year)						
1. ID	**2. Description**	**3. PM**	**4. PM-10**	**5. PM-2.5**	**6. TSP**	**7. Fugitive Dust**	**8. Fugitive PM**	**9. HAP PM**
EP-03	Zinc Kettle	34.16	34.16	32.80				0.07
EP-04	Dryer	0.07	0.07	0.07				
EP-05	Zinc Recovery Unit	0.01	0.01	0.01				
EP-06	Emergency Generators	0.38	0.32	0.31				

Continued on Next Page

Part B: Control of Particulate Emissions

Part C gathers information about how each source of particulate emissions is controlled. If you do not provide enough information to adequately describe how each source of particulate emissions is controlled, the application process may be stopped. If additional space is needed, you may make a copy of this table.

10. Emissions Point ID	11. Control Measure	12. Control Measure Description	13. Control Plan
EP-03	☐ No Control ☐ Dust Suppression ☒ Other: Baghouse	A baghouse will be used to control PM emissions from the Zinc Kettle	☐ Yes ☒ No Date Submitted:
EP-04	☒ No Control ☐ Dust Suppression ☐ Other:		☐ Yes ☒ No Date Submitted:
EP-05	☒ No Control ☐ Dust Suppression ☐ Other:		☐ Yes ☒ No Date Submitted:
EP-06	☒ No Control ☐ Dust Suppression ☐ Other:		☐ Yes ☒ No Date Submitted:
	☐ No Control ☐ Dust Suppression ☐ Other:		☐ Yes ☐ No Date Submitted:
	☐ No Control ☐ Dust Suppression ☐ Other:		☐ Yes ☐ No Date Submitted:
	☐ No Control ☐ Dust Suppression ☐ Other:		☐ Yes ☐ No Date Submitted:
	☐ No Control ☐ Dust Suppression ☐ Other:		☐ Yes ☐ No Date Submitted:

Air Permitting Rules 326 IAC 6-4 and 326 IAC 6-5 require fugitive dust to be controlled as needed to prevent dust from visibly crossing property lines. Parts C and D summarize sources of fugitive particulate emissions from process operations and unpaved roads.

PART C: Fugitive Dust *(if applicable)*

Part C identifies measures implemented for controlling fugitive particulate emissions from process operations and unpaved roads.

14. Dust Control Plans: *Check all that apply.*	**15. Control Measures:**	
☐ Conveying:	☐ Wet	☐ Dry
☐ Stock Piles:	☐ Open	☐ Covered
☐ Unpaved Roads: *Watered?*	☐ Yes	☐ No
☐ Other *(specify)*:		
☐ Other *(specify)*:		
☐ Other *(specify)*:		

PART D: Vehicular Traffic on Unpaved Roads *(if applicable)*

Part D gathers information on vehicular traffic patterns when the site contains unpaved roads. All data should be provided assuming peak hours of vehicular traffic. Two one-way trips equal one round trip. For external traffic (vehicles entering and leaving the property lines), the distance from the plant to the property line is the one-way trip distance.

16. Average Silt Content of Unpaved Roads:

17. Vehicle Description	**18. Max. No. round trips at peak hours** (trips/hr)	**19. Distance of one-way trip** (miles/trip)	**20. Max. vehicle speed** (mph)	**21. Max. gross vehicle weight** *(fully loaded)* (tons)	**22. Tare weight** (tons)	**23. No. of wheels on vehicle** (wheels)

OAQ GENERAL SOURCE DATA APPLICATION
GSD-07: Criteria Pollutant Emissions Summary

State Form 51602 (R3 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this form is to provide the actual and potential emissions of each criteria pollutant emitted from the source. This form is required for all air permit applications.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for public inspection.

Part A: Unit Emissions Summary

Part A provides the actual and potential emissions of each criteria pollutant emitted from each emissions unit. If you do not provide enough information to adequately describe the emissions from each emissions unit, the application process may be stopped.

1. Unit ID	2. Stack / Vent ID	3. Criteria Pollutant	4. Actual Emissions		5. Potential To Emit	
			Standard Units	Tons Per Year	Standard Units	Tons Per Year
EP-03	CD-02	PM/PM10	0.04 lb/hr	0.17	7.80 lb/hr	34.16
		PM2.5	0.04 lb/hr	0.16	7.49 lb/hr	32.80
EP-04	EP-04	PM/PM10PM2.5	0.02 lb/hr	0.07	0.02 lb/hr	0.07
		NOx	0.21 lb/hr	0.93	0.21 lb/hr	0.93
		CO	0.18 lb/hr	0.78	0.18 lb/hr	0.78
		SO2	0.00 lb/hr	0.01	0.00 lb/hr	0.01
		VOC	0.01 lb/hr	0.05	0.01 lb/hr	0.05
		Lead	0.00 lb/hr	0.00	0.00 lb/hr	0.00
EP-05	EP-05	PM/PM10	0.01 lb/hr	0.01	0.01 lb/hr	0.01
		PM2.5	0.01 lb/hr	0.01	0.00 lb/hr	0.01
		NOx	0.08 lb/hr	0.08	0.08 lb/hr	0.08
		CO	0.07 lb/hr	0.07	0.07 lb/hr	0.07
		SO2	0.00 lb/hr	0.00	0.00 lb/hr	0.00
		VOC	0.01 lb/hr	0.01	0.01 lb/hr	0.01
		Lead	0.00 lb/hr	0.00	0.00 lb/hr	0.00

Continued on Next Page

OAQ GENERAL SOURCE DATA APPLICATION
GSD-07: Criteria Pollutant Emissions Summary

State Form 51602 (R3 / 1-10)
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www.IN.gov/idem

NOTES:

- The purpose of this form is to provide the actual and potential emissions of each criteria pollutant emitted from the source. This form is required for all air permit applications.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for public inspection.

Part A: Unit Emissions Summary

Part A provides the actual and potential emissions of each criteria pollutant emitted from each emissions unit. If you do not provide enough information to adequately describe the emissions from each emissions unit, the application process may be stopped.

1. Unit ID	2. Stack / Vent ID	3. Criteria Pollutant	4. Actual Emissions		5. Potential To Emit	
			Standard Units	Tons Per Year	Standard Units	Tons Per Year
EP-06	EP-06	PM/PM10/PM2.5	1.50 lb/hr	0.38	1.50 lb/hr	0.38
		NOx	70.68 lb/hr	17.67	70.68 lb/hr	17.67
		CO	18.77 lb/hr	4.69	18.77 lb/hr	4.69
		SO2	0.03 lb/hr	0.00	0.03 lb/hr	0.00
		VOC	1.99 lb/hr	0.50	1.99 lb/hr	0.50

Continued on Next Page

Part B: Pollutant Emissions Summary

Part B provides the total actual and potential emissions of each criteria pollutant emitted from the source (including all emissions units and fugitive emissions at the source). If you do not provide enough information to adequately describe the total source emissions, the application process may be stopped.

6. Criteria Pollutant	7. Actual Emissions		8. Potential To Emit	
	Standard Units	Tons Per Year	Standard Units	Tons Per Year
Carbon Monoxide (CO)	19.02 lb/hr	5.55	19.02 lb/hr	5.55
Lead (Pb)	0.00 lb/hr	0.00	0.00lb/hr	0.00
Nitrogen Oxides (NO_x)	70.97 lb/hr	18.68	70.97 lb/hr	18.68
Particulate Matter (PM)	1.60 lb/hr	0.63	9.36lb/hr	34.63
Particulate Matter less than 10μm (PM_{10})	1.33lb/hr	0.56	9.09lb/hr	34.56
Particulate Matter less than 2.5μm ($PM_{2.5}$)	1.29lb/hr	0.55	8.74lb/hr	33.18
Sulfur Dioxide (SO_2)	0.04lb/hr	0.01	0.04lb/hr	0.01
Volatile Organic Compounds (VOC)	2.00lb/hr	0.55	2.00lb/hr	0.55
Other *(specify)*:				

Part C: Fugitive VOC Emissions *(if applicable)*

Part C summarizes the sources of fugitive VOC emissions at the source and estimates VOC emissions from these emission points. Complete this table if you are required to provide fugitive emissions data pursuant to 326 IAC 2-2 or 326 IAC 2-3.

9. Fugitive Emissions Source	10. Emission Factor (lb/hr)	11. Number Leaking	12. Uncontrolled Potential To Emit	
			Pounds Per Hour	Tons Per Year
Compressor Seals				
Flanges				
Open-Ended Lines				
Pressure Relief Seals				
Pump Seals				
Sampling Connections				
Valves				
Other *(specify)*:				

OAQ GENERAL SOURCE DATA APPLICATION
GSD-08: Hazardous Air Pollutant Emissions Summary

State Form 51604 (R3 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this form is to provide the actual and potential emissions of each hazardous air pollutant emitted from the source. This form is required for all air permit applications.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for public inspection.

Part A: Unit Emissions Summary

Part A provides the actual and potential emissions of each hazardous air pollutant emitted from each emissions unit. If you do not provide enough information to adequately describe the emissions from each emissions unit, the application process may be stopped.

1. Unit ID	2. Stack / Vent ID	3. Hazardous Air Pollutant	4. CAS Number	5. Actual Emissions		6. Potential To Emit	
				Standard Units	Tons Per Year	Standard Units	Tons Per Year
		Please see Emission Calculations in Attachment C					

Continued on Next Page

Part B: Pollutant Emissions Summary

Part B provides the total actual and potential emissions of each hazardous air pollutant emitted from the source (including all emissions units and fugitive emissions at the source). If you do not provide enough information to adequately describe the total source emissions, the application process may be stopped.

7. Hazardous Air Pollutant	8. CAS Number	9. Actual Emissions		10. Potential To Emit	
		Standard Units	Tons Per Year	Standard Units	Tons Per Year
Please see Emission Calculations provided in Attachment C					

Part C: Fugitive HAP Emissions *(if applicable)*

Part C summarizes the sources of fugitive HAP emissions at the source and estimates HAP emissions from these emission points. Complete this table if you are required to provide fugitive emissions data pursuant to 326 IAC 2-2 or 326 IAC 2-3.

11. Fugitive Emissions Source	12. Hazardous Air Pollutant	13. Emission Factor (lb/hr)	14. Number Leaking	15. Uncontrolled Potential To Emit	
				Pounds Per Hour	Tons Per Year
Compressor Seals					
Flanges					
Open-Ended Lines					
Pressure Relief Seals					
Pump Seals					
Sampling Connections					
Valves					
Other *(specify)*:					

OAQ GENERAL SOURCE DATA APPLICATION
GSD-14: Owners and Occupants Notified

State Form 51609 (R2 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of GSD-14 is to identify adjacent landowners and occupants that are to be notified that an air permit application has been submitted.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for public inspection.

Owners And Occupants Notified

Use this table to identify adjacent landowners and occupants that you have notified of your intent to construct pursuant to Indiana Code (IC) 13-15-8. If you need additional space, you may make copies of this form.

1. Owner / Occupant Name: Great Dane Trailers		**2. Date Notified:**
3. Address: 4955 N 13th Street		
City: Terre Haute	**State:** IN	**ZIP Code:** 47805 –
4. Electronic Mail:	**5. Telephone Number:** ( ) -	
6. Method of Notification: ☐ Telephone ☐ Electronic Mail ☑ Standard Mail ☐ Other *(specify)*:		
Owner / Occupant Name: Current Resident		**Date Notified:**
Address: 2110 E Park Avenue		
City: Terre Haute	**State:** IN	**ZIP Code:** 47805 –
Electronic Mail:	**Telephone Number:** ( ) -	
Method of Notification: ☐ Telephone ☐ Electronic Mail ☑ Standard Mail ☐ Other *(specify)*:		
Owner / Occupant Name: Current Resident		**Date Notified:**
Address: 2108 E Park Avenue		
City: Terre Haute	**State:** IN	**ZIP Code:** 47805 –
Electronic Mail:	**Telephone Number:** ( ) -	
Method of Notification: ☐ Telephone ☐ Electronic Mail ☑ Standard Mail ☐ Other *(specify)*:		
Owner / Occupant Name: Current Resident		**Date Notified:**
Address: 2104 E Park Avenue		
City: Terre Haute	**State:** IN	**ZIP Code:** 47805 –
Electronic Mail:	**Telephone Number:** ( ) -	
Method of Notification: ☐ Telephone ☐ Electronic Mail ☑ Standard Mail ☐ Other *(specify)*:		
Owner / Occupant Name: Current Resident		**Date Notified:**
Address: 2016 E Park Avenue		
City: Terre Haute	**State:** IN	**ZIP Code:** 47805 –
Electronic Mail:	**Telephone Number:** ( ) -	
Method of Notification: ☐ Telephone ☐ Electronic Mail ☑ Standard Mail ☐ Other *(specify)*:		

OAQ GENERAL SOURCE DATA APPLICATION
GSD-14: Owners and Occupants Notified

State Form 51609 (R2 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of GSD-14 is to identify adjacent landowners and occupants that are to be notified that an air permit application has been submitted.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for public inspection.

Owners And Occupants Notified

Use this table to identify adjacent landowners and occupants that you have notified of your intent to construct pursuant to Indiana Code (IC) 13-15-8. If you need additional space, you may make copies of this form.

1. Owner / Occupant Name: Current Resident		**2. Date Notified:**
3. Address: 2010 E Park Avenue		
City: Terre Haute	**State:** IN	**ZIP Code:** 47805 –
4. Electronic Mail:	**5. Telephone Number:** ( ) -	
6. Method of Notification: ☐ Telephone ☐ Electronic Mail ☑ Standard Mail ☐ Other *(specify)*:		
Owner / Occupant Name: Great Dane Limited Partnership		**Date Notified:**
Address: 222 N. LaSalle Street, Suite 920		
City: Chicago	**State:** IL	**ZIP Code:** 60601 –
Electronic Mail:	**Telephone Number:** ( ) -	
Method of Notification: ☐ Telephone ☐ Electronic Mail ☑ Standard Mail ☐ Other *(specify)*:		
Owner / Occupant Name: Paul and Julie Mason		**Date Notified:**
Address: 6738 N Kylie Ln		
City: Monrovia	**State:** IN	**ZIP Code:** 46157 –
Electronic Mail:	**Telephone Number:** ( ) -	
Method of Notification: ☐ Telephone ☐ Electronic Mail ☑ Standard Mail ☐ Other *(specify)*:		
Owner / Occupant Name: Case Equipment Corp c/o Marvin & Poer		**Date Notified:**
Address: P.O. Box 460369		
City: Houston	**State:** Tx	**ZIP Code:** 77056 –
Electronic Mail:	**Telephone Number:** ( ) -	
Method of Notification: ☐ Telephone ☐ Electronic Mail ☑ Standard Mail ☐ Other *(specify)*:		
Owner / Occupant Name:		**Date Notified:**
Address:		
City:	**State:**	**ZIP Code:** –
Electronic Mail:	**Telephone Number:** ( ) -	
Method of Notification: ☐ Telephone ☐ Electronic Mail ☐ Standard Mail ☐ Other *(specify)*:		

OAQ GENERAL SOURCE DATA APPLICATION
GSD-15: Government Officials Notified

State Form 51608 (R3 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of GSD-15 is to identify local government officials that are to be notified that an air permit application has been submitted.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for public inspection.

Government Officials Notified		
Use this table to identify local government officials that should be notified pursuant to Indiana Code (IC) 13-15-3-1 that an air permit application has been submitted. If you need additional space, you may make copies of this form.		
1. Name: Mr. Mark Clinkenbeard		**2. Date Notified:**
3. Title: County Commissioner		
4. Address: 650 S 1st Street		
City: Terre Haute	**State:** IN	**ZIP Code:** 47807 –
5. Electronic Mail:	**6. Telephone Number:** ( ) -	
7. Method of Notification: ☐ **Telephone** ☐ **Electronic Mail** ☑ **Standard Mail** ☐ **Other** *(specify)*:		
Name: Mr. Todd Thacker		**Date Notified:**
Title: Council President, Vigo County Council		
Address: 127 Oak Street		
City: Terre Haute	**State:** IN	**ZIP Code:** 47807 –
Electronic Mail:	**Telephone Number:** ( ) -	
Method of Notification: ☐ **Telephone** ☐ **Electronic Mail** ☑ **Standard Mail** ☐ **Other** *(specify)*:		
Name:		**Date Notified:**
Title:		
Address:		
City:	**State:**	**ZIP Code:** –
Electronic Mail:	**Telephone Number:** ( ) -	
Method of Notification: ☐ **Telephone** ☐ **Electronic Mail** ☐ **Standard Mail** ☐ **Other** *(specify)*:		
Name:		**Date Notified:**
Title:		
Address:		
City:	**State:**	**ZIP Code:** –
Electronic Mail:	**Telephone Number:** ( ) -	
Method of Notification: ☐ **Telephone** ☐ **Electronic Mail** ☐ **Standard Mail** ☐ **Other** *(specify)*:		

AEF-01 – ALTERNATE EMISSION FACTOR REQUEST

State Form 51860 (R / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this application is to request to use an alternate emission factor for permitting determinations, estimating source emissions for billing, or for development of emission inventories for use in air quality planning. This is required form.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for any one to inspect and photocopy.

FOR OFFICE USE ONLY
PERMIT NUMBER:
___ _____ – _____ – _____

PART A: Process Identification

Part A is intended to identify the process at the source for which the alternate emission factor is requested.

1. Process Description: Hot Dip Galvanizing

2. Affected Emissions Units:	**3.** Affected Control Devices:	**4.** Raw Materials Impacting Emissions:
EP-01	CD-01	Acid Degreaser
EP-02	CD-01	Hydrochloric Acid
EP-03	Zinc Kettle	Molten Zinc

PART B: Standard Calculation Method

Part B is intended to identify the standard emission calculation method and to identify why the method is not adequate.

5. Standard Emission Calculation Method: No AP-42 emission factors available for Hot Dip Galvanizing

6. Rationale: Briefly explain why the published emission factor does not appropriately represent the process, operation, or pollution control equipment efficiently.

PART C: Proposed Alternate Emission Factor

Part C is intended to identify the proposed alternate emission factor (AEF) and to sufficiently describe the AEF such that IDEM staff can understand the process used to develop the AEF.

7. Proposed AEF: Briefly describe the proposed alternate emission factor.

-The emission factor for EP-01 and EP-02 is calculated based on the vapor pressure of the HCl. The vapor pressure is determined using the %HCl, temperature of the tank, and Table 3-4 provided in the TCEQ Guidance Package.

-A PM emission factor of 0.52 lb/ton provided by the TCEQ Guidance Package is used for EP-03.

8. AEF Development Method: What approach was, or will be used to develop the alternate emission factor?

	Continuous Emissions Monitoring System (CEMS)			
	A. Is the CEM certified by IDEM?	☐ Yes	☐ No	
	B. Is the CEM operated and maintained in accordance with the applicable regulations?	☐ Yes	☐ No	
	Source Testing			
	A. Was testing conducted by a trade association or industry group?	☐ Yes	☐ No	
	Identify the trade association or industry group:			
	B. Was testing published and validated through peer review?	☐ Yes	☐ No	
	C. Was testing approved by IDEM?	☐ Yes	☐ No	
	Development of Material Balance Equations			
	Emission Modeling			
	Engineering Estimates			
X	Other – Please Specify: TCEQ Calculations Guidance Package for Hot Dip Galvanizing			

9. Supporting Data: Have you attached the data supporting the development of your alternate emission factor? ☒ Yes ☐ No

10. RM/TP Submittal: Have you submitted the appropriate reference method or test protocol to IDEM? ☐ Yes ☐ No ☒ NA

11. Modeling Analysis: Was any modeling conducted? ☐ Yes ☐ No ☒ NA

12. Modeling Summary: Briefly describe any modeling that was conducted. *Attach additional information using form GSD-05, Summary of Additional Information, as needed.*

OAQ PROCESS INFORMATION APPLICATION
PI-01: Miscellaneous Process

State Form 52534 (R2 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this form is to obtain detailed information about the process. Complete one form for each process unit (or group of identical process units). This is a required form.
- Detailed instructions for this form are available online on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for anyone to inspect and photocopy.

PART A: Process Information

Part A identifies the process. If there are multiple process units that are identical in nature, capacity, and use, you may use one form to summarize the data for the identical process units.

1. **Unit ID**: EP-01
2. **Installation Date**: *(actual or anticipated)* 10/31/2025

3. **How many *(identical)* process units are identified in this form?** ☐ One ☒ More than one *(specify number)* : 2

4. **Process Description**:
   Acid Degreaser Tanks

5. **Maximum Production Rate** *(specify units)*: 646.00 ft2

6. **Fuel Used**: ☒ Not Applicable ☐ Natural Gas Only ☐ Other – *Attach completed PI-02F form.*

7. **Add-On Control Technology**: *Identify all control technologies used for this unit, and attach completed CE-01 (unless "none").*

   ☐ None
   ☐ Baghouse / Fabric Filter – *Attach CE-02.*
   ☐ Cyclone – *Attach CE-03.*
   ☐ Electrostatic Precipitator – *Attach CE-04.*
   ☒ Absorption / Wet Collector / Scrubber – *Attach CE-05.*
   ☐ Oxidizer / Incinerator – *Attach CE-06.*
   ☐ Adsorber – *Attach CE-07.*
   ☐ Condenser – *Attach CE-08.*
   ☐ Reduction – *Attach CE-09.*
   ☐ Other *(specify)*: – *Attach CE-10.*

8. **Control Techniques**: *Identify all control techniques used for this process.*

9. **Process Limitations / Additional Information**: *Identify any acceptable process limitations. Attach additional information if necessary.*

Continued on next page

PART B: Emission Factors

Part B identifies all emission factors used to calculate air emissions from this process.

10. Process Unit *(& ID, if applicable)*	11. Air Pollutant	12. Emission Factor		13. Source of Emission Factor *(if not using AP-42, include calculations)*	
		value	*units*		
EP-01	HCl	0.00	lb/hr-ft2	☐ AP-42	☒ Other
				☐ AP-42	☐ Other
				☐ AP-42	☐ Other
				☐ AP-42	☐ Other
				☐ AP-42	☐ Other
				☐ AP-42	☐ Other

PART C: Processed Materials

Part C identifies the materials processed and the raw material usage.

14. Materials Processed	15. Raw Materials Usage Rate *(lb/hr)*
Steel	30000.00
Acidic Degreaser - 10% of tank mixture	

PART D: Federal Rule Applicability

Part D identifies any federal rules that apply to the process.

16. Is a **New Source Performance Standard (NSPS)** applicable to this source? *Attach a completed FED-01 for each rule that applies.* ☐ Yes ☒ No

40 CFR Part 60, Subpart _____

17. Is a **National Emission Standard for Hazardous Air Pollutants (NESHAP)** applicable to this source? *Attach a completed FED-01 for each rule that applies.* ☐ Yes ☒ No

40 CFR Part 61, Subpart _____

40 CFR Part 63, Subpart _____

18. Non-Applicability Determination: *Provide an explanation if the process unit appears subject to a rule (based on the rule title or the source category), but the rule will not apply.*

The facility is not subject to 40 CFR Part 63 Subpart CCC because it is not a major source of HAPs.

OAQ PROCESS INFORMATION APPLICATION
PI-01: Miscellaneous Process

State Form 52534 (R2 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
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NOTES:

- The purpose of this form is to obtain detailed information about the process. Complete one form for each process unit (or group of identical process units). This is a required form.
- Detailed instructions for this form are available online on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for anyone to inspect and photocopy.

PART A: Process Information

Part A identifies the process. If there are multiple process units that are identical in nature, capacity, and use, you may use one form to summarize the data for the identical process units.

1. **Unit ID**: EP-02

2. **Installation Date**: *(actual or anticipated)* 10/31/2025

3. **How many *(identical)* process units are identified in this form?** ☐ One ☒ More than one *(specify number)* : 7

4. **Process Description**:

   HCl Tanks

5. **Maximum Production Rate** *(specify units)*: 2260.00 ft2

6. **Fuel Used**: ☒ Not Applicable ☐ Natural Gas Only ☐ Other – *Attach completed PI-02F form.*

7. **Add-On Control Technology**: *Identify all control technologies used for this unit, and attach completed CE-01 (unless "none").*

   ☐ None
   ☐ Baghouse / Fabric Filter – *Attach CE-02.*
   ☐ Cyclone – *Attach CE-03.*
   ☐ Electrostatic Precipitator – *Attach CE-04.*
   ☒ Absorption / Wet Collector / Scrubber – *Attach CE-05.*
   ☐ Oxidizer / Incinerator – *Attach CE-06.*
   ☐ Adsorber – *Attach CE-07.*
   ☐ Condenser – *Attach CE-08.*
   ☐ Reduction – *Attach CE-09.*
   ☐ Other *(specify)*: – *Attach CE-10.*

8. **Control Techniques**: *Identify all control techniques used for this process.*

9. **Process Limitations / Additional Information**: *Identify any acceptable process limitations. Attach additional information if necessary.*

Continued on next page

PART B: Emission Factors

Part B identifies all emission factors used to calculate air emissions from this process.

10. Process Unit *(& ID, if applicable)*	11. Air Pollutant	12. Emission Factor		13. Source of Emission Factor *(if not using AP-42, include calculations)*	
		value	*units*		
EP-02	HCl	0.00	lb/hr-ft2	☐ AP-42	☒ Other
	HCl	1.05	lb/yr-ft2	☐ AP-42	☒ Other
				☐ AP-42	☐ Other
				☐ AP-42	☐ Other
				☐ AP-42	☐ Other
				☐ AP-42	☐ Other

PART C: Processed Materials

Part C identifies the materials processed and the raw material usage.

14. Materials Processed	15. Raw Materials Usage Rate *(lb/hr)*
Steel	30000.00
Hydrochloric Acid - ranges from 6-18% and averages 12% in tank mixture	

PART D: Federal Rule Applicability

Part D identifies any federal rules that apply to the process.

16. Is a **New Source Performance Standard (NSPS)** applicable to this source? *Attach a completed FED-01 for each rule that applies.* ☐ Yes ☒ No

40 CFR Part 60, Subpart _____

17. Is a **National Emission Standard for Hazardous Air Pollutants (NESHAP)** applicable to this source? *Attach a completed FED-01 for each rule that applies.* ☐ Yes ☒ No

40 CFR Part 61, Subpart _____

40 CFR Part 63, Subpart _____

18. Non-Applicability Determination: *Provide an explanation if the process unit appears subject to a rule (based on the rule title or the source category), but the rule will not apply.*

The facility is not subject to 40 CFR Part 63 Subpart CCC because it is not a major source of HAPs.

OAQ PROCESS INFORMATION APPLICATION
PI-01: Miscellaneous Process

State Form 52534 (R2 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this form is to obtain detailed information about the process. Complete one form for each process unit (or group of identical process units). This is a required form.
- Detailed instructions for this form are available online on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for anyone to inspect and photocopy.

PART A: Process Information

Part A identifies the process. If there are multiple process units that are identical in nature, capacity, and use, you may use one form to summarize the data for the identical process units.

1. **Unit ID**: EP-03
2. **Installation Date**: *(actual or anticipated)* 10/31/2025
3. **How many *(identical)* process units are identified in this form?** ☒ One ☐ More than one *(specify number)* : _____
4. **Process Description**:
   Zinc Kettle
5. **Maximum Production Rate** *(specify units)*: 30000.00 lb/hr
6. **Fuel Used**: ☒ Not Applicable ☐ Natural Gas Only ☐ Other – *Attach completed PI-02F form.*
7. **Add-On Control Technology**: *Identify all control technologies used for this unit, and attach completed CE-01 (unless "none").*
   - ☐ None
   - ☒ Baghouse / Fabric Filter – *Attach CE-02.*
   - ☐ Cyclone – *Attach CE-03.*
   - ☐ Electrostatic Precipitator – *Attach CE-04.*
   - ☐ Absorption / Wet Collector / Scrubber – *Attach CE-05.*
   - ☐ Oxidizer / Incinerator – *Attach CE-06.*
   - ☐ Adsorber – *Attach CE-07.*
   - ☐ Condenser – *Attach CE-08.*
   - ☐ Reduction – *Attach CE-09.*
   - ☐ Other *(specify)*: – *Attach CE-10.*
8. **Control Techniques**: *Identify all control techniques used for this process.*

9. **Process Limitations / Additional Information**: *Identify any acceptable process limitations. Attach additional information if necessary.*

Continued on next page

PART B: Emission Factors

Part B identifies all emission factors used to calculate air emissions from this process.

10. Process Unit *(& ID, if applicable)*	11. Air Pollutant	12. Emission Factor		13. Source of Emission Factor *(if not using AP-42, include calculations)*	
		value	*units*		
EP-03	PM	0.52	lb/ton	☐ AP-42	☒ Other
	Nickel	0.20	%PM	☐ AP-42	☒ Other
				☐ AP-42	☐ Other
				☐ AP-42	☐ Other
				☐ AP-42	☐ Other
				☐ AP-42	☐ Other

PART C: Processed Materials

Part C identifies the materials processed and the raw material usage.

14. Materials Processed	15. Raw Materials Usage Rate *(lb/hr)*
Steel	30000.00
Molten Zinc	1,370,000

PART D: Federal Rule Applicability

Part D identifies any federal rules that apply to the process.

16. Is a **New Source Performance Standard (NSPS)** applicable to this source? *Attach a completed FED-01 for each rule that applies.* ☐ Yes ☒ No

40 CFR Part 60, Subpart _____

17. Is a **National Emission Standard for Hazardous Air Pollutants (NESHAP)** applicable to this source? *Attach a completed FED-01 for each rule that applies.* ☐ Yes ☒ No

40 CFR Part 61, Subpart _____

40 CFR Part 63, Subpart _____

18. **Non-Applicability Determination**: *Provide an explanation if the process unit appears subject to a rule (based on the rule title or the source category), but the rule will not apply.*

The facility is not subject to 40 CFR Part 63 Subpart CCC because it is not a major source of HAPs.

OAQ PROCESS INFORMATION APPLICATION
PI-02A: Combustion Unit Summary

State Form 52535 (R2 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this form is to summarize all of the combustion process units.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for anyone to inspect and photocopy.

Form ID	Form Title	Guidance on when to submit the form
PI-02A	Combustion Unit Summary	Complete once for each application.
PI-02B	Boilers & Process Heaters	Complete once for each boiler or process heater.
PI-02C	Turbines & Internal Combustion Engines	Complete once for each turbine or internal combustion engine.
PI-02D	Incinerators & Combustors	Complete once for each incinerator or combustor.
PI-02E	Kilns	Complete once for each kiln.
PI-02F	Fuel Use	Complete once for each emissions unit that burns fuel **other than natural gas**.
PI-02G	Emission Factors	Complete once for each emissions unit.
PI-02H	Federal Rule Applicability	Complete once for each emissions unit.

Summary of Combustion Units

This table summarizes all the combustion units at the source. If there are multiple combustion units that are identical in nature, capacity, and use, you may use one row to summarize the identical units.

1. Combustion Unit Type	2. Number of Identical Units	3. Unit ID(s)	4. Date of Installation or Modification *(actual or anticipated)*	5. Heat Input Rate of each unit *(MMBtu/hr)*	6. Emergency / Back-Up Unit?
Process Heaters	1	EP-04	10/31/2025	2.16	☐ Yes ☒ No
Process Heater	1	EP-05	10/31/2025	0.85	☐ Yes ☒ No
Internal Combustion Engine	2	EP-06	10/31/2025	11.04	☒ Yes ☐ No
					☐ Yes ☐ No
					☐ Yes ☐ No
					☐ Yes ☐ No
					☐ Yes ☐ No
					☐ Yes ☐ No
					☐ Yes ☐ No
					☐ Yes ☐ No
					☐ Yes ☐ No
					☐ Yes ☐ No

OAQ PROCESS INFORMATION APPLICATION
PI-02B: Combustion – Boilers, Process Heaters & Furnaces

State Form 52536 (R2 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this form is to specify details that pertain only to boilers, process heaters and furnaces.
- For the purposes of this form, a process heater is any combustion unit that provides heat directly or indirectly to the process.
- Complete one PI-02B form for each emissions unit. If there are multiple emission units that are identical in nature, capacity, and use, you may use one PI-02B form to summarize the units.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for anyone to inspect and photocopy.

PART A: Process Unit Details

Part A specifies operating information that is unique to boilers, process heaters and furnaces. Definitions and additional explanation of terminology are included in the instructions for this form.

1. Unit ID: EP-04

2. Type of Combustion Unit

☐ Boiler:	☐ Industrial Boiler	☐ Commercial Boiler
	☐ Institutional Boiler	☐ Horseshoe Boiler
☒ Process Heater:	☐ Dutch Oven	☒ Drying Oven
	☐ Fuel Cell	☐ Space Heater
☐ Furnace:	☐ Crucible	☐ Crucible Pot
	☐ Cupola	☐ Electric Arc
	☐ Electric Induction	☐ Open Hearth
	☐ Open Hearth, Oxygen Lanced	☐ Pot
	☐ Reverberatory	☐ Sweat

3. Combustion Process

☐ Cyclone Burner	☐ Fluidized Bed – *Circulating*	☐ Fluidized Bed – *Bubbling*
☐ Overfeed Stoker / Traveling Grate	☐ Pulverized – *Dry Bottom*	☐ Pulverized – *Wet Bottom* Other
☐ Spreader Stoker	☐ Underfeed Stoker	☒ *(specify)*: NG

4. Heat Transfer Method: ☐ Watertube ☒ Firetube ☐ Cast Iron

5. Transfer Surface Arrangement *(check all that apply)*: ☒ Horizontal ☒ Straight ☐ Vertical ☐ Bent Tube

6. Firing Configuration:

☐ Cyclone	☐ Fluidized Bed Combustor	☐ Front Wall
☐ Horizontally Opposed	☒ Normal	☐ Stoker
☐ Suspension	☐ Tangential	

7. Heat Transfer Method *(process heaters only)*: ☒ Direct ☐ Indirect

8. Fuel Used: ☒ Natural Gas Only ☐ Other – *Attach completed PI-02F.*

Continued on Next Page

PART B: Emission Controls and Limitations

Part B identifies control technology, control techniques or other process limitations that impact air emissions.

9. Add-On Control Technology: *Identify all control technologies used for this process. Attach completed CE-01 (unless "none").*

☒ None

☐ Baghouse / Fabric Filter – *Attach CE-02.*
☐ Cyclone – *Attach CE-03.*
☐ Electrostatic Precipitator – *Attach CE-04.*
☐ Absorption / Wet Collector / Scrubber – *Attach CE-05.*
☐ NO_x Reduction – *Attach CE-09.*
☐ Other *(specify)*: – *Attach CE-10.*

10. Control Techniques: *Identify all control techniques used for this process.*

☐ None *(explain)*:

☐ Ammonia Injection
☐ Biased Burner Firing
☐ Burning Oil / Water Emulsions
☐ Burners Out Of Service
☐ Duct Injection
☐ Flue Gas Recirculation
☐ Flyash Reinjection
☐ Furnace Injection
☐ Load Reduction
☐ Low Excess Air
☐ Low NO_x Burners
☐ Overfire Air
☐ Reburn
☐ Reduced Air Preheat
☐ Spray Drying
☐ Staged Combustion
☐ Other *(specify)*: – *Attach completed GSD-09.*

11. Process Limitations / Additional Information: *Identify any acceptable process limitations. Attach additional information if necessary.*

PART C: Previously Installed Boilers

Part C identifies all boilers that were installed prior to submitting this application.

12. Are there any **Previously Installed Boilers** present at this source?

☒ No – Proceed to Part D.

☐ Yes → ☐ Information attached. ☐ Information is contained in operating permit:

PART D: Furnace Details

Part D identifies details that pertain only to furnaces. If there are no furnaces identified with this application, completion of this table is not required.

13. Material Melted:

14. Maximum Melt Rate *(specify units)*:

15. Flux Type: ☐ MSDS attached.

16. Flux Amount *(specify units)*:

17. Oven Throughput Material:

OAQ PROCESS INFORMATION APPLICATION
PI-02B: Combustion – Boilers, Process Heaters & Furnaces

State Form 52536 (R2 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this form is to specify details that pertain only to boilers, process heaters and furnaces.
- For the purposes of this form, a process heater is any combustion unit that provides heat directly or indirectly to the process.
- Complete one PI-02B form for each emissions unit. If there are multiple emission units that are identical in nature, capacity, and use, you may use one PI-02B form to summarize the units.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for anyone to inspect and photocopy.

PART A: Process Unit Details

Part A specifies operating information that is unique to boilers, process heaters and furnaces. Definitions and additional explanation of terminology are included in the instructions for this form.

1. Unit ID: EP-05

2. Type of Combustion Unit

☐ Boiler:	☐ Industrial Boiler	☐ Commercial Boiler
	☐ Institutional Boiler	☐ Horseshoe Boiler
☒ Process Heater:	☐ Dutch Oven	☐ Drying Oven
	☐ Fuel Cell	☐ Space Heater
☐ Furnace:	☐ Crucible	☐ Crucible Pot
	☐ Cupola	☐ Electric Arc
	☐ Electric Induction	☐ Open Hearth
	☐ Open Hearth, Oxygen Lanced	☐ Pot
	☐ Reverberatory	☐ Sweat

3. Combustion Process

☐ Cyclone Burner	☐ Fluidized Bed – *Circulating*	☐ Fluidized Bed – *Bubbling*
☐ Overfeed Stoker / Traveling Grate	☐ Pulverized – *Dry Bottom*	☐ Pulverized – *Wet Bottom*
☐ Spreader Stoker	☐ Underfeed Stoker	☒ Other *(specify)*: N/A NG-fired

4. Heat Transfer Method: ☐ Watertube ☒ Firetube ☐ Cast Iron

5. Transfer Surface Arrangement *(check all that apply)*: ☒ Horizontal ☒ Straight ☐ Vertical ☐ Bent Tube

6. Firing Configuration:

☐ Cyclone	☐ Fluidized Bed Combustor	☐ Front Wall
☐ Horizontally Opposed	☒ Normal	☐ Stoker
☐ Suspension	☐ Tangential	

7. Heat Transfer Method *(process heaters only)*: ☒ Direct ☐ Indirect

8. Fuel Used: ☒ Natural Gas Only ☐ Other – *Attach completed PI-02F.*

Continued on Next Page

PART B: Emission Controls and Limitations

Part B identifies control technology, control techniques or other process limitations that impact air emissions.

9. Add-On Control Technology: *Identify all control technologies used for this process. Attach completed CE-01 (unless "none").*

- ☒ None
- ☐ Baghouse / Fabric Filter – *Attach CE-02.*
- ☐ Cyclone – *Attach CE-03.*
- ☐ Electrostatic Precipitator – *Attach CE-04.*
- ☐ Absorption / Wet Collector / Scrubber – *Attach CE-05.*
- ☐ NO_X Reduction – *Attach CE-09.*
- ☐ Other *(specify)*: – *Attach CE-10.*

10. Control Techniques: *Identify all control techniques used for this process.*

- ☐ None *(explain)*:
- ☐ Ammonia Injection
- ☐ Biased Burner Firing
- ☐ Burning Oil / Water Emulsions
- ☐ Burners Out Of Service
- ☐ Duct Injection
- ☐ Flue Gas Recirculation
- ☐ Flyash Reinjection
- ☐ Furnace Injection
- ☐ Load Reduction
- ☐ Low Excess Air
- ☐ Low NO_X Burners
- ☐ Overfire Air
- ☐ Reburn
- ☐ Reduced Air Preheat
- ☐ Spray Drying
- ☐ Staged Combustion
- ☐ Other *(specify)*: – *Attach completed GSD-09.*

11. Process Limitations / Additional Information: *Identify any acceptable process limitations. Attach additional information if necessary.*

PART C: Previously Installed Boilers

Part C identifies all boilers that were installed prior to submitting this application.

12. Are there any **Previously Installed Boilers** present at this source?

- ☒ No – Proceed to Part D.
- ☐ Yes → ☐ Information attached. ☐ Information is contained in operating permit:

PART D: Furnace Details

Part D identifies details that pertain only to furnaces. If there are no furnaces identified with this application, completion of this table is not required.

13. Material Melted:

14. Maximum Melt Rate *(specify units)*:

15. Flux Type: ☐ MSDS attached.

16. Flux Amount *(specify units)*:

17. Oven Throughput Material:

OAQ PROCESS INFORMATION APPLICATION
PI-02C: Combustion – Turbines & Reciprocating Internal Combustion Engines

State Form 52537 (R2 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this form is to specify details that pertain only to turbines and internal combustion engines.
- Complete one PI-02C form for each emissions unit. If there are multiple emission units that are identical in nature, capacity, and use, you may use one PI-02C form to summarize the units.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for anyone to inspect and photocopy.

PART A: Process Unit Details

Part A specifies operating information that is unique to turbines and reciprocating internal combustion engines. Definitions and additional explanation of terminology are included in the instructions for this form.

1. Unit ID: EP-06

2. Type of Combustion Unit

☐ Turbine:	☐ Simple Cycle ☐ Regenerative Cycle ☐ Cogeneration ☐ Combined Cycle
☒ Reciprocating Internal Combustion Engine:	☐ 2-stroke lean-burn ☐ 4-stroke lean-burn Unknown at this time ☐ 4-stroke rich-burn

3. Combustion Process: ☐ Diffusion Flame Combustion Unknown at this time
☐ Lean-Premix Staged Combustion

4. Ignition Type: ☐ Spark
☒ Compression

5. Power Output: 1578.00 horsepower (hp)
megawatts (MW)

6. Duty Cycle: 500 hours per year (hr/yr)

7. Fuel Used: ☐ Natural Gas Only
☒ Other – *Attach completed PI-02F.*

8. Does this combustion unit supply power to an emergency generator? ☒ Yes ☐ No

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Continued on Next Page

PART B: Emission Controls and Limitations

Part B identifies control technology, control techniques or other process limitations that impact air emissions.

9. Add-On Control Technology: *Identify all control technologies used for this process. Attach completed CE-01 (unless "none").*

- ☒ None
- ☐ Catalytic Oxidation – *Attach CE-06*
- ☐ NO_X Reduction – *Attach CE-09*
- ☐ Other *(specify)*: – *Attach CE-10.*

10. Control Techniques: *Identify all control techniques used for this process.*

- ☐ None *(explain)*:
- ☐ Air-To-Fuel Ratio Adjustments
- ☐ Aromatic Content Increase
- ☐ Boiling Point adjusted to 10% and 90%
- ☐ Cetane Number
- ☐ Charge Cooling
- ☐ Combustion Chamber Modifications
- ☐ Derating
- ☐ Electronic Timing & Metering
- ☐ Exhaust Gas Recirculation
- ☐ Fuel Additives
- ☐ Fuel Injection Pressure
- ☐ Injection Rate Control
- ☐ Injection Timing Retard
- ☐ Injector Nozzle Geometry
- ☐ Lean Combustion
- ☒ Low Sulfur Content Fuel
- ☐ Oil Consumption Control
- ☐ Pre-ignition Chamber Combustion
- ☐ Rapid Spill Nozzles
- ☐ Turbocharging
- ☐ Two Stage Lean / Lean Combustion
- ☐ Two Stage Rich / Lean Combustion
- ☐ Water/Fuel Emulsions
- ☐ Water / Steam Injection
- ☐ Other *(specify)*: – *Attach completed GSD-09.*

11. Process Limitations / Additional Information: *Identify any acceptable process limitations. Attach additional information if necessary.*

The facility is still in the process of selecting the 1,000 kw emergency generators. The horsepower listed is an estimate.

OAQ PROCESS INFORMATION APPLICATION
PI-02F: Combustion – Fuel Use

State Form 52540 (R2 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this form is to identify each fuel that will be used in the combustion unit. Definitions and additional explanation of terminology are included in the instructions for this form.
- Complete one form PI-02F for each combustion unit. If the unit has any capability of using a fuel, even if on a backup or intermittent basis, complete the applicable section. Using a fuel that is not specified in the permit is a violation of the permit.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for anyone to inspect and photocopy.

PART A: Process Unit Identification

1. Unit ID: EP-06

PART B: Gaseous Fuels

Part B identifies the gaseous fuels that will be used in the combustion unit.

2. Fuel Type:	3. Percent of Fuel Use *(by volume)*	4. Primary or Secondary Fuel?	5. Component Percentages:	6. Heating Value:
☐ Natural Gas		☐ Primary ☐ Secondary	Sulfur:	*(Btu/ft³)*
☐ Liquefied Petroleum Gas ☐ *Commercial- Propane* ☐ *Engine Fuel Propane (HD-5)* ☐ *Commercial- Butane*		☐ Primary ☐ Secondary	Sulfur: Butane: Propane:	*(Btu/ft³)*
☐ Process Gas *		☐ Primary ☐ Secondary	Sulfur:	*(Btu/ft³)*
☐ Landfill Gas *		☐ Primary ☐ Secondary	Sulfur:	*(Btu/ft³)*
☐ Other *(specify)*:		☐ Primary ☐ Secondary	:	*(Btu/ft³)*

* Indicate the source of the process or landfill gas:

Continued on Next Page

PART C: Liquid Fuels

Part C identifies the liquid fuels that will be used in the combustion unit.

7. Fuel Type:	8. Percent of Fuel Use *(by volume)*	9. Primary or Secondary Fuel?	10. Component Percentages:	11. Heating Value:	12. Percent Heat:
☐ Residual Fuel Oil ☐ *No. 5 – Heavy* ☐ *No. 5 – Light* ☐ *No. 6 (Bunker C)*		☐ Primary ☐ Secondary	Sulfur:	*(Btu/gal)*	
☒ Distillate Fuel Oil ☐ *No. 1* ☒ *No. 2 (Diesel)* ☐ *No. 4*	100.00%	☒ Primary ☐ Secondary	Sulfur: 15 ppm	140000.00 *(Btu/gal)*	100.00%
☐ Gasoline		☐ Primary ☐ Secondary	Sulfur:	*(Btu/gal)*	
☐ Waste Oil		☐ Primary ☐ Secondary	Sulfur: Ash: Lead Chlorine:	*(Btu/gal)*	
☐ Liquid Waste *		☐ Primary ☐ Secondary	Sulfur: Fluorine: Chlorine:	*(Btu/gal)*	
☐ Other *(specify)*:		☐ Primary ☐ Secondary	: :	*(Btu/gal)*	

* RCRA alpha-numeric codes for Special or Hazardous Waste to be Burned:

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Continued on Next Page

PART D1: Solid Fuels – Coal

Part D1 identifies all variations of coal that will be used in the combustion unit.

13. Fuel Type:	14. Percent of Fuel Use *(by volume)*	15. Primary or Secondary Fuel?	16. Component Percentages:	17. Heating Value:	18. Basis:
☐ Anthracite Coal ☐ *Anthracite* ☐ *Culm*		☐ Primary ☐ Secondary	Sulfur: Ash: Moisture:	*(Btu/lb)*	☐ Dry ☐ Moist
☐ Bituminous Coal		☐ Primary ☐ Secondary	Sulfur: Ash: Moisture:	*(Btu/lb)*	☐ Dry ☐ Moist
☐ Sub-bituminous Coal		☐ Primary ☐ Secondary	Sulfur: Ash: Moisture:	*(Btu/lb)*	☐ Dry ☐ Moist
☐ Lignite Coal		☐ Primary ☐ Secondary	Sulfur: Ash: Moisture:	*(Btu/lb)*	☐ Dry ☐ Moist
☐ Coke		☐ Primary ☐ Secondary	Sulfur: Ash: Moisture:	*(Btu/lb)*	☐ Dry ☐ Moist
☐ Other Coal *(specify)*:		☐ Primary ☐ Secondary	Sulfur: Ash: Moisture:	*(Btu/gal)*	☐ Dry ☐ Moist

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PART D2: Other Solid Fuels

Part D2 identifies the solid fuels, other than coal, that will be used in the combustion unit.

19. Fuel Type:	20. Percent of Fuel Use *(by volume)*	21. Primary or Secondary Fuel?	22. Component Percentages:	23. Heating Value:	24. Percent Heat:
☐ Wood or Wood Waste ☐ *Wood Only* ☐ *Wood Residue Only* ☐ *Wood and Wood Residue*		☐ Primary ☐ Secondary	Moisture:	*(Btu/ton)*	
☐ Tires or Tire Derived Fuel ☐ *Whole Tires* ☐ *Tire Derived Fuel*		☐ Primary ☐ Secondary	Sulfur: Chromium: Chlorine:	*(Btu/lb)*	
☐ Bagasse		☐ Primary ☐ Secondary	Ash: Moisture:	*(Btu/lb)*	
☐ Solid Waste *		☐ Primary ☐ Secondary	: :	*(Btu/lb)*	
☐ Other *(specify)*:		☐ Primary ☐ Secondary	: :	*(Btu/lb)*	

*RCRA alpha-numeric codes for Special or Hazardous Waste to be Burned:

PART E: Fuel Consumption Limitations

Use the space provided to specify any fuel consumption limitations that are acceptable for the combustion unit.

OAQ PROCESS INFORMATION APPLICATION
PI-02G: Combustion – Emission Factors

State Form 52541 (R2 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this form is to specify the emission factors used to calculate potential to emit from the combustion unit.
- Complete one PI-02G form for each emissions unit. If there are multiple emission units that are identical in nature, capacity, and use, you may use one PI-02G form to summarize the units.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for anyone to inspect and photocopy.

Emission Factors

This table identifies all emission factors used to calculate air emissions from the combustion unit.

1. Unit ID: EP-04

2. Air Pollutant:	**3. Emission Factor**		**4. Source of Emission Factor** *(if not using AP-42, include calculations)*		
	value	*units*			
Carbon Monoxide (CO)	84.00	lb/mmscf	☒ AP-42	☐ Other	☐ N/A
Lead (Pb)	0.00	lb/mmscf	☒ AP-42	☐ Other	☐ N/A
Hazardous Air Pollutant (HAP) *(specify)*: See Attached Emission Calculations		lb/mmscf	☒ AP-42	☐ Other	☐ N/A
Nitrogen Oxides (NO_X)	100.00	lb/mmscf	☒ AP-42	☐ Other	☐ N/A
Mercury (Hg)	0.00	lb/mmscf	☒ AP-42	☐ Other	☐ N/A
Particulate Matter (PM)	7.60	lb/mmscf	☒ AP-42	☐ Other	☐ N/A
Particulate Matter less than 10μm (PM_{10})	7.60	lb/mmscf	☒ AP-42	☐ Other	☐ N/A
Particulate Matter less than 2.5μm ($PM_{2.5}$)	7.60	lb/mmscf	☒ AP-42	☐ Other	☐ N/A
Sulfur Dioxide (SO_2)	0.60	lb/mmscf	☒ AP-42	☐ Other	☐ N/A
Volatile Organic Compounds (VOC)	5.50	lb/mmscf	☒ AP-42	☐ Other	☐ N/A
Other *(specify)*:			☐ AP-42	☐ Other	☐ N/A
Other *(specify)*:			☐ AP-42	☐ Other	☐ N/A
Other *(specify)*:			☐ AP-42	☐ Other	☐ N/A

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OAQ PROCESS INFORMATION APPLICATION
PI-02G: Combustion – Emission Factors
State Form 52541 (R2 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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Facsimile Number: (317) 232-6749
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NOTES:

- The purpose of this form is to specify the emission factors used to calculate potential to emit from the combustion unit.
- Complete one PI-02G form for each emissions unit. If there are multiple emission units that are identical in nature, capacity, and use, you may use one PI-02G form to summarize the units.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for anyone to inspect and photocopy.

Emission Factors

This table identifies all emission factors used to calculate air emissions from the combustion unit.

1. Unit ID: EP-05

2. Air Pollutant:	**3. Emission Factor**		**4. Source of Emission Factor** *(if not using AP-42, include calculations)*		
	value	*units*			
Carbon Monoxide (CO)	84.00	lb/mmscf	☒ AP-42	☐ Other	☐ N/A
Lead (Pb)	0.00	lb/mmscf	☒ AP-42	☐ Other	☐ N/A
Hazardous Air Pollutant (HAP) *(specify)*: See Attached Emission Calculations		lb/mmscf	☒ AP-42	☐ Other	☐ N/A
Nitrogen Oxides (NO_x)	100.00	lb/mmscf	☒ AP-42	☐ Other	☐ N/A
Mercury (Hg)	0.00	lb/mmscf	☒ AP-42	☐ Other	☐ N/A
Particulate Matter (PM)	7.60	lb/mmscf	☒ AP-42	☐ Other	☐ N/A
Particulate Matter less than 10μm (PM_{10})	7.60	lb/mmscf	☒ AP-42	☐ Other	☐ N/A
Particulate Matter less than 2.5μm ($PM_{2.5}$)	7.60	lb/mmscf	☒ AP-42	☐ Other	☐ N/A
Sulfur Dioxide (SO_2)	0.60	lb/mmscf	☒ AP-42	☐ Other	☐ N/A
Volatile Organic Compounds (VOC)	5.50	lb/mmscf	☒ AP-42	☐ Other	☐ N/A
Other *(specify)*:			☐ AP-42	☐ Other	☐ N/A
Other *(specify)*:			☐ AP-42	☐ Other	☐ N/A
Other *(specify)*:			☐ AP-42	☐ Other	☐ N/A

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OAQ PROCESS INFORMATION APPLICATION
PI-02G: Combustion – Emission Factors

State Form 52541 (R2 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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Facsimile Number: (317) 232-6749
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NOTES:

- The purpose of this form is to specify the emission factors used to calculate potential to emit from the combustion unit.
- Complete one PI-02G form for each emissions unit. If there are multiple emission units that are identical in nature, capacity, and use, you may use one PI-02G form to summarize the units.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for anyone to inspect and photocopy.

Emission Factors

This table identifies all emission factors used to calculate air emissions from the combustion unit.

1. Unit ID: EP-06

2. Air Pollutant:	**3. Emission Factor**		**4. Source of Emission Factor** *(if not using AP-42, include calculations)*		
	value	*units*			
Carbon Monoxide (CO)	0.85	lb/MMBtu	☒ AP-42	☐ Other	☐ N/A
Lead (Pb)			☐ AP-42	☐ Other	☒ N/A
Hazardous Air Pollutant (HAP) *(specify)*: See Attached Emission Calculations		lb/mmBtu	☒ AP-42	☐ Other	☐ N/A
Nitrogen Oxides (NO_X)	3.20	lb/MMBtu	☒ AP-42	☐ Other	☐ N/A
Mercury (Hg)			☐ AP-42	☐ Other	☐ N/A
Particulate Matter (PM)	0.07	lb/MMBtu	☒ AP-42	☐ Other	☐ N/A
Particulate Matter less than 10μm (PM_{10})	0.06	lb/MMBtu	☒ AP-42	☐ Other	☐ N/A
Particulate Matter less than 2.5μm ($PM_{2.5}$)	0.06	lb/MMBtu	☒ AP-42	☐ Other	☐ N/A
Sulfur Dioxide (SO_2)	0.00	lb/MMBtu	☒ AP-42	☐ Other	☐ N/A
Volatile Organic Compounds (VOC)	0.09	lb/MMBtu	☒ AP-42	☐ Other	☐ N/A
Other *(specify)*:			☐ AP-42	☐ Other	☐ N/A
Other *(specify)*:			☐ AP-42	☐ Other	☐ N/A
Other *(specify)*:			☐ AP-42	☐ Other	☐ N/A

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OAQ PROCESS INFORMATION APPLICATION
PI-02H: Combustion – Federal Rule Applicability

State Form 52542 (R2 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
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Indianapolis, IN 46204-2251
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Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this form is to identify any federal rules that apply to the emission unit.
- Complete one PI-02H form for each emissions unit. If there are multiple emission units that are identical in nature, capacity, and use, you may use one PI-02H form to summarize the units.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for anyone to inspect and photocopy.

Federal Rule Applicability		
This table identifies any federal rules that apply to the process.		
1. Is a **New Source Performance Standard (NSPS)** applicable to this source? ☒ Yes ☐ No *If yes, attach a completed FED-01 for each rule that applies.*		**2. Unit IDs**
☐ 40 CFR Part 60, Subpart Cb	Large Municipal Waste Combustors *(constructed before 9/20/1994)*	
☐ 40 CFR Part 60, Subpart Ce	Hospital/Medical/Infectious Waste Incinerators	
☐ 40 CFR Part 60, Subpart D	Fossil-Fuel-Fired Steam Generators *(constructed after 8/17/1971)*	
☐ 40 CFR Part 60, Subpart Da	Electric Utility Steam Generating Units *(constructed after 9/18/1978)*	
☐ 40 CFR Part 60, Subpart Db	Industrial-Commercial-Institutional Generating Units	
☐ 40 CFR Part 60, Subpart Dc	Small Industrial-Commercial-Institutional Generating Units	
☐ 40 CFR Part 60, Subpart E	Incinerators	
☐ 40 CFR Part 60, Subpart Ea	Municipal Waste Combustors *(constructed after 12/20/1989 and before 9/20/1994)*	
☐ 40 CFR Part 60, Subpart Eb	Large Municipal Waste Combustors *(constructed after 9/20/1994 or modified / reconstructed after 6/19/1996)*	
☐ 40 CFR Part 60, Subpart Ec	Hospital/Medical/Infectious Waste Incinerators *(constructed after 6/20/1996)*	
☐ 40 CFR Part 60, Subpart O	Sewage Treatment Plants *(sludge burners)*	
☐ 40 CFR Part 60, Subpart Y	Coal Preparation Plants	
☐ 40 CFR Part 60, Subpart GG	Stationary Gas Turbines	
☐ 40 CFR Part 60, Subpart AAA	New Residential Wood Heaters	
☐ 40 CFR Part 60, Subpart AAAA	Small Municipal Waste Combustion Units *(constructed after 8/30/1999 or modified / reconstructed after 6/6/2001)*	
☐ 40 CFR Part 60, Subpart BBBB	Small Municipal Waste Combustion Units *(constructed on or before 8/30/1999)*	
☐ 40 CFR Part 60, Subpart CCCC	Commercial and Industrial Solid Waste Incineration Units *(constructed after 11/30/1999 or modified / reconstructed after 6/1/2001)*	
☐ 40 CFR Part 60, Subpart DDDD	Commercial and Industrial Solid Waste Incineration Units *(constructed on or before 11/30/1999)*	
☐ 40 CFR Part 60, Subpart KKKK	Stationary Combustion Turbines	

Continued on Next Page

Federal Rule Applicability *(continued)*

This table identifies any federal rules that apply to the process.

3. Is a **National Emission Standard for Hazardous Air Pollutants (NESHAP)** applicable to this source? ☒ Yes ☐ No *If yes, attach a completed FED-01 for each rule that applies.*		4. **Unit IDs**
☐ 40 CFR Part 63, Subpart MM	Combustion Sources at Kraft, Soda, and Sulfite Pulp & Paper Mills	
☐ 40 CFR Part 63, Subpart EEE	Hazardous Waste Combustion	
☐ 40 CFR Part 63, Subpart YYYY	Stationary Combustion Turbines	
☒ 40 CFR Part 63, Subpart ZZZZ	Reciprocating Internal Combustion Engines (RICE)	EP-06
☐ 40 CFR Part 63, Subpart DDDDD	Industrial, Commercial, and Institutional Boilers and Process Heaters	

5. **Non-Applicability Determination**: *Provide an explanation if the process unit appears subject to a rule (based on the rule title or the source category), but the rule will not apply.*

The facility is not subject to 40 CFR Part 63, Subpart DDDDD because it is not a major source of HAPs.

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OAQ CONTROL EQUIPMENT APPLICATION
CE-01: Control Equipment Summary

State Form 51904 (R3 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of CE-01 is to summarize all of the equipment used to control emissions. This is a required form.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for any one to inspect and photocopy.

Summary of Control Equipment

This table summarizes all of the equipment used to control air pollutant emissions. The identification numbers listed on this form should correspond to the emissions unit identified on the Plant Layout diagram and Process Flow diagram.

1. Control Equipment ID	2. Control Equipment Description	3. Pollutant Controlled	4. Emission Unit ID	5. Stack / Vent ID	6. Applicable Rule
CD-01	Wet Scrubber	HCl	EP-01 /EP-02	CD-01	NA
CD-02	Baghouse	PM/PM10/ PM2.5	EP-03	CD-02	NA

OAQ CONTROL EQUIPMENT APPLICATION
CE-02: Particulate Control – Baghouse / Fabric Filter

State Form 51953 (R2 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of CE-02 is to identify all the parameters that describe the baghouse or fabric filter. This is a required form.
- Complete this form once for each baghouse or fabric filter (or once for each set of identical baghouses or fabric filters).
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for any one to inspect and photocopy.

PART A: Identification and Description of Control Equipment

Part A identifies the particulate control device and describes its physical properties.

1. Control Equipment ID:	CD-02
2. Installation Date:	10/31/2025
3. Bags or Cartridges?	☒ Bags ☐ Cartridges
4. Filter Material:	Polypropylene
5. Number of Bags/Cartridges per Compartment:	168
6. Number of Compartments:	8
7. Mode of Operation:	☐ Intermittent ☐ Periodic ☒ Continuous
8. Cleaning Method:	☐ Shaking ☐ Reverse Pulse ☐ Reverse Air ☒ Jet Pulse
9. Cleaning Cycle / Frequency *(specify units)*:	3.00 per high pressure setpoint
10. Is a bag leak detector installed on this device?	☐ Yes ☒ No
11. Type / Description of Bag Leak Detector:	☐ Positive Pressure ☐ Negative Pressure
12. Air to Cloth Ratio *(Ex: 1.3 : 1.0)*:	2.5 : 1.0
13. Is **Lime Injection** used on this device?	☐ Yes ☒ No
14. Is **Carbon Injection** used on this device?	☐ Yes ☒ No

PART B: Operational Parameters

Part B provides the operational parameters of the control device and the pollutant laden gas stream. Appropriate units must be included if the standard units are not used. For each applicable parameter, provide the inlet and outlet values or provide the differential value.

	A. Units	B. Inlet	C. Outlet	D. Differential
15. Gas Stream Flow Rate	ACFM	49440.00	49440.00	
16. Gas Stream Temperature	°F	140.00	100.00	
17. Gas Stream Pressure	inches of water			0.00 to 6.00
18. Moisture Content	%	3.00%	3.00%	
19. Particle Size Range	micrometers	2-10.00	Unknown	to
20. Lime Injection Rate *(if applicable)*	lb/hr			
21. Carbon Injection Rate *(if applicable)*	lb/hr			
22. Other *(specify)*:				

Continued on Next Page

PART C: Pollutant Concentrations

Part C provides the pollutant concentrations of the pollutant laden gas stream.

		23. Units	24. Inlet	25. Outlet	26. Efficiency (%):	
					Capture	Control
☐	a. Lead (Pb)					
☒	b. Hazardous Air Pollutant (HAP) *(specify)*: Nickel as PM	lb/hr	0.02	0.00	100.00%	99.50%
☒	c. Particulate Matter (PM)	lb/hr	7.80	0.04	100.00%	99.50%
☒	d. Particulate Matter less than 10μm (PM_{10})	lb/hr	7.80	0.04	100.00%	99.50%
☒	e. Particulate Matter less than 2.5μm ($PM_{2.5}$)	lb/hr	7.49	0.04	100.00%	99.50%
☐	f. Other Pollutant *(specify)*:					

PART D: Monitoring, Record Keeping, & Testing Procedures

Part D identifies any existing or proposed monitoring, record keeping, & testing procedures that may need to be included in the permit.

27. Item(s) Monitored:				
28. Monitoring Frequency:				
29. Item(s) Recorded:				
30. Record Keeping Frequency:				
31. Pollutant(s) Tested:				
32. Test Method(s):				
33. Testing Frequency:				

PART E: Preventive Maintenance Plan

Part E verifies that a complete Preventive Maintenance Plan (PMP) has been prepared for the control device, if applicable. Use this table as a checklist to ensure that the PMP is complete.

34. Do you have a Preventive Maintenance Plan (PMP)?

☒ No PMP is needed. ☐ Yes – the following items are identified on the PMP:

- ☐ **A.** Identification of the individual(s) responsible for inspecting, maintaining and repairing emission control devices.
- ☐ **B.** Description of the items or conditions that will be inspected.
- ☐ **C.** Schedule for inspection of items or conditions described above.
- ☐ **D.** Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

PART F: Determination of Integral Control

Part F provides explanation to determine whether the control device should be considered integral to the process.

35. Has IDEM already made an integral control determination for this device? ☒ No ☐ Yes
If "Yes", provide the following:

Permit Number:	**Issuance Date:**	**Determination:** ☐ Integral ☐ Not Integral

36. Is this device integral to the process? ☒ No ☐ Yes
If "Yes", provide the reason(s) why the device is integral.

OAQ CONTROL EQUIPMENT APPLICATION
CE-05: Particulate Control – Wet Collector / Scrubber / Absorption

State Form 52622 (R / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of CE-05 is to identify all the parameters that describe the wet collector, scrubber, or absorption unit. This is a required form.
- Complete this form once for each wet collector, scrubber, or absorption unit (or once for each set of identical units).
- Detailed instructions for this form are available online on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for any one to inspect and photocopy.

PART A: Identification and Description of Control Equipment

Part A identifies the particulate control device and describes its physical properties.

1. Control Equipment ID: CD-01

2. Installation Date: 10/31/25

3. Device Used: ☐ Wet Collector ☒ Scrubber ☐ Absorption

4. Scrubber Type:
☐ Packed Bed
☐ Fiber Bed
☐ Ionizing
☐ Spray Dryer
☒ Spray Tower
☐ Tray Tower
  ☐ Bubble Cap
  ☐ Impingement
  ☐ Sieve
  ☐ Valve
☐ Venturi
  ☐ Fixed Throat
  ☐ Variable Throat
☐ Other *(specify)*:
☐ Not Applicable

5. Operational Design: ☒ Cross Current ☐ Counter Current ☐ Co-Current ☐ Other *(specify)*:

6. Nozzle Design: ☐ Pneumatic ☐ Rotary ☒ Atomizing ☐ Other *(specify)*:

7. Number of Scrubber Modules: 2 ☐ Not Applicable

8. Packing Media: ☒ Not Applicable

9. Media Surface Area *(specify units)*: ☒ Not Applicable

10. Fiber Density *(specify units)*: ☒ Not Applicable

11. Scrubbing Liquid: Water Average *pH:* 0.1 *Solubility:* 3%HCL ☐ Not Applicable

12. Liquid to Air Ratio *(Ex: 1.3 : 1.0)*: 15.0 : 1.0

13. Mist Elimination / Entrainment Separation: *Specify number of chevrons, mesh pads, or cyclones, if applicable.*
☒ Chevron: 1 ☐ Mesh Pad: _____ ☒ Cyclone: 1 ☐ Not Applicable

14. Is the device **Electrostatically Enhanced**? ☒ Yes ☐ No ☐ Not Applicable

15. Does the device use **Condensation Growth**? ☐ Yes ☐ No Unknown

16. Is a **Demister** used with this device? ☒ Yes ☐ No

17. Is a **Settling Pond** used with this device? *If yes, describe the settling pond below.* ☐ Yes ☒ No

Continued on Next Page

PART B: Operational Parameters

Part B provides the operational parameters of the control device and the pollutant laden gas stream. Appropriate units must be included if the standard units are not used.

	A. Units	B. Inlet	C. Outlet	D. Differential
18. Scrubbing Liquid Flow Rate *(Use 0.00 if not applicable.)*	GPM	660.43	Unknown	
19. Recirculation Liquid Flow Rate *(Use 0.00 if not applicable.)*	GPM	3%HCl	Unknown	
20. Gas Stream Flow Rate	ACFM	41199.00	41199.00	
21. Gas Stream Temperature	°F	<100.00	<100.00	
22. Gas Stream Pressure	inches of water			0.00 to 8.00
23. Moisture Content	%	55.00%	Unknown	
24. Average Particle Size	micrometers	10.00 - 25.00	Unknown	to
25. Other *(specify)*:				

PART C: Pollutant Concentrations

Part C provides the pollutant concentrations of the pollutant laden gas stream.

	26. Units	27. Inlet	28. Outlet	29. Efficiency *(%)*:	
				Capture	Control
☒ **a.** Hazardous Air Pollutant (HAP) *(specify)*: HCl	lb/hr	2.77	0.28	100.00%	90.00%
☐ **b.** Particulate Matter (PM)					
☐ **c.** Particulate Matter less than 10µm (PM_{10})					
☐ **d.** Particulate Matter less than 2.5µm ($PM_{2.5}$)					
☐ **e.** Volatile Organic Compounds (VOC)					
☐ **f.** Other Pollutant *(specify)*:					

PART D: Monitoring, Record Keeping, & Testing Procedures

Part D identifies any existing or proposed monitoring, record keeping, & testing procedures that may need to be included in the permit.

30. Item(s) Monitored:				
31. Monitoring Frequency:				
32. Item(s) Recorded:				
33. Record Keeping Frequency:				
34. Pollutant(s) Tested:				
35. Test Method(s):				
36. Testing Frequency:				

Continued on Next Page

PART E: Preventive Maintenance Plan	
Part E verifies that a complete Preventive Maintenance Plan (PMP) has been prepared for the control device, if applicable. Use this table as a checklist to ensure that the PMP is complete.	
37. Do you have a Preventive Maintenance Plan (PMP)?	
☒ No PMP is needed.	☐ Yes – the following items are identified on the PMP:
☐	**A.** Identification of the individual(s) responsible for inspecting, maintaining and repairing emission control devices.
☐	**B.** Description of the items or conditions that will be inspected.
☐	**C.** Schedule for inspection of items or conditions described above.
☐	**D.** Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

OAQ FEDERAL RULE INCORPORATION APPLICATION
FED-01: Summary of Federal Requirements – NSPS & NESHAP

State Form 53512 (R / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
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Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.in.gov/idem

NOTES:

- The purpose of this form is to provide a standardized way for sources to identify the NSPS or NESHAP requirements that are applicable to the regulated source. Complete one (1) form for each federal rule that applies to the source. This is a required form.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record.

Part A: Identification of Applicable Standard

Part A identifies the applicable standard and affected source.

1. Type of Standard:	☐ Part 60 NSPS ☐ Part 61 NESHAP	☒ Part 63 NESHAP (MACT)
2. Subpart Letter:	ZZZZ	
3. Source Category Name:	Reciprocating Internal Combustion Engines	
4. Affected Source *(Include all applicable emission unit IDs)*:	EP-06	

Part B: Applicable Requirements

Part B specifies the specific requirements of the federal rule that are applicable to the process or emission unit.

5. Applicable Requirements: *Identify the section of the federal standard that is applicable at the lowest subsection level. For example, if all of 40 CFR 63.342(c) is applicable, "40 CFR 63.342(c)" is the appropriate citation. If only paragraph 2 of 40 CFR 63.342(c) is applicable, then the appropriate citation is 40 CFR 63.342(c)(2).*

- 40 CFR 63.6590(c)(1))

Continued on Next Page

Part C: Performance Testing Requirements		
Part C identifies the performance testing requirements that are applicable to the process or emission unit.		
6. Performance Testing:	NA	
7. Date of Initial Performance Test:		
8. Test Methods:		
9. Was the initial performance test approved by IDEM?	☐ Yes: *Date approved:* _____	☐ No
10. Did the initial performance test show compliance with the rule?	☐ Yes	☐ No: *Date of next performance test:* _____

Part D: Important Dates		
Part D identifies specific dates associated with the federal standard that are applicable to the process or emission unit.		
11. Date Initial Notification was Submitted:	NA	
12. Initial Compliance Date:	☐ Startup: _____	☐ Other: _____
13. Other Dates	Description: _____	Date: _____
	Description: _____	Date: _____
	Description: _____	Date: _____

Part E: Other Information
Part E identifies any additional information pertaining to the applicable federal rule. Attach additional information using form GSD-09 as necessary.

OAQ FEDERAL RULE INCORPORATION APPLICATION FED-01: Summary of Federal Requirements – NSPS & NESHAP

State Form 53512 (R / 1-10)

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53, Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.in.gov/idem

NOTES:

- The purpose of this form is to provide a standardized way for sources to identify the NSPS or NESHAP requirements that are applicable to the regulated source. Complete one (1) form for each federal rule that applies to the source. This is a required form.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record.

Part A: Identification of Applicable Standard

Part A identifies the applicable standard and affected source.

1. Type of Standard:	☒ Part 60 NSPS ☐ Part 61 NESHAP ☐ Part 63 NESHAP (MACT)	
2. Subpart Letter:	IIII	
3. Source Category Name:	Stationary Compression Ignition Internal Combustion Engines	
4. Affected Source *(Include all applicable emission unit IDs)*:	EP-06	

Part B: Applicable Requirements

Part B specifies the specific requirements of the federal rule that are applicable to the process or emission unit.

5. Applicable Requirements: *Identify the section of the federal standard that is applicable at the lowest subsection level. For example, if all of 40 CFR 63.342(c) is applicable, "40 CFR 63.342(c)" is the appropriate citation. If only paragraph 2 of 40 CFR 63.342(c) is applicable, then the appropriate citation is 40 CFR 63.342(c)(2).*

- Exact requirements are not known at this time. The facility is still in the process of selecting the generators.

Continued on Next Page

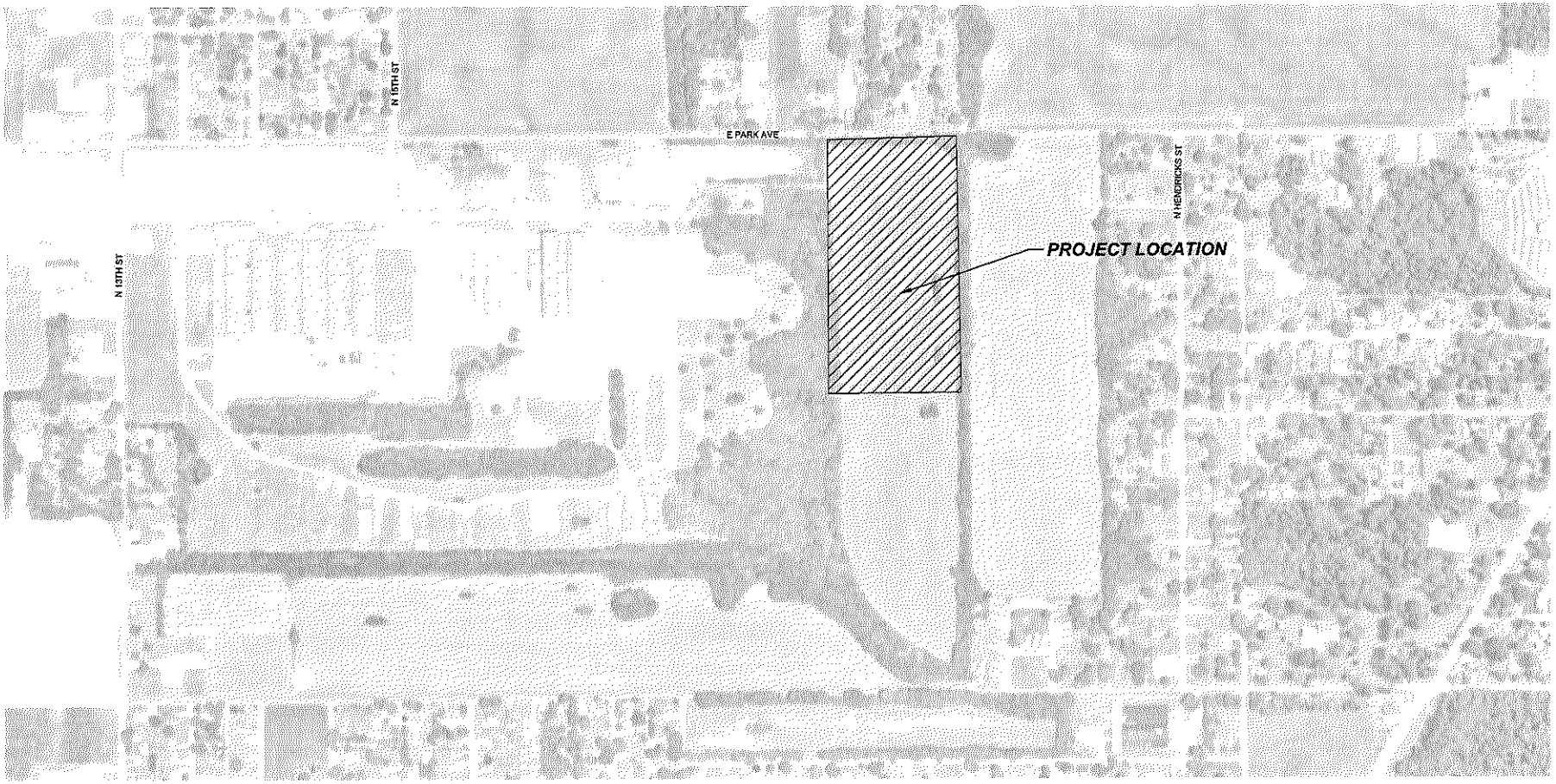
Part C: Performance Testing Requirements		
Part C identifies the performance testing requirements that are applicable to the process or emission unit.		
6. Performance Testing:	NA	
7. Date of Initial Performance Test:		
8. Test Methods:		
9. Was the initial performance test approved by IDEM?	☐ Yes: *Date approved:* _____	☐ No
10. Did the initial performance test show compliance with the rule?	☐ Yes	☐ No: *Date of next performance test:* _____

Part D: Important Dates		
Part D identifies specific dates associated with the federal standard that are applicable to the process or emission unit.		
11. Date Initial Notification was Submitted:	NA	
12. Initial Compliance Date:	☐ Startup: _____	☐ Other: _____
13. Other Dates	Description: _____	Date: _____
	Description: _____	Date: _____
	Description: _____	Date: _____

Part E: Other Information
Part E identifies any additional information pertaining to the applicable federal rule. Attach additional information using form GSD-09 as necessary.

Attachment B

Site Figures and Process Flow Diagram



LEGEND:

UTILITY

EXISTING:
- WATERMAIN
- BURIED ELECTRIC
- OVERHEAD WIRE
- GAS LINE
- SANITARY SEWER
- STORM SEWER
- UTILITY POLE
- LIGHT POLE
- SANITARY MANHOLE
- FIRE HYDRANT
- WATER VALVE
- STORM SEWER STRUCTURE

PROPOSED:
- WATERMAIN
- ELECTRICAL LINE
- GAS LINE
- SANITARY SEWER
- STORM SEWER
- WATER VALVE
- STORM SEWER STRUCTURE
- FLARED END SECTION

GRADING

EXISTING:
- MAJOR CONTOUR
- MINOR CONTOUR
- EXISTING SPOT ELEVATION

PROPOSED:
- MAJOR CONTOUR
- MINOR CONTOUR
- SPOT ELEVATION (FINISHED GRADE, TOP OF PAVEMENT, FLANGE, OR CURB)
- DOOR ELEVATION
- GROUND GRADE AT BUILDING
- SPOT ELEVATION (HC = TOP OF CURB, EP = EDGE OF PAVEMENT)
- RETAINING WALL SPOT ELEVATION (TW = FINISHED GRADE AT TOP OF WALL, BW = BOTTOM GRADE AT BOTTOM)
- FLARED END SECTION (PIPE SIZE, INVERT ELEVATION)
- DRAINAGE FLOW DIRECTION
- EMERGENCY OVERFLOW ROUTE

SITE

EXISTING:
- EXISTING PARKING COUNT
- EXISTING SIGN
- EXISTING ADA PARKING SPACE

PROPOSED:
- PARKING COUNT
- ADA PARKING SPACE
- SIGN
- TRUNCATED DOMES
- PAVEMENT MARKING DIRECTIONAL ARROWS

GENERAL NOTES AND SPECIFICATIONS:

1. THE EXISTING SITE INFORMATION ON THIS PLAN WAS TAKEN FROM A SITE SURVEY PROVIDED BY ALIGN SURVEY. THE ENGINEER MAKES NO WARRANTY OR REPRESENTATION WITH REFERENCE TO THE ACCURACY AND COMPLETENESS OF THE EXISTING CONDITIONS INDICATED OR NOT INDICATED ON THE ENGINEERING PLANS PROVIDED. VERIFY THE LOCATION OF ALL EXISTING SITE CONDITIONS INCLUDING UNDERGROUND UTILITIES. UNDERGROUND UTILITY ELEVATIONS, BUILDING SETBACKS AND EXISTING BUILDING LOCATIONS. THE CONTRACTOR SHALL INFORM THE OWNER AND ENGINEER OF ANY DISCREPANCIES PRIOR TO COMMENCING WITH WORK. QUESTIONS REGARDING THE EXISTING SURVEY SHALL BE DIRECTED TO THE PARTIES LISTED ABOVE.
2. BEFORE PROCEEDING WITH ANY UTILITY CONSTRUCTION, EXCAVATE EACH EXISTING MAIN TO DETERMINE THE EXACT RELATIONSHIP BETWEEN THE EXISTING UTILITY AND THE PROPOSED UTILITY. NOTIFY THE ENGINEER IMMEDIATELY IF THE PROPOSED UTILITY CANNOT BE CONSTRUCTED AS SHOWN ON THE PLANS. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY FOR EXPLANATION.
3. ALL UTILITY CONSTRUCTION SHALL ADHERE TO THE STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN INDIANA (LATEST EDITION) AS WELL AS, LOCO COUNTY.
4. ALL PERMITS MUST BE RECEIVED FROM THE MUNICIPALITY PRIOR TO THE START OF CONSTRUCTION. IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE ALL APPLICABLE PERMITS ARE RECEIVED PRIOR TO STARTING CONSTRUCTION.
5. NOTIFY THE PUBLIC WORKS INSPECTION DEPT. AT LEAST 48 HOURS BEFORE STARTING CONSTRUCTION.
6. BACKFILL REQUIREMENTS AND ROADWAY/SIDEWALK RESTORATION SHALL ADHERE TO LOCAL STANDARDS (SIDEWALK BACKFILL UNDER OR WITHIN 5' OF CURBS, SIDEWALK, OR PAVEMENT SHALL MAY BE USED ELSEWHERE. SLURRY BACKFILL WILL BE REQUIRED IN PUBLIC ROADWAYS.)
7. ALL BUILDING UTILITIES SHALL BE VERIFIED WITH THE ARCHITECTURAL PLANS PRIOR TO CONSTRUCTION.
8. ALL PROPOSED WATERMAIN SHALL BE PVC, CLASS 200, AWWA C900 WITH ELASTOMERIC JOINTS CONFORMING TO ASTM D-1784 (UNLESS OTHERWISE NOTED).
9. PROPOSED SANITARY SEWER PIPE SHALL BE PVC, ASTM D-3034, SDR 35 WITH RUBBER GASKETED JOINTS CONFORMING TO ASTM D-1784 (UNLESS OTHERWISE NOTED).
10. PROPOSED STORM SEWER SHALL BE RCP, AASHTO M 170, CLASS II, III, IV, OR V, (UNLESS OTHERWISE NOTED).
11. A MEANS TO LOCATE BURIED UNDERGROUND EXTERIOR NONMETALLIC UTILITIES MUST BE PROVIDED. PROVIDE TRACER WIRE OR OTHER METHODS IN ORDER TO BE LOCATED.
12. ALL MANHOLES, CATCH BASINS, INLETS, VALVES BOXES, ETC WITHIN THE PROJECT AREA SHALL BE RESET AND ADJUSTED TO MATCH FINISH GRADE.
13. ALL EXCAVATED OR STRIPPED MATERIALS NOT BEING REPLACED IN UTILITY TRENCHES OR BEING USED FOR FILL SHALL BE REMOVED FROM THE SITE, UNLESS OTHERWISE DIRECTED BY THE OWNER.
14. SEE ARCHITECTURAL PLANS FOR EXACT BUILDING FOUNDATION DETAILS AND ORIENTATION.
15. ALL ON-SITE CONCRETE CURB AND GUTTER TO BE 18" WIDE VERTICAL FACE, UNLESS OTHERWISE NOTED. REVERSE OR REGULAR STYLE CURB DENOTED ON PLANS.
16. ALL CURB ELEVATIONS ARE EDGE OF PAVEMENT UNLESS OTHERWISE NOTED. SEE CURB DETAIL FOR TOP OF CURB ELEVATIONS.
17. ALL CURB RADII ARE MEASURED TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
18. CONTRACTOR SHALL MATCH PROPOSED CONCRETE CURB AND GUTTER, SIDEWALK AND PAVEMENT TO EXISTING IN ELEVATION AND ALIGNMENT.
19. ALL CONCRETE FOR CURB AND GUTTER, ROADWAY AND SIDEWALKS MUST CONFORM TO THE STANDARD SPECIFICATIONS FOR READY MIXED CONCRETE. MINIMUM 28 DAY COMPRESSIVE STRENGTH TEST MUST EQUAL 4500 PSI.
20. PROTECT ALL PROPERTY CORNERS.
21. CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE TO EXISTING UTILITIES OR SITE IMPROVEMENTS. DOCUMENT ALL EXISTING DAMAGE PRIOR TO START OF CONSTRUCTION AND NOTIFY CONSTRUCTION MANAGER OF ANY FINDINGS.
22. PROJECT SAFETY ONSITE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
23. AS-BUILTS ARE TO BE PROVIDED TO THE CLIENT TRACKING ANY CHANGES THAT OCCURRED DURING CONSTRUCTION.

CIVIL SHEET INDEX:

IN ACCORDANCE WITH INDIANA STATUTE IC 8-1. DAMAGE TO TRANSMISSION FACILITIES, EXCAVATOR SHALL BE SOLELY RESPONSIBLE TO PROVIDE ADVANCE NOTICE TO THE DESIGNATED ONE CALL SYSTEM NOT LESS THAN TWO WORKING DAYS PRIOR TO COMMENCEMENT OF ANY EXCAVATION REQUIRED TO PERFORM WORK CONTAINED ON THESE DRAWINGS, AND FURTHER, EXCAVATOR SHALL COMPLY WITH ALL OTHER REQUIREMENTS OF THIS STATUTE, RELATIVE TO EXCAVATOR'S WORK.

HARWOOD
civil landscape architecture
structural mechanical electrical
plumbing / fire protection security
lighting design telecommunications
255 North 21st Street,
Milwaukee, Wisconsin 53233
414.475.5554 · harcl.com

Project Name:
ZINKPOWER INDIANA

Client:
ZINKPOWER

2109 E Park Ave
Terre Haute, IN 47805

Issuance:

Scale: SCALE: 1" = 200'

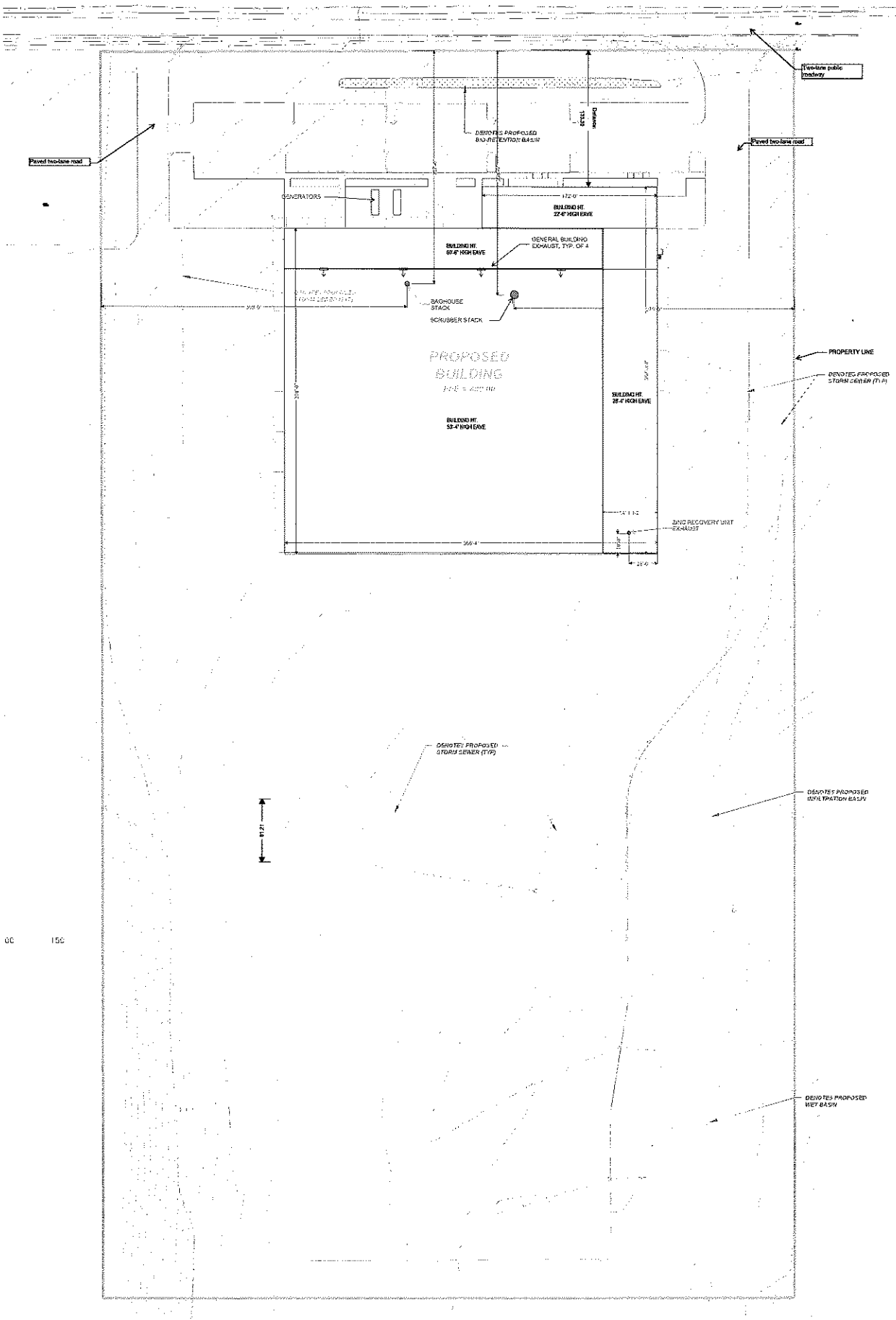
N

Date: 05/24/2024

Project Number:
24-1015.00

Sheet Name:
PROJECT LOCATION & GENERAL NOTES

Sheet Number:
C1.10



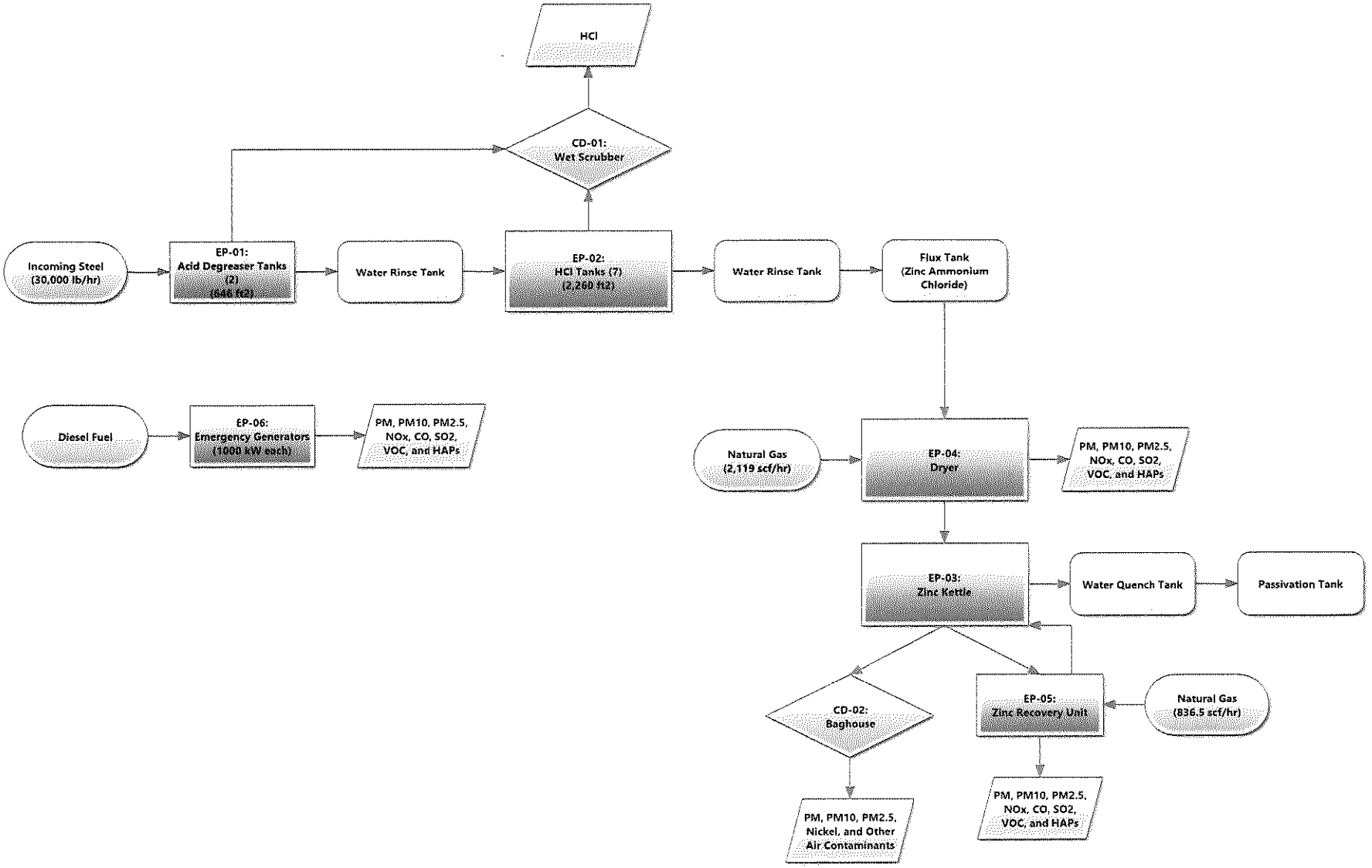
ZinkPower Indiana

SITE EXHIBIT - 5-30-24

North

Scale: 1:40

Process Flow Diagram
ZINKPOWER – Terre Haute, LLC



Attachment C

Summary of Emissions and Emission Calculations

Potential to Emit Summary
ZINKPOWER - Terre Haute, LLC
Terre Haute, IN

Pollutant	Uncontrolled Emissions		Controlled Emissions	
	lb/hr	tpy	lb/hr	tpy
PM	9.36	34.63	1.60	0.63
PM10	9.09	34.56	1.33	0.56
PM2.5	8.74	33.18	1.29	0.55
NOx	70.97	18.68	70.97	18.68
CO	19.02	5.55	19.02	5.55
SOx	0.035	0.014	0.035	0.014
Lead	1.5E-06	5.1E-06	1.5E-06	5.1E-06
VOC	2.00	0.55	2.00	0.55
HAPs	2.82	1.33	0.33	0.15

Created by: PH 6.25.24
Checked by: SLT 6.25.24

Acid Degreaser Tank Emissions
ZINKPOWER - Terre Haute, LLC
Terre Haute, IN

EP-01: Acid Degreaser Tanks (2)
TCEQ Hot Dip Galvanizing Calculations Guidance Package

Calculate Evaporation Rate:
$E = 25[0.46+0.117(V)]\log[760/(760-P_v)]$

where:
E = Evaporation rate from tank, lb/hr-ft^2
V = Air velocity across surface of tank, ft/s — 1 , from TCEQ Guidance
P_v = Vapor pressure of HCl, mmHg — 0.0023 , from Table 3-4 of TCEQ Guidance for 4% HCl at 40°C

E= 1.90E-05 lb/hr-ft^2

Calculate Uncontrolled Emissions:
$ER_1 = E \times A$

where:
ER_1 = Uncontrolled HCl Emission Rate, lb/hr
A = surface area of tanks, ft2 — 646 , total for both tanks

ER_1= 0.012 lb/hr
0.05 tpy

Calculate Controlled Emissions from Wet Scrubber (CD-01)
$ER_4 = ER1 \times (1 - AE/100)$

where:
ER_4 = Controlled HCl Emission Rate, lb/hr
AE = Abatement device control efficiency, % — 90 , from manufacturer data for wet scrubber

ER_4 = 1.22E-03 lb/hr
0.005 tpy

Created by: PH 6.13.24
Checked by: SLT 6.19.24

HCl Tank Emissions
ZINKPOWER - Terre Haute, LLC
Terre Haute, IN

EP-02: HCl Tanks (7)
TCEQ Hot Dip Galvanizing Calculations Guidance Package

Calculate Evaporation Rate:
$E = 25[0.46+0.117(V)]\log[760/(760-P_v)]$

where:
E = Evaporation rate from tank, lb/hr-ft^2
V = Air velocity across surface of tank, ft/s — 1 , from TCEQ Guidance
P_v = Vapor pressure of HCl, mmHg — 0.148 , from Table 3-4 of TCEQ Guidance for HCl hourly max concentration of 18% at 25°C.

P_v = Vapor pressure of HCl, mmHg — 0.0145 , from Table 3-4 of TCEQ Guidance for HCl annual avg. concentration of 12% at 25°C.

E= 0.00122 lb/hr-ft^2
E= 1.05 lb/yr-ft^2

Calculate Uncontrolled Emissions:
$ER_1 = E \times A$

where:
$ER_{1,H}$ = Hourly Uncontrolled HCl Emission Rate, lb/hr
$ER_{1,A}$ = Annual Uncontrolled HCl Emission Rate, tons/yr
A = surface area of tanks, ft^2 — 2,260 , total for all seven tanks

$ER_{1,H}$= 2.76 lb/hr
$ER_{1,A}$= 1.18 tpy

Calculate Controlled Emissions from Wet Scrubber (CD-01)
$ER_4 = ER1 \times (1 - FE/100) \times (1 - AE/100)$

where:
$ER_{4,H}$ = Hourly Controlled HCl Emission Rate, lb/hr
$ER_{4,H}$ = Annual Controlled HCl Emission Rate, tons/yr
AE = Abatement device control efficiency, % — 90 , from manufacturer data for wet scrubber

$ER_{4,H}$ = 0.276 lb/hr
$ER_{4,A}$ = 0.118 tpy

Zinc Kettle Emissions
ZINKPOWER - Terre Haute, LLC
Terre Haute, IN

EP-03: Zinc Kettle
TCEQ Hot Dip Galvanizing Calculations Guidance Package

Maximum Hourly Production:	30,000	lb/hr
Maximum Annual Production:	131,400	tpy
Baghouse Control Efficiency:	99.5%	from AP-42, Appendix B-2
Zinc Kettle Emission Factor:	0.52	lbs PM10/ton
Hourly Uncontrolled Emissions:	7.8	lb PM10/hr
Annual Uncontrolled Emissions:	34.16	tpy
Hourly Controlled Emissions:	0.04	lb PM10/hr
Annual Controlled Emissions:	0.17	tpy

Speciated Zinc Kettle Emissions*					
Pollutant	% of PM10	Uncontrolled Emissions		Controlled Emissions	
		(lb/hr)	(tpy)	(lb/hr)	(tpy)
PM10	100%	7.8	34.16	0.04	0.17
PM2.5	96%	7.49	32.80	0.04	0.16
NH4Cl	68%	5.30	23.23	0.03	0.12
ZnO	16%	1.25	5.47	0.01	0.03
ZnCl2	4%	0.31	1.37	0.002	0.01
Zn	5%	0.39	1.71	0.002	0.01
NH3	1%	0.08	0.34	0.000	0.002
Bi	0.10%	0.008	0.03	3.90E-05	1.71E-04
Ni	0.20%	0.016	0.07	7.80E-05	3.42E-04
Al	0.004%	3.12E-04	0.001	1.56E-06	6.83E-06

Note: Nickel is considered a HAP

**Percentages for Bismuth, Nickel, and Aluminum provided by ZINKPOWER. Remaining pollutant percentages were obtained from TCEQ Guidance.*

Dryer Emissions
ZINKPOWER - Terre Haute, LLC
Terre Haute, IN

EP-04: Dryer
AP-42 Chapter 1.4 - Natural Gas Combustion

Dryer Specifications

Natural Gas Flowrate (scf/hr)	2,119
Heat Value of Natural Gas (Btu/scf)	1020
Max Design Rate (MMBtu/hr)	2.16

Pollutant	Emission Factor ($lb/10^6$ scf) AP-42 Chapter 1.4	Potential Emissions	
		lb/hr	tpy
NOx*	100	0.21	0.93
CO*	84	0.18	0.78
Lead	0.0005	1E-06	5E-06
PM_{10} (Filterable)	1.9	0.00	0.02
PM_{10} (Condensable)	5.7	0.01	0.05
PM_{10} (Total)	7.6	0.02	0.07
$PM_{2.5}$ (Filterable)	1.9	0.00	0.02
$PM_{2.5}$ (Condensable)	5.7	0.01	0.05
$PM_{2.5}$ (Total)	7.6	0.02	0.07
SO_2	0.6	0.00	0.01
TOC	11	0.02	0.10
VOC	5.5	0.01	0.05
Hazardous Air Pollutants			
2-Methylnaphthalene	2.40E-05	5.09E-08	2.22737E-07
3-Methylcholanthrene	1.80E-06	3.81E-09	1.67053E-08
7,12-Dimethylbenz(a)anthracene	1.60E-05	3.39E-08	1.48491E-07
Acenaphthene	1.80E-06	3.81E-09	1.67053E-08
Acenaphthylene	1.80E-06	3.81E-09	1.67053E-08
Anthracene	2.40E-06	5.09E-09	2.22737E-08
Benz(a)anthracene	1.80E-06	3.81E-09	1.67053E-08
Benzene	2.10E-03	4.45E-06	1.94895E-05
Benzo(a)pyrene	1.20E-06	2.54E-09	1.11368E-08
Benzo(b)fluoranthene	1.80E-06	3.81E-09	1.67053E-08
Benzo(g,h,i)perylene	1.20E-06	2.54E-09	1.11368E-08
Benzo(k)fluoranthene	1.80E-06	3.81E-09	1.67053E-08
Chrysene	1.80E-06	3.81E-09	1.67053E-08
Dibenzo(a,h)anthracene	1.20E-06	2.54E-09	1.11368E-08
Dichlorobenzene	1.20E-03	2.54E-06	1.11368E-05
Fluoranthene	3.00E-06	6.36E-09	2.78421E-08
Fluorene	2.80E-06	5.93E-09	2.5986E-08
Formaldehyde	7.50E-02	1.59E-04	7.0E-04
Hexane	1.80E+00	3.81E-03	1.7E-02
Indeno(1,2,3-cd)pyrene	1.80E-06	3.81E-09	1.67053E-08
Naphthalene	6.10E-04	1.29E-06	5.66123E-06
Phenanathrene	1.70E-05	3.60E-08	1.57772E-07
Pyrene	5.00E-06	1.06E-08	4.64035E-08
Toluene	3.40E-03	7.20E-06	3.15544E-05
Arsenic	2.04E-04	4.32E-07	1.89326E-06
Beryllium	1.20E-05	2.54E-08	1.11368E-07
Cadmium	1.10E-03	2.33E-06	1.02088E-05
Chromium	1.40E-03	2.97E-06	1.2993E-05
Cobalt	8.40E-05	1.78E-07	7.79579E-07
Manganese	3.80E-04	8.05E-07	3.52667E-06
Mercury	2.60E-04	5.51E-07	2.41298E-06
Nickel	2.10E-03	4.45E-06	1.94895E-05
Selenium	2.40E-05	5.09E-08	2.22737E-07
Total HAPs		4.00E-03	1.75E-02

* = Emission Factor for Uncontrolled Small Boilers (<100 MMBtu/hr)

Created by: PH 6.13.24
Checked by: SLT 6.19.24

Zinc Recovery Unit Emissions
ZINKPOWER - Terre Haute, LLC
Terre Haute, IN

EP-05: Zinc Recovery Unit
AP-42 Chapter 1.4 - Natural Gas Combustion

Equipment Specifications

Energy Usage per Burn (kW)	250
BTU/hr Per kW	3413.04
Energy Usage per Burn (Btu/hr)	853,260
Heat Value of Natural Gas (Btu/scf)	1,020
Natural Gas Usage per Burn (scf/hr)	836.5
Average Time Per Burn (hr)	4.0
Burns per Day	2
Burn Days per Week	5
Weeks per Year	52
Annual Natural Gas Use (scf/yr)	1,739,981

Pollutant	Emission Factor ($lb/10^6$ scf) AP-42 Chapter 1.4	Potential Emissions	
		lb/hr	tpy
NOx*	100	0.08	0.087
CO*	84	0.070	0.073
Lead	0.0005	4E-07	4E-07
PM_{10} (Filterable)	1.9	0.002	0.002
PM_{10} (Condensable)	5.7	0.005	0.005
PM_{10} (Total)	7.6	0.006	0.007
$PM_{2.5}$ (Filterable)	1.9	0.002	0.002
$PM_{2.5}$ (Condensable)	5.7	0.005	0.005
$PM_{2.5}$ (Total)	7.6	0.006	0.007
SO2	0.6	0.001	0.001
TOC	11	0.009	0.010
VOC	5.5	0.005	0.005
Hazardous Air Pollutants			
2-Methylnaphthalene	2.40E-05	2.01E-08	2.09E-08
3-Methylcholanthrene	1.80E-06	1.51E-09	1.57E-09
7,12-Dimethylbenz(a)anthracene	1.60E-05	1.34E-08	1.39E-08
Acenaphthene	1.80E-06	1.51E-09	1.57E-09
Acenaphthylene	1.80E-06	1.51E-09	1.57E-09
Anthracene	2.40E-06	2.01E-09	2.09E-09
Benz(a)anthracene	1.80E-06	1.51E-09	1.57E-09
Benzene	2.10E-03	1.76E-06	1.83E-06
Benzo(a)pyrene	1.20E-06	1.00E-09	1.04E-09
Benzo(b)fluoranthene	1.80E-06	1.51E-09	1.57E-09
Benzo(g,h,i)perylene	1.20E-06	1.00E-09	1.04E-09
Benzo(k)fluoranthene	1.80E-06	1.51E-09	1.57E-09
Chrysene	1.80E-06	1.51E-09	1.57E-09
Dibenzo(a,h)anthracene	1.20E-06	1.00E-09	1.04E-09
Dichlorobenzene	1.20E-03	1.00E-06	1.04E-06
Fluoranthene	3.00E-06	2.51E-09	2.61E-09
Fluorene	2.80E-06	2.34E-09	2.44E-09
Formaldehyde	7.50E-02	6.27E-05	6.52E-05
Hexane	1.80E+00	1.51E-03	1.57E-03
Indeno(1,2,3-cd)pyrene	1.80E-06	1.51E-09	1.57E-09
Naphthalene	6.10E-04	5.10E-07	5.31E-07
Phenanathrene	1.70E-05	1.42E-08	1.48E-08
Pyrene	5.00E-06	4.18E-09	4.35E-09
Toluene	3.40E-03	2.84E-06	2.96E-06
Arsenic	2.04E-04	1.71E-07	1.77E-07
Beryllium	1.20E-05	1.00E-08	1.04E-08
Cadmium	1.10E-03	9.20E-07	9.57E-07
Chromium	1.40E-03	1.17E-06	1.22E-06
Cobalt	8.40E-05	7.03E-08	7.31E-08
Manganese	3.80E-04	3.18E-07	3.31E-07
Mercury	2.60E-04	2.17E-07	2.26E-07
Nickel	2.10E-03	1.76E-06	1.83E-06
Selenium	2.40E-05	2.01E-08	2.09E-08
Total HAPs		1.58E-03	1.64E-03

* Emission Factor for Uncontrolled Small Boilers (<100 MMBtu/hr)

Created by: PH 6.13.24
Checked by: SLT 6.19.24

Emergency Generator Emissions
ZINKPOWER - Terre Haute, LLC
Terre Haute, IN

EP-06: 1,000 kW Emergency Generators (2)
AP-42 Chapter 3.4 - Large Stationary Diesel Engines

Emergency Generator Specifications

Max Design Rate (kW)	1,000	per generator
Est. Engine Horsepower	1,578	
Max Design Rate (MMBtu/hr)	11.04	
Hours per year	500	

Pollutant	Emission Factor (lb/MMBtu) AP-42 Table 3.4-1 & 3.4.2	Per Generator		Two Generators	
		lb/hr	tpy	lb/hr	tpy
NOx	3.2	35.3	8.8	70.7	17.7
CO	0.85	9.4	2.3	18.8	4.7
SOx	0.00152	0.02	4.18E-03	0.03	8.4E-03
PM	0.0697	0.77	0.19	1.5	0.38
PM_{10}	0.0573	0.63	0.16	1.3	0.32
$PM_{2.5}$	0.0556	0.61	0.15	1.2	0.31
VOC	0.09	1.0	0.2	2.0	0.5
Hazardous Air Pollutants	**Emission Factor (lb/MMBtu) AP-42 Table 3.4-3**	**lb/hr**	**tpy**	**lb/hr**	**tpy**
Benzene	7.76E-04	8.57E-03	2.14E-03	1.71E-02	4.28E-03
Toluene	2.81E-04	3.10E-03	7.76E-04	6.21E-03	1.55E-03
Xylenes	1.93E-04	2.13E-03	5.33E-04	4.26E-03	1.07E-03
Formaldehyde	7.89E-05	8.71E-04	2.18E-04	1.74E-03	4.36E-04
Acetaldehyde	2.52E-05	2.78E-04	6.96E-05	5.57E-04	1.39E-04
Acrolein	7.88E-06	8.70E-05	2.18E-05	1.74E-04	4.35E-05
Naphthalene	1.30E-04	1.44E-03	3.59E-04	2.87E-03	7.18E-04
Total HAPs		1.65E-02	4.12E-03	3.30E-02	8.24E-03

Attachment D

TCEQ Calculations Guidance Package – Hot Dip Galvanizing

Air Permits Division

Calculations Guidance Package

Hot Dip Galvanizing

Compiled, published, and distributed by the
Air Permits Division
Texas Commission on Environmental Quality
Post Office Box 13087 - MC 163
Austin, Texas 78711-3087
(512) 239-1250

HOT DIP GALVANIZING

I. INSTRUCTIONS

This manual was developed for the purpose of providing a guide for calculating emissions at hot-dip galvanizing facilities. Tables are provided for identifying the input data required and the emission calculation results. In most cases, the upper portions of the tables are used to record input data/calculation parameters. Use the equations which follow the table to perform the emission calculations and record the results in the lower portion of the table.

> **NOTE**: Some of the calculations are made using data from TCEQ Tables 6, 11, and 13. You should complete these forms for maximum operating conditions and actual equipment specifications for your facility.

The information provided below will be used throughout the calculations and establishes limitations for the permit.

A. GALVANIZING FACILITY CAPACITY DATA

AP = Maximum annual production (tons/year) _____.
DP = Maximum daily production (tons/year) _____.
HD = Hours of operation per day_____.
DW = Number of days operated per week_____.
WY = Number of weeks operated per year_____.
HY = Maximum number of hours operated per year_____.
ZN = Tons of zinc used per year_____.

B. DEGREASING/CLEANING OPERATIONS

1. Number of degreasing tanks_____.
2. Degreasing Tank Parameters
Tank #1:_____feet (ft) wide X _____feet (ft) long
Tank #2:_____feet (ft) wide X _____feet (ft) long
Type of degreasing compound used:_____.
Concentration of degreasing compound:_____.
Temperature of degreasing tank solution:_____.
Type of heat source:_____.

> **NOTE**: The permit engineer will review the above data and determine if degreasing tank emissions will be considered.

C. ACID/PICKLE TANK EMISSIONS

INSTRUCTIONS: Acid/pickle tank emissions are calculated using the procedure below. If the applicant chooses to not calculate the pickle tank emissions, then all the operating parameters must be provided with the permit application so that the permit engineer can calculate the emissions.

1. Acid Tank Data

Number of pickle tanks at facility: _____
Tank #1:_____feet (ft) wide X _____feet (ft) long
Tank #2:_____feet (ft) wide X _____feet (ft) long
Type acid used:_____
Maximum acid concentration: _____% weight/weight (w/w)
Minimum acid concentration: _____% w/w. (concentration at recharge)
Temperature of acid tanks: _____degrees F.
Fume suppressant used? _____Yes; _____No

Submit a copy of the Material Safety Data Sheet (MSDS) for the acid, the fume suppressant, and any other chemicals or additives used.

Are capture hoods used over the acid tanks? ____Yes; _____No
Are any exhaust fans located near the tanks? _____ Yes; _____ No

If yes, show their location on the plot plan and indicate the fan size (diameter), flow rate (CFM), and the height of the fan discharge point above the ground where it exhausts to the atmosphere.

2. Acid Pickle Tank Emission Calculation Procedure.

HYDROCHLORIC (HCl) ACID TANK TABLE

TABLE 2

HCl Pickle Tanks	1	2	3	4	5
A = Surface area of tank (ft_2)					
T = Operating temperature (C°)					
Conc. = Percent concentration of HCL by weight (% w/w)					
V = Air velocity across surface of tank (fps)					
P_v= Vapor pressure of HCl (mmHg from Table 3-1 thru 3-4 in the Appendix)					
E = Evaporation rate from tank (lb/hr-ft_2)					
ER_1 = Emission rate Uncontrolled (lb/hr)					
FE = Suppressant efficiency 1 - (%)/100					
CE = Hood capture efficiency (%)					
AE= Abatement device efficiency 1 - (%)/100					
ER_4= Emission rate Controlled (lb/hr)					
FUG = Fugitive emissions (lb/hr)					
OY= Annual operating hours					
AFUG = Annual HCl fugitive emission rate (tons/year)					
AER = Annual HCl emission rate (tons/year)					

SUPPLEMENTARY INFORMATION

TABLE 2a

HCl Pickle Tanks	1	2	3	4	5
ER_1 (enter into TABLE 2) (lbs/hr)					
ER_2 (lbs/hr)					
ER_3 (lbs/hr)					
(ER_2 - ER_3) (lbs/hr)					
ER_4 (enter into TABLE 2) (lbs/hr)					

D. HYDROCHLORIC (HCl) ACID TANK EMISSIONS CALCULATIONS

The following calculations are made with data provided by the applicant. To assist in these calculations, TABLE 2, TABLE 2a, and TABLEs 3-1 thru 3-4 (regarding partial pressures of HCl over aqueous solutions of HCl located in the Appendix) are provided for your use. A completed TABLE 2 and TABLE 2a, in addition to the applicant's calculations, will serve to expedite the permit review process.

E. CALCULATION STEPS

1. Calculate the surface area (A) of each tank in square feet and enter the value of A into TABLE 2.

2. Enter the operating temperature (T) in degrees centigrade (C°), acid concentration (conc.) by weight percent, and air velocity (V) in feet per second (fps) across the surface of each tank into TABLE 2.

3. Determine the vapor pressure (P_v) of the HCl solution from the appropriate TABLEs 3-1 thru 3-4 (Appendix). Using the temperature (T, C°) and the percent acid concentration (Conc.) determine the partial pressure of the solution in mmHg and enter the value of P_v into TABLE 2.

4. Calculate the evaporation rate of HCl from the tank using the following equation and enter the value of E (lb/hr-ft$_2$) into TABLE 2 (Requires a calculator with logarithmic functions):

$E = 25[0.46 + 0.117(V)]\log[(760 - P_a)/(760 - P_v)]$ (lb/hr-ft$_2$)
$P_a = 0$ for this calculation.

5. Calculate and enter into TABLEs 2 and 2a the uncontrolled emission rate,

$ER_1 = E \times A$ (lb/hr)

6. Do you use a suppressant (foam, fume, or mechanical) in your HCl tank? If yes, complete the following then go to 7.

FE = [1 - (%)/100], where % is the efficiency of the suppressant.

The efficiency of the suppressant can usually be found in the manufacturer's literature or by contacting the manufacturer of your particular suppressant.

Enter the value of FE into TABLE 2, then calculate the following (enter the value of ER_2 into TABLE 2a):

$ER_2 = ER_1 \times FE$ (lbs/hr)

If you do not use a fume suppressant, complete the following (enter the value of ER_2 into TABLE 2a) then go to 7.

$ER_2 = ER_1$

7. Do you use a capture hood on your HCl tank? If yes, complete the following appropriate calculation, then go to 10. If no, skip to 8.

If you use a hood, and do not use a fume suppressant, calculate the following (enter the value of ER_3 into TABLE 2a), then go to 10:

$ER_3 = ER_2 \times CE/100$ (lbs/hr) (Hood, no fume suppressant)

> **Note:** CE is the percent capture efficiency of your hood design. Hoods designed in accordance with the Industrial Ventilation, A Manual of Recommended Practice, can be conservatively considered to have 98% capture efficiency.

If you use a hood, and also use a fume suppressant, calculate the following (enter the value of ER_3 into TABLE 2a), then go to 10:

$ER_3 = ER_2 \times CE/100$ (lbs/hr) (Hood and a fume suppressant)

8. If you do not use a capture hood, but use a fume suppressant use the following (enter the value of ER_3 into TABLE 2a), then go to 12.

$ER_3 = ER_2$ (lbs/hr) (No hood, use a fume suppressant)

If you do not use a capture hood, and also do not use a fume suppressant, then go to 9.

9. You will not be authorized to operate a HCl pickle tank without the use of, as a minimum, a fume suppressant or a capture hood.

10. Do you have an abatement device that controls the emissions from your hood exhaust? If yes, complete the following calculations, enter the values of AE and ER_4 into TABLE 2, then go to 13. If not, then go to 11.

The efficiency of the abatement device you propose to use, or you are using, can be determined from the manufacturers literature or by contacting the manufacturer directly.

AE = [1-(%)/100], where % is the abatement device efficiency.
$ER_4 = ER_3 \times AE$ (lbs/hr)

11. Without an abatement device your hourly emission rate is the same as calculated in 7. Complete the following, enter the value of ER_4 into TABLEs 2 and 2a, then go to 13:
$ER_4 = ER_3$ (lbs/hr)

12. Calculate the hourly fugitive emission rate from the tank and enter the value of FUG into TABLE 2, then go to 14:

Fugitive emissions are those emissions that escape into the building. These emissions are eventually emitted to the atmosphere through a building vent (exhaust fan, open door, window, etc.). You are given a 50% capture efficiency for the building.

FUG = (ER_3) (0.5) (lbs/hr) (Fume suppressant only)

13. Calculate the fugitive emission rate from the tank and enter the value of FUG into TABLE 2, then go to 15:

Fugitive emissions are those emissions that are not captured by the hood system and; therefore, escape into the building. These emissions are eventually emitted to the atmosphere through a building vent (exhaust fan, open door, window, etc.). You are given a 50% capture efficiency for the building.

FUG = (ER_2 - ER_3)(0.5) (lbs/hr)

14. Calculate your annual fugitive emission rate (AFUG) and enter the value of AFUG into TABLE 2:

AFUG = (FUG x OY)/2000 (tons/year)

15. Calculate your annual emission rate (AER) and the annual fugitive rate (AFUG) and enter the values of AER and AFUG into TABLE 2.

AER = (ER_4 x OY)/2000 (tons/year)
AFUG = (FUG x OY)/2000 (tons/year)

SULFURIC ACID EMISSION CALCULATIONS

If sulfuric acid is used as a pickling agent, use the above Steps 5 through 15 and TABLEs 2 and 2a. Begin with Step 5 and use 0.00015 lbs/hr-ft_2 for "E," the emission factor for sulfuric acid.

F. GALVANIZING/ZINC KETTLE UNCONTROLLED EMISSIONS

Galvanizing Facility Parameters			
Parameter	Zinc Kettle		
	1	2	3
HP = Maximum Hourly Production in Pounds/Hour of Galvanized Product (lbs/hr)			
AP = Maximum Annual Production in Tons/Year of Galvanized Product (tpy)			
AH = Maximum Annual Operating Hours Per Year (hrs/yr)			
EF = Zinc Kettle Emission Factor (lbs/hr)	0.52	0.52	0.52
EH = Hourly Uncontrolled PM_{10} Emissions (lbs/hr)*			
EA = Actual Uncontrolled PM_{10} Emissions (tpy)**			

* EH= HP/2000 X EF
** EA= AP/2000 X EF

Note: The above calculations must be completed for each galvanizing kettle that exhausts to its own control device. For all kettles exhausting to a common control device, then this calculation may be made only once using an AP and HP for all kettles exhausting to the same control device.

G. GALVANIZING/ZINC KETTLE CONTROLLED EMISSIONS

Galvanizing Facility Parameters			
Parameter	Zinc Kettle		
	1	2	3
EH = (See Previous Table) (lbs/hr)			
EA = (See Previous Table) (lbs/hr)			
CE = Kettle Hood Capture Efficiency (%)			
AE = Control Device Efficiency (%)			
EHC = Hourly Controlled PM_{10} Emissions (lbs/hr)*			
EAC = Annual Controlled PM_{10} Emissions (tpy)**			
FH = Hourly Fugitive PM_{10} Emissions (lbs/hr)***			
FA = Actual Fugitive PM_{10} Emissions (tpy)****			

* EHC= EH X CE/100 X [1- (AE/100)] =
** EAC= EA X CE/100 X [1-(AE/100)] =
*** FH= EH X [1-(CE/100)] =
**** FA= EA X [1-(CE/100)] =

Note: This quantity must be completed for each galvanizing kettle that exhausts to its own control device. For all kettles exhausting to a common control device, then this calculation may be made only once using an AP and HP for all kettles exhausting to the same control device.

1. Speciated Zinc Kettle Emissions

(a) Hourly Controlled Emissions (lbs/hr)

Contaminant	%	
PM_{10} =	1.00 x EAC =	_____
NH_4Cl =	0.68 x EAC =	_____
ZnO =	0.16 x EAC =	_____
$ZnCl_2$ =	0.04 x EAC =	_____
Zn =	0.05 x EAC =	_____
NH_3 =	0.01 x EAC =	_____

(b) Hourly Fugitive Emissions (lbs/hr)

Contaminant	%	
PM_{10} =	1.00 x EHC =	_____
NH_4Cl =	0.68 x EHC =	_____
ZnO =	0.16 x EHC =	_____
$ZnCl_2$ =	0.04 x EHC =	_____
Zn =	0.05 x EHC =	_____
NH_3 =	0.01 x EHC =	_____

(c) Annual Controlled Emissions (tpy)

Contaminant	%	
PM_{10} =	1.00 x FH =	_____
NH_4Cl =	0.68 x FH =	_____
ZnO =	0.16 x FH =	_____
$ZnCl_2$ =	0.04 x FH =	_____
Zn =	0.05 x FH =	_____
NH_3 =	0.01 x FH =	_____

(d) Annual Fugitive Emissions (lbs/hr)

Contaminant	%	
PM_{10} =	1.00 X FA =	_____
NH_4Cl =	0.68 X FA =	_____
ZnO =	0.16 X FA =	_____
$ZnCl_2$ =	0.04 X FA =	_____
Zn =	0.05 X FA =	_____
NH_3 =	0.01 X FA =	_____

E. HEAT SOURCE EMISSIONS

The following calculations must be completed for each heat source, i.e. zinc kettle burner, boiler, tank heater, etc.

1. Heat Source Parameters (From the completed TCEQ Table 6 to be filled out by the applicant)

Parameter	Design Max	Annual Average
Total Flow Rate (SFM)		
FRH = Total Flow Rate (SCF/hr)		
Avg. Heat Content (BTU/SCF)		
Total Heat Rate (BTU/hr)		

2. Emission Factors (Refer to AP-42 natural gas Chapter 1.4)

Contaminant	Emission Factor
PM	_____ (EPM)
SO_2	_____ (ESO_2)
CO	_____ (ECO)
NO_x	_____ (ENO_x)
VOC	_____ (EVOC)

3. Emission Calculation (lbs/hr)

Use FRH (from above) at design maximums (FRH_{max}) in the following calculations:

$PM = EPM \times FRH_{max}$
$SO_2 = ESO_2 \times FRH_{max}$
$CO = ECO \times FRH_{max}$
$NO_x = ENO_x \times FRH_{max}$
$VOC = EVOC \times FRH_{max}$

4. Emission Calculation (tons/yr)

Use FRH_{avg} in the following calculations.

HY (Hours of operation per year) =

$PM = EPM \times FRH_{avg} \times HY / 2000$
$SO_2 = ESO_2 \times FRH_{avg} \times HY / 2000$
$CO = ECO \times FRH_{avg} \times HY / 2000$
$NO_x = ENO_x \times FRH_{avg} \times HY / 2000$
$VOC = EVOC \times FRH_{avg} \times HY / 2000$

HOT DIP GALVANIZING FACILITY EXAMPLE CALCULATIONS

I. INSTRUCTIONS

This manual was developed for the purpose of providing a guide for calculating emissions at hot-dip galvanizing facilities. Tables are provided for identifying the input data required and the emission calculation results. In most cases, the upper portions of the tables are used to record input data/calculation parameters. Use the equations which follow the table to perform the emission calculations and record the results in the lower portion of the table.

> **NOTE**: Some of the calculations are made using data from TCEQ Tables 6, 11, and 13. You should complete these forms for maximum operating conditions and actual equipment specifications for your facility.

The information provided below will be used throughout the calculations and establishes limitations for the permit.

A. GALVANIZING FACILITY CAPACITY DATA

AP = Maximum annual production (tons/year) 20,000.
DP = Maximum daily production (tons/year) 100.
HD = Hours of operation per day 24.
DW = Number of days operated per week 5.
WY = Number of weeks operated per year 52.
HY = Maximum number of hours operated per year 6,240.
ZN = Tons of zinc used per year 1,200.

B. DEGREASING/CLEANING OPERATIONS

1. Number of degreasing tanks 2.
2. Degreasing Tank Parameters
Tank #1: 5 feet (ft) wide X 45 feet (ft) long
Tank #2: 5 feet (ft) wide X 45 feet (ft) long
Type of degreasing compound used: Sodium Hydroxide.
Concentration of degreasing compound: 10%.
Temperature of degreasing tank solution: 200 degrees F.
Type of heat source: NG Fired Tube Heater.

> **NOTE**: The permit engineer will review the above data and determine if degreasing tank emissions will be considered.

C. ACID/PICKLE TANK EMISSIONS

INSTRUCTIONS: Acid/pickle tank emissions are calculated using the procedure below. If the applicant chooses to not calculate the pickle tank emissions, then all the operating parameters must be provided with the permit application so that the permit engineer can calculate the emissions.

1. Acid Tank Data

Number of pickle tanks at facility: 2
Tank #1: 5 feet (ft) wide X 45 feet (ft) long
Tank #2: 5 feet (ft) wide X 45 feet (ft) long
Type acid used: Hydrochloric (HCl)
Maximum acid concentration: 16 % weight/weight (w/w)
Minimum acid concentration: 8 % w/w. (concentration at recharge)
Temperature of acid tanks: ambient degrees F.
Fume suppressant used? X Yes; _____ No

Submit a copy of the Material Safety Data Sheet (MSDS) for the acid, the fume suppressant, and any other chemicals or additives used.

Are capture hoods used over the acid tanks? _____ Yes; X No
Are any exhaust fans located near the tanks? X Yes; _____ No

If yes, show their location on the plot plan and indicate the fan size (diameter), flow rate (CFM), and the height of the fan discharge point above the ground where it exhausts to the atmosphere.

2. Acid Pickle Tank Emission Calculation Procedure.

HYDROCHLORIC (HCl) ACID TANK TABLE

TABLE 2

HCl Pickle Tanks	1	2	3	4	5
A = Surface area of tank (ft_2)	225	225			
T = Operating temperature (C°)	30	30			
Conc. = Percent concentration of HCL by weight (% w/w)	16	16			
V = Air velocity across surface of tank (fps)	1.0	1.0			
P_v= Vapor pressure of HCl (mmHg from Table 3-1 thru 3-4 in the Appendix)	0.106	0.106			
E = Evaporation rate from tank (lb/hr-ft_2)	0.0009	0.0009			
ER_3 = Emission rate Uncontrolled (lb/hr)	0.196	0.196			
FE = Suppressant efficiency 1 - (%)/100	0.05	0.05			
CE = Hood capture efficiency (%)	N/A	N/A			
AE= Abatement device efficiency 1 - (%)/100	N/A	N/A			
ER_4= Emission rate Controlled (lb/hr)	0.0098	0.0098			
FUG = Fugitive emissions (lb/hr)	0.0049	0.0049			
OY= Annual operating hours	8760	8760	Tanks	Emit	All the Time
AFUG = Annual HCl fugitive emission rate (tons/year)	0.021	0.021			
AER = Annual HCl emission rate (tons/year)	N/A	N/A			

SUPPLEMENTARY INFORMATION

TABLE 2a

HCl Pickle Tanks	1	2	3	4	5
ER_1 (enter into TABLE 2) (lbs/hr)	0.196	0.196			
ER_2 (lbs/hr)	0.0098	0.0098			
ER_3 (lbs/hr)	0.0098	0.0098			
(ER_2 - ER_3) (lbs/hr)	N/A	N/A			
ER_4 (enter into TABLE 2) (lbs/hr)	0.0098	0.0098			

D. HYDROCHLORIC (HCl) ACID TANK EMISSIONS CALCULATIONS

The following calculations are made with data provided by the applicant. To assist in these calculations, TABLE 2, TABLE 2a, and TABLEs 3-1 thru 3-4 (regarding partial pressures of HCl over aqueous solutions of HCl located in the Appendix) are provided for your use. A completed TABLE 2 and TABLE 2a, in addition to the applicant's calculations, will serve to expedite the permit review process.

E. CALCULATION STEPS

1. Calculate the surface area (A) of each tank in square feet and enter the value of A into TABLE 2.

2. Enter the operating temperature (T) in degrees centigrade (C°), acid concentration (conc.) by weight percent, and air velocity (V) in feet per second (fps) across the surface of each tank into TABLE 2.

3. Determine the vapor pressure (P_v) of the HCl solution from the appropriate TABLEs 3-1 thru 3-4 (Appendix). Using the temperature (T, C°) and the percent acid concentration (Conc.) determine the partial pressure of the solution in mmHg and enter the value of P_v into TABLE 2.

4. Calculate the evaporation rate of HCl from the tank using the following equation and enter the value of E (lb/hr-ft^2) into TABLE 2 (Requires a calculator with logarithmic functions):

$E = 25[0.46 + 0.117(V)]\log[(760 - P_a)/(760 - P_v)]$ (lb/hr-ft^2)
$P_a = 0$ for this calculation.

5. Calculate and enter into TABLEs 2 and 2a the uncontrolled emission rate,

ER_1: $ER_1 = E \times A$ (lb/hr)

6. Do you use a suppressant (foam, fume, or mechanical) in your HCl tank? If yes, complete the following then go to 7.

FE = [1 - (%)/100], where % is the efficiency of the suppressant.

The efficiency of the suppressant can usually be found in the manufacturer's literature or by contacting the manufacturer of your particular suppressant.

Enter the value of FE into TABLE 2, then calculate the following (enter the value of ER_2 into TABLE 2a):

$ER_2 = ER_1 \times FE$ (lbs/hr)

If you do not use a fume suppressant, complete the following (enter the value of ER_2 into TABLE 2a) then go to 7.

$ER_2 = ER_1$

7. Do you use a capture hood on your HCl tank? If yes, complete the following appropriate calculation, then go to 10. If no, skip to 8.

If you use a hood, and do not use a fume suppressant, calculate the following (enter the value of ER_3 into TABLE 2a), then go to 10:

$ER_3 = ER_2 \times CE/100$ (lbs/hr) (Hood, no fume suppressant)

> **Note:** CE is the percent capture efficiency of your hood design. Hoods designed in accordance with the Industrial Ventilation, A Manual of Recommended Practice, can be conservatively considered to have 98% capture efficiency.

If you use a hood, and also use a fume suppressant, calculate the following (enter the value of ER_3 into TABLE 2a), then go to 10:

$ER_3 = ER_2 \times CE/100$ (lbs/hr) (Hood and a fume suppressant)

8. If you do not use a capture hood, but use a fume suppressant use the following (enter the value of ER_3 into TABLE 2a), then go to 12.

$ER_3 = ER_2$ (lbs/hr) (No hood, use a fume suppressant)

If you do not use a capture hood, and also do not use a fume suppressant, then go to 9.

9. You will not be authorized to operate a HCl pickle tank without the use of, as a minimum, a fume suppressant or a capture hood.

10. Do you have an abatement device that controls the emissions from your hood exhaust? If yes, complete the following calculations, enter the values of AE and ER_4 into TABLE 2, then go to 13. If not, then go to 11.

The efficiency of the abatement device you propose to use, or you are using, can be determined from the manufacturers literature or by contacting the manufacturer directly.

AE = [1-(%)/100], where % is the abatement device efficiency.
$ER_4 = ER_3 \times AE$ (lbs/hr)

11. Without an abatement device your hourly emission rate is the same as calculated in 7. Complete the following, enter the value of ER_4 into TABLEs 2 and 2a, then go to 13:

$ER_4 = ER_3$ (lbs/hr)

12. Calculate the hourly fugitive emission rate from the tank and enter the value of FUG into TABLE 2, then go to 14:

Fugitive emissions are those emissions that escape into the building. These emissions are eventually emitted to the atmosphere through a building vent (exhaust fan, open door, window, etc.). You are given a 50% capture efficiency for the building.

FUG = (ER_3) (0.5) (lbs/hr) (Fume suppressant only)

13. Calculate the fugitive emission rate from the tank and enter the value of FUG into TABLE 2, then go to 15:

Fugitive emissions are those emissions that are not captured by the hood system and; therefore, escape into the building. These emissions are eventually emitted to the atmosphere through a building vent (exhaust fan, open door, window, etc.). You are given a 50% capture efficiency for the building.

FUG = (ER_2 - ER_3) (0.5) (lbs/hr)

14. Calculate your annual fugitive emission rate (AFUG) and enter the value of AFUG into TABLE 2:

AFUG = (FUG x OY)/2000 (tons/year)

15. Calculate your annual emission rate (AER) and the annual fugitive rate (AFUG) and enter the values of AER and AFUG into TABLE 2.

AER = (ER_4 x OY)/2000 (tons/year)
AFUG = (FUG x OY)/2000 (tons/year)

SULFURIC ACID EMISSION CALCULATIONS

If sulfuric acid is used as a pickling agent, use the above Steps 5 through 15 and TABLEs 2 and 2a. Begin with Step 5 and use 0.00015 lbs/hr-ft_2 for "E", the emission factor for sulfuric acid.

F. GALVANIZING/ZINC KETTLE UNCONTROLLED EMISSIONS

Galvanizing Facility Parameters			
Parameter	Zinc Kettle		
	1	2	3
HP = Maximum Hourly Production in Pounds/Hour of Galvanized Product (lbs/hr)	10,000		
AP = Maximum Annual Production in Tons/Year of Galvanized Product (tpy)	20,000		
AH = Maximum Annual Operating Hours Per Year (hrs/yr)	6,240		
EF = Zinc Kettle Emission Factor (lbs/hr)	0.52	0.52	0.52
EH = Hourly Uncontrolled PM_{10} Emissions (lbs/hr)*	2.6		
EA = Annual Uncontrolled PM_{10} Emissions (tpy)**	5.2		

* EH= 10,000/2000 X 0.52 = 2.6 lbs/hr
** EA= 20,000/2000 X 0.52 = 5.2 tons/yr

Note: The above calculations must be completed for each galvanizing kettle that exhausts to its own control device. For all kettles exhausting to a common control device, then this calculation may be made only once using an AP and HP for all kettles exhausting to the same control device.

G. GALVANIZING/ZINC KETTLE CONTROLLED EMISSIONS

Galvanizing Facility Parameters			
Parameter	Zinc Kettle		
	1	2	3
EH = (See Previous Table) (lbs/hr)	2.6		
EA = (See Previous Table) (lbs/hr)	5.2		
CE = Kettle Hood Capture Efficiency (%)	98%		
AE = Control Device Efficiency (%)	99%		
EHC = Hourly Controlled PM_{10} Emissions (lbs/hr)*	0.03		
EAC = Annual Controlled PM_{10} Emissions (tpy)**	0.05		
FH = Hourly Fugitive PM_{10} Emissions (lbs/hr)***	0.05		
FA = Actual Fugitive PM_{10} Emissions (tpy)****	0.104		

* EHC= 2.6 X 0.98 X 0.01 = 0.02 lbs/hr
** EAC= 5.2 X 0.98 x 0.01 = 0.05 tons/yr
*** FH= 2.6 X 0.02 = 0.05 lbs/hr
**** FA= 5.2 X 0.02 = 0.104 tons/yr

Note: This quantity must be completed for each galvanizing kettle that exhausts to its own control device. For all kettles exhausting to a common control device, then this calculation may be made only once using an AP and HP for all kettles exhausting to the same control device.

1. Speciated Zinc Kettle Emissions

(a) Hourly Controlled Emissions (lbs/hr)

Contaminant	%	
PM_{10} =	1.00 x 0.03 =	0.03
NH_4Cl =	0.68 x 0.03 =	0.02
ZnO =	0.16 x 0.03 =	0.005
$ZnCl_2$ =	0.04 x 0.03 =	0.0012
Zn =	0.05 x 0.03 =	0.0045
NH_3 =	0.01 x 0.03 =	0.0003

(b) Hourly Fugitive Emissions (lbs/hr)

Contaminant	%	
PM_{10} =	1.00 x 0.05 =	0.05
NH_4Cl =	0.68 x 0.05 =	0.034
ZnO =	0.16 x 0.05 =	0.008
$ZnCl_2$ =	0.04 x 0.05 =	0.002
Zn =	0.05 x 0.05 =	0.003
NH_3 =	0.01 x 0.05 =	0.0005

(c) Annual Controlled Emissions (tpy)

Contaminant	%	
PM_{10} =	1.00 x 0.05 =	0.05
NH_4Cl =	0.68 x 0.05 =	0.034
ZnO =	0.16 x 0.05 =	0.008
$ZnCl_2$ =	0.04 x 0.05 =	0.002
Zn =	0.05 x 0.05 =	0.003
NH_3 =	0.01 x 0.05 =	0.0005

(d) Annual Fugitive Emissions (lbs/hr)

Contaminant	%	
PM_{10} =	1.00 X 0.104 =	0.104
NH_4Cl =	0.68 X 0.104 =	0.071
ZnO =	0.16 X 0.104 =	0.017
$ZnCl_2$ =	0.04 X 0.104 =	0.0042
Zn =	0.05 X 0.104 =	0.005
NH_3 =	0.01 X 0.104 =	0.001

E. HEAT SOURCE EMISSIONS
The following calculations must be completed for each heat source, i.e. zinc kettle burner, boiler, tank heater, etc.

1. Tube Heater Parameters (From the completed TCEQ Table 6 to be filled out by the applicant)

Parameter	Design Max	Annual Average
Total Flow Rate (SFM)	10	5
FRH = Total Flow Rate (SCF/hr)	600	300
Avg. Heat Content (BTU/SCF)	1,050	
Total Heat Rate (BTU/hr)	630,000	

2. Emission Factors (Refer to AP-42 natural gas Chapter 1.4)

Contaminant	Emission Factor
PM	12 (EPM)
SO_2	0.6 (ESO_2)
CO	21 (ECO)
NO_x	100 (ENO_x)
VOC	5.8 (EVOC)

3. Emission Calculation (lbs/hr)

Use FRH_{max} in the following calculations:

PM = 12 x 0.0006 = 0.007
SO_2 = 0.6 x 0.0006 =0.0004
CO = 21 x 0.0006 = 0.013
NO_x = 100 x 0.0006 = 0.06
VOC = 5.8 X 0.0006 = 0.0035

4. Emission Calculation (tons/yr)

Use FRH_{avg} in the following calculations.

HY (Hours of operation per year) = 6,240

PM = 12 x 0.0003 x 6,240 / 2,000 = 0.011
SO_2 = 0.6 x 0.0003 x 6,240 / 2,000 = 0.00056
CO = 21 x 0.0003 x 6,240 / 2,000 = 0.0197
NO_x = 100 x 0.0003 x 6,240 / 2,000 = 0.094
VOC = 5.8 X 0.0003 x 6,240 / 2,000 = 0.0054

E. HEAT SOURCE EMISSIONS
The following calculations must be completed for each heat source, i.e. zinc kettle burner, boiler, tank heater, etc.

1. Kettle Heater Parameters (From the completed TCEQ Table 6 to be filled out by the applicant)

Parameter	Design Max	Annual Average
Total Flow Rate (SFM)	120	60
FRH = Total Flow Rate (SCF/Hr)	7,200	3,600
Avg. Heat Content (BTU/SCF)	1,050	
Total Heat Rate (BTU/Hr	7,560,000	

2. Emission Factors (Refer to AP-42 natural gas Chapter 1.4)

Contaminant	Emission Factor
PM	12 (EPM)
SO_2	0.6 (ESO_2)
CO	21 (ECO)
NO_x	100 (ENO_x)
VOC	5.8 (EVOC)

3. Emission Calculation (lbs/hr)

Use FRH_{max} in the following calculations:

PM = 12 x 0.0072 = 0.086
SO_2 = 0.6 x 0.0072 =0.004
CO = 21 x 0.0072 = 0.15
NO_x = 100 x 0.0072 = 0.72
VOC = 5.8 X 0.0072 = 0.042

4. Emission Calculation (tons/yr)

Use FRH_{avg} in the following calculations.

HY (Hours of operation per year) = 6,240

PM = 12 x 0.0036 x 6,240 / 2,000 = 0.135
SO_2 = 0.6 x 0.0036 x 6,240 / 2,000 = 0.0067
CO = 21 x 0.0036 x 6,240 / 2,000 = 0.24
NO_x = 100 x 0.0036 x 6,240 / 2,000 = 1.12
VOC = 5.8 X 0.0036 x 6,240 / 2,000 = 0.07

APPENDIX:

PARTIAL PRESSURES (Pv) OF HCl OVER AQUEOUS SOLUTIONS OF HCl

PARTIAL PRESSURES (P_v) OF HCl OVER AQUEOUS SOLUTIONS OF HCl

Table 3-4

Note: %HCL, weight percent; Temperature, centigrade (C°); partial pressures, mmHg.

% HCl	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	60°	70°	80°	90°	100°	110°
2	...	...	0.0000117	0.000023	0.000044	0.000084	0.000151	0.000275	0.00047	0.00083	0.00104	0.0038	0.01	0.0245	0.058	0.132	0.28
4	0.000018	0.000036	0.000069	0.000131	0.00024	0.00044	0.00077	0.00134	0.0023	0.00385	0.0064	0.0165	0.0405	0.095	0.21	0.46	0.93
6	0.000066	0.000125	0.000234	0.000425	0.00076	0.00131	0.00225	0.0038	0.0062	0.0102	0.0163	0.04	0.094	0.206	0.44	0.92	1.78
8	0.000118	0.000323	0.000583	0.00104	0.00178	0.0031	0.00515	0.0085	0.0136	0.022	0.0344	0.081	0.183	0.39	0.82	1.64	3.1
10	0.00042	0.00075	0.00134	0.0232	0.00395	0.0067	0.0111	0.0178	0.0282	0.045	0.069	0.157	0.35	0.73	1.48	2.9	5.4
12	0.00099	0.00175	0.00305	0.0052	0.008	0.0145	0.0234	0.037	0.058	0.091	0.136	0.305	0.66	1.34	2.65	5.1	9.3
14	0.0024	0.00415	0.0071	0.0118	0.0196	0.0316	0.05	0.078	0.121	0.185	0.275	0.6	1.25	2.5	4.8	9	16
16	0.0056	0.0095	0.0016	0.0265	0.0428	0.0685	0.106	0.163	0.247	0.375	0.55	1.17	2.4	4.66	8.8	16.1	28
18	0.0135	0.0225	0.037	0.06	0.095	0.148	0.228	0.345	0.515	0.77	1.11	2.3	4.55	8.6	15.7	28	48
20	0.0316	0.052	0.084	0.132	0.205	0.32	0.48	0.72	1.06	1.55	2.21	4.4	8.5	15.6	28.1	49	83
22	0.0734	0.119	0.187	0.294	0.45	0.68	1.02	1.5	2.18	3.14	4.42	8.6	16.3	29.3	52	90	146
24	0.175	0.277	0.43	0.66	1	1.49	2.17	3.14	4.5	6.4	8.9	16.9	31	54.5	94	157	253
26	0.41	0.64	0.98	1.47	2.17	3.2	4.56	6.5	9.2	12.7	17.5	32.5	58.5	100	169	276	436
28	1	1.52	2.27	3.36	4.9	7.05	9.9	13.8	19.1	26.4	35.7	64	112	188	309	493	760
30	2.4	3.57	5.23	7.6	10.6	15.1	21	28.6	39.4	53	71	124	208	340	542	845	...
32	5.7	8.3	11.8	16.8	23.5	32.5	44.5	60	81	107	141	238	390	623	970	...	...
34	13.1	18.8	26.4	36.8	50.5	68.5	92	122	161	211	273	450	720	...	...	...	...
36	29	41	56.4	78	105.5	142	188	246	322	416	535	860	...	...	...	...	...
38	63	87	117	158	210	277	360	464	598	758	955	...	...	...	...	...	...
40	130	176	233	307	399	515	627	830	...	...	...	...	...	...	...	...	...
42	253	332	430	560	709	900	...	...	...	...	...	...	...	...	...	...	...
44	510	655	840	...	...	...	...	...	...	...	...	...	...	...	...	...	...
46	940	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

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